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## **KHUYẾN NGHỊ VỀ CHÍNH SÁCH CHO VIỆC TUÂN THỦ QUY ĐỊNH SPS TRONG XUẤT KHẨU TÔM CỦA TRUNG QUỐC VÀ BÀI HỌC ĐỐI VỚI VIỆT NAM**

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### **Tóm tắt**

Các cải cách về biện pháp kiểm dịch động thực vật (SPS) của Trung Quốc trong xuất khẩu tôm mang lại nhiều bài học có thể chuyển giao cho Việt Nam. Nghiên cứu này trước hết phân tích cách Trung Quốc điều chỉnh tuân thủ các chuẩn mực an toàn thực phẩm quốc tế, rồi khảo sát những khoảng trống SPS chủ yếu của Việt Nam—thể hiện qua các cảnh báo gần đây của EU—đồng thời đặt cả hai nước trong bối cảnh thương mại thủy sản toàn cầu. Trên cơ sở đó, bài nghiên cứu cho thấy nghĩa vụ của Hiệp định SPS thuộc WTO và nhu cầu từ các thị trường song phương cùng định hình hệ thống kiểm soát trong nước; sau đó xây dựng khung so sánh nhằm xác định biện pháp nào Việt Nam nên tiếp nhận, điều chỉnh hoặc tránh. Dựa vào đó, các khuyến nghị then chốt gồm: thành lập cơ quan an toàn thủy sản thống nhất, đồng tài trợ các phòng thử nghiệm đạt chuẩn ISO 17025, số hóa truy xuất nguồn gốc cho hộ nuôi nhỏ, mở rộng mô hình đào tạo nông hộ theo cụm và tăng cường tham gia các diễn đàn SPS quốc tế. Tổng hợp lại, phát hiện nghiên cứu đóng góp cho cuộc

tranh luận rộng hơn về cách các quốc gia thu nhập trung bình đáp ứng ngưỡng SPS ngày càng cao. Cuối cùng, dựa trên thành quả được ghi nhận của Trung Quốc và các chuẩn mực từ những nước đồng cấp, bài viết lập luận rằng một mô hình lai được hiệu chỉnh hợp lý sẽ giảm tỷ lệ lô hàng bị từ chối, duy trì quyền tiếp cận thị trường giá trị cao và xây dựng ngành tôm Việt Nam bền vững, linh hoạt hơn.

**Từ khóa:** Vệ sinh an toàn thực phẩm (SPS), xuất khẩu tôm, Việt Nam

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## **POLICY RECOMMENDATIONS FOR CHINA’S SPS COMPLIANCE IN SHRIMP EXPORTS AND IMPLICATIONS FOR VIETNAM**

### **Abstract**

China’s sanitary and phytosanitary (SPS) reforms in shrimp exports, therefore, offer transferable lessons for Vietnam. This study first analyses China’s alignment with international food-safety standards and then diagnoses Vietnam’s main SPS gaps—evident in recent EU border alerts—while situating both countries within global seafood trade. Building on this foundation, it shows how WTO-SPS obligations and bilateral market demands together mould national controls, after which it constructs a comparative framework to identify which measures Vietnam can adopt, adapt, or avoid. On that basis, recommended actions include establishing a single seafood-safety authority, co-funding ISO 17025 laboratories, digitizing traceability for smallholders, expanding cluster-based farmer training, and stepping up participation in international SPS forums. Taken collectively, the findings contribute to the wider debate on how middle-income exporters can satisfy rising SPS thresholds. Ultimately, grounded in China’s documented gains and peer-country benchmarks, the paper argues that a calibrated hybrid model would cut rejection rates, secure access to high-value markets and foster a more resilient, sustainable shrimp sector in Vietnam.

**Keywords:** Sanitary and Phytosanitary (SPS), shrimp export, Vietnam

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### **1. Introduction**

The international shrimp trade is a cornerstone of global agri-food exports, and both China and Vietnam rank among its leading suppliers. As major markets ratchet up food-safety rules, the World Trade Organization’s Sanitary and Phytosanitary (SPS) Agreement—designed to safeguard health without disguising trade barriers—has become the benchmark against which export competitiveness is judged. China’s trajectory shows what is possible: after early failures, Beijing overhauled its regulatory architecture, rolled out nationwide traceability and funded ISO 17025 laboratory upgrades. Those reforms cut EU border rejections, restored market confidence and turned China into a reference point for SPS compliance.

Vietnam's performance is more uneven. Chemical-residue findings, weak farm-to-plant traceability and fragmented enforcement have triggered trade disruptions; the European Union alone issued 130 warnings on Vietnamese agri-exports in 2024, many involving shrimp (VietnamNet, 2024). Domestic data paint an equally troubling picture: in just the first two months of 2025, Vietnam featured in 16 of the world's 624 food-safety alerts, spanning products from processed shrimp to basil seeds (Hanoitimes, 2025). Root causes include a patchwork of smallholder producers, limited laboratory capacity and weak coordination among the Ministry of Agriculture and Rural Development (MARD), the Ministry of Health and provincial authorities (Vu, 2024).

Although a growing literature tracks Vietnam's general SPS challenges, few studies drill down into the shrimp sector or benchmark Vietnam's rules against those of a direct competitor that has already climbed the compliance ladder. Most analyses stop at broad legal descriptions, leaving unanswered questions about which specific Chinese measures - centralised data platforms, tiered exporter registration, laboratory twinning - could be transplanted, adapted or rejected in Vietnam's decentralised context. This gap limits policy designers' ability to craft targeted reforms and undermines Vietnam's bid for high-value markets where SPS discipline is decisive.

Responding to that void, the present study conducts a qualitative, comparative case analysis of China and Vietnam, drawing on WTO-SPS notifications, trade-alert databases and semi-structured interviews with regulators and exporters. By isolating the mechanisms behind China's success and mapping them onto Vietnam's constraints, the paper derives actionable recommendations - ranging from a single seafood-safety authority and regional lab co-funding to digital traceability for smallholders - that can lower rejection rates, secure market access and support a more resilient, sustainable Vietnamese shrimp industry.

## **2. Research Overview and Research Methodology**

### ***2.1. Literature Review***

Most existing research discusses Vietnam's SPS compliance at a general level, with limited attention to the shrimp sector specifically. Tran (2018) identifies systemic challenges in the seafood supply chain, such as fragmentation and inadequate inspection, while the World Bank (2005) and UNIDO (2023) document compliance failures in meeting international standards. However, these sources seldom provide comparative insights or policy lessons from more successful exporters.

Other studies, like those by Wood et al. (2017) and Sun et al. (2021), focus on the impact of SPS regulations on trade outcomes, especially on the import side, without examining how countries like China restructured their domestic SPS systems.

This study fills the gap by comparing China's and Vietnam's SPS approaches in the shrimp sector, highlighting regulatory best practices and offering tailored recommendations to improve Vietnam's compliance and export performance.

## **2.2. Research Methodology**

### *2.2.1. Research Design*

This study adopts a qualitative case study design, focusing on China as a representative example of a successful SPS compliance system in the shrimp export sector. The case study approach is appropriate since it enables in-depth, context-sensitive exploration of regulatory structures and enforcement mechanisms within a real-world setting. By comparing China's regulatory practices with those of Vietnam—another major shrimp exporter—the study aims to generate policy-relevant insights that are grounded in empirical experience.

The research is guided by a comparative descriptive analysis and relies mainly on secondary data sources. Document-based inquiry is used to examine institutional arrangements, policy frameworks, enforcement practices, and compliance outcomes in both countries. Data sources include official government regulations, WTO notifications, FAO assessments, international trade reports, peer-reviewed academic articles, and expert commentaries. Where available, the study also draws on existing interview transcripts and stakeholder assessments from previous research.

Data analysis is conducted through a thematic approach, organized around four key analytical dimensions: **Institutional Structure** – the organization and coordination of regulatory bodies overseeing SPS compliance; **Certification and Inspection Mechanisms** – policies related to exporter registration, HACCP/GAP implementation, and product testing; **Traceability Systems** – the ability to track shrimp products through the supply chain from farm to export; **Laboratory Infrastructure** – the capacity, accreditation, and recognition of food safety testing laboratories.



Figure 1. Analytical Framework Summary

These themes provide a structured framework for comparative analysis, enabling systematic evaluation of how China and Vietnam manage SPS compliance in the shrimp sector. By synthesizing findings across these four dimensions, the study derives context-specific lessons and offers policy recommendations tailored to Vietnam’s regulatory landscape. This methodological approach ensures the analysis is both comprehensive and practically relevant.

#### *2.2.2. Limitation of the study*

This study is subject to several limitations inherent in its design and scope. Firstly, the research relies exclusively on secondary data sources, such as government documents, academic literature, and international reports. While these sources are valuable for policy analysis, they may not fully capture on-the-ground implementation realities or recent, unpublished developments. Secondly, due to its qualitative nature, the study does not incorporate primary data collection or quantitative analysis, which could have enriched the findings with empirical measurements of compliance outcomes or trade impacts. Finally, the regulatory environments in both China and Vietnam are subject to rapid change, especially in response to evolving international trade demands and SPS-related incidents. As such, some findings may become outdated as new policies are enacted or revised during or shortly after the research period. These limitations highlight the need for ongoing, dynamic analysis and future studies incorporating field-level data and stakeholder perspectives.

### **3. WTO SPS Agreement and Trade Effects**

Adopted in 1995, the WTO Agreement on the Application of Sanitary and Phytosanitary Measures requires members to base food-safety and biosecurity rules on scientific risk assessment, to align with international benchmarks set by Codex, OIE and IPPC wherever feasible, and to notify trading partners of any new or stricter measures. The three operational principles—harmonization, equivalence and regionalization—aim to protect human, animal and plant health without creating disguised trade barriers. Transparency is enforced through national enquiry points and regular WTO notifications. By codifying these obligations, the Agreement offers exporters predictable market access while giving importers legal cover for legitimate health protection, making it a cornerstone of contemporary agri-food trade governance.

Empirical evidence shows that SPS compliance operates as both a gatekeeper and a catalyst for export growth. Studies covering more than forty low- and middle-income economies find that a 1 percent tightening of residue limits reduces short-term shrimp exports by about 0.4 percent unless firms upgrade laboratories and traceability systems. Where institutional capacity and private standards converge—China’s HACCP mandate for processors or Thailand’s e-Phyto single-window—border rejections fall sharply and price premia improve. Conversely, weak governance can turn science-based rules into de-facto barriers; exporters lacking ISO 17025 labs or recognized certification see higher refusal rates and face costly shipment diversions (Liu et al., 2022). The distributional impact is uneven: smallholders incur proportionally higher compliance costs, yet cluster-based schemes that pool auditing and training expenses have proved effective in Indonesia and India.

#### **4. Case study: China’s SPS Compliance in Shrimp Export**

##### ***4.1. Overview of China’s Shrimp Export Industry***

China remains the world’s leading aquaculture producer, accounting for more than three-quarters of global farm output in the late 2010s, with shrimp as a flagship commodity. Annual farmed-shrimp production reached about 1.5 million t in 2020 (FAO, 2025) and generated exports of roughly 230 000 t valued at US \$2.6 billion in 2019. Despite the logistical shocks of COVID-19, the sector rebounded quickly thanks to digital trade-facilitation tools and upgraded cold-chain logistics (CAPPMA, 2022).

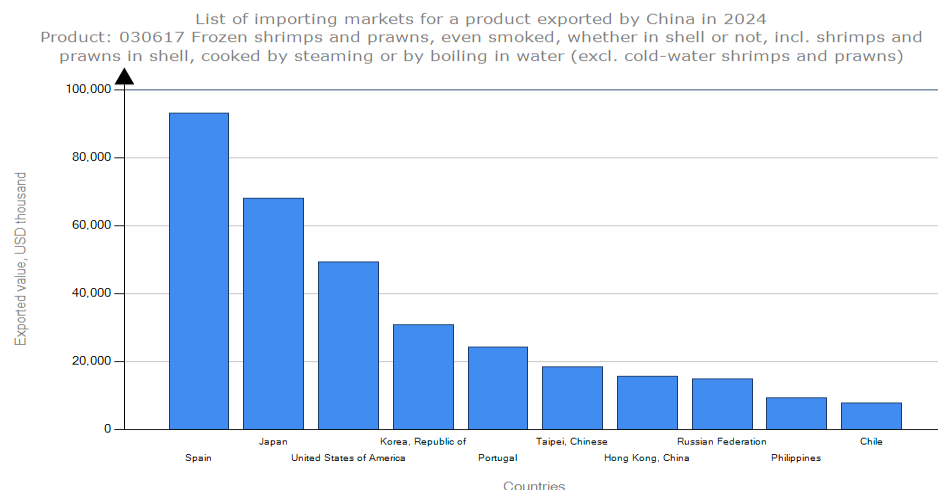


Figure 2: Top Importing Countries of Chinese Frozen Shrimp in 2024

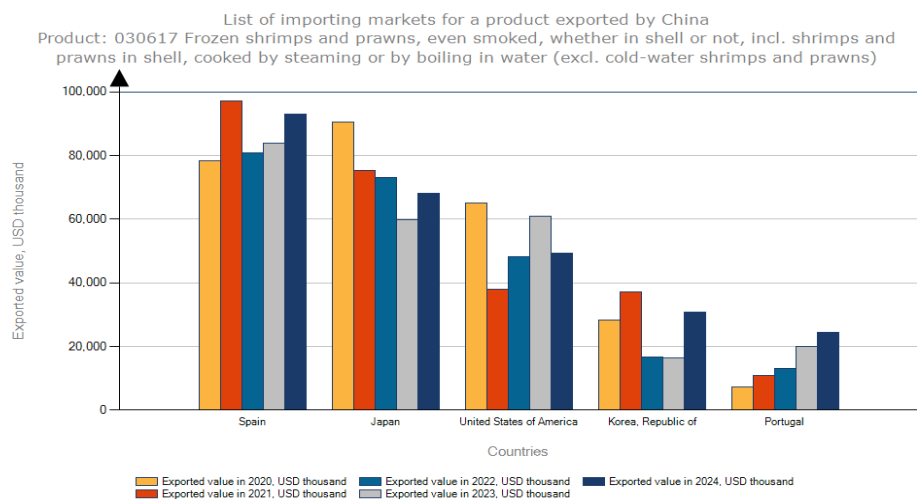


Figure 3: Export Value of Chinese Shrimp to Selected Countries (2020–2024)

*Source: Trade Map, 2024*

Trade-map data for 2024 show Spain, Japan and the United States as China’s three largest buyers of frozen shrimp (HS 030617), followed by South Korea, Portugal and Taiwan, underscoring both the durability of long-standing markets and gradual diversification into newer destinations. While volumes fluctuate with exchange rates and competitor pricing—particularly from Ecuador and India—China’s share in high-value markets remains anchored by sustained investment in certification, traceability and ISO 17025-accredited testing infrastructure. These SPS upgrades have been pivotal in cutting EU and US border rejections and in restoring buyer confidence.

The next section dissects how China built this compliance architecture—covering institutional reforms, risk-based inspection, digital traceability and laboratory modernisation—to illuminate lessons relevant to Vietnam’s ongoing SPS overhaul.

#### ***4.2. Initial SPS Compliance Challenges***

China’s rapid growth in shrimp exports during the early 2000s was accompanied by significant struggles to meet increasingly stringent SPS standards imposed by major markets. While technological and market advances drove expansion, regulatory systems—particularly inspection, certification, and international alignment—lagged behind, creating serious compliance issues.

*Firstly*, chemical residue violations were among the most critical problems. From 2001 to 2004, Chinese shrimp was frequently flagged by the EU’s Rapid Alert System for Food and Feed (RASFF), with 67 alerts in 2002 alone (European Commission, 2002). Similar concerns prompted the U.S. FDA to increase inspections and impose a sweeping import alert in 2007 on several Chinese seafood products, including shrimp, due to unapproved drug residues (FDA, 2007). These substances, commonly used in aquaculture, were banned in many countries due to health risks.

*Secondly*, the industry’s fragmented supply chain hindered traceability. Dominated by small-scale producers with informal practices, China’s shrimp sector lacked systems to track inputs or identify contamination sources. Traceability, a core requirement under EU regulations (EC No 178/2002), was nearly impossible due to poor coordination between farms, feed suppliers, and processors.

*Thirdly*, inadequate testing capacity undermined regulatory credibility. While major cities had some capable labs, most provincial facilities failed to meet ISO/IEC 17025 standards. As a result, Chinese test certificates were often rejected abroad, particularly in the EU. Inconsistent enforcement and limited familiarity with global SPS norms further complicated compliance efforts (Wang & Lu, 2015).

These early failures triggered widespread consequences. International partners imposed stricter inspections and bans, while buyers turned to more reliable suppliers. Exporters faced mounting costs from rejections and rerouting, and many small producers exited the market. The crisis reshaped China’s shrimp industry, catalyzing reforms to align with global standards.

#### ***4.3. Regulatory Framework and Institutional Responses***

*Firstly*, in response to rising SPS challenges and frequent rejections in key markets, China restructured its regulatory framework, with the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) leading initial reforms. Following institutional changes, its functions were transferred to the State Administration for Market Regulation (SAMR), which continues to coordinate food safety oversight and exporter certification.



*Secondly*, China mandated the adoption of Hazard Analysis and Critical Control Points (HACCP) systems for all processing plants targeting export markets. These protocols, aligned with Codex Alimentarius guidelines, required systematic identification and control of food hazards. Simultaneously, the Ministry of Agriculture promoted Good Aquaculture Practices (GAP) to enhance water quality, disease control, and safe input use throughout production.

*Thirdly*, strict registration and monitoring measures were introduced for shrimp exporters. Companies were required to register with AQSIQ, undergo inspections, and meet performance benchmarks. Only those consistently complying with SPS standards were authorized to export to demanding markets like the EU, U.S., and Japan, helping restore regulatory credibility.

*Fourthly*, China invested heavily in food safety infrastructure by upgrading state-run laboratories to meet ISO/IEC 17025 standards. This improved domestic testing capacity and reduced reliance on foreign labs. The establishment of credible, accredited labs boosted international trust in China's food safety systems.

*Fifthly*, extensive training and international cooperation supported China's regulatory transition. Thousands of stakeholders—including farmers, processors, and customs officials—received training in residue control, hygiene, and documentation. Additionally, China engaged with agencies such as the European Commission and U.S. FDA to harmonize inspection procedures and facilitate mutual recognition, reducing trade friction and improving transparency.

#### ***4.4. Effectiveness and Outcomes***

The reforms implemented by China had a measurable and positive impact on the country's ability to meet SPS standards and sustain its shrimp export industry. One of the clearest indicators of success was the decline in rejection rates and import alerts from major trading partners. For example, data from the EU RASFF system showed a significant drop in residue-related notifications from Chinese shrimp by 2010. Similarly, the U.S. FDA reported fewer import refusals, and China was removed from several high-risk watchlists.

Additionally, shrimp production practices in China became increasingly professionalized and standardized. Many large-scale farms adopted biosecure facilities, phased out banned substances, and began collaborating with vertically integrated processors who provided training, inputs, and guaranteed purchase agreements. This consolidation helped enforce internal compliance and reduce variation in product quality.

As a result, international market access was restored. By 2011, China had regained a stable foothold in the EU and U.S. shrimp markets, and it began expanding into newer destinations such as South Korea and the Middle East. The enhanced regulatory environment also encouraged FDI in Chinese aquaculture and processing operations, further strengthening the industry's competitiveness.

Despite these successes, challenges remained, particularly with smallholder farmers who often lacked the resources to comply with stringent SPS standards. Local enforcement varied across provinces, and occasional violations, particularly involving chemical use and documentation gaps, continued to emerge. The need for continued investment in education, monitoring, and transparent governance remains critical to ensuring long-term compliance.

## 5. Vietnam’s SPS Framework: A Comparative Analysis

### 5.1. Overview of Vietnam’s Shrimp export industry

Vietnam has consolidated its place among the world’s top shrimp suppliers, exporting an estimated US \$ 4 billion in 2024—up 16.7 percent year-on-year. Growth was driven chiefly by China–Hong Kong (US \$ 761 million, +34 %), which benefited from tighter Chinese domestic supply and improved bilateral logistics, and by the United States (US \$ 702 million, +10 %), where buyers value Vietnam’s reputation for reliably sourced product. The European Union also posted double-digit gains, helped by tariff preferences under the EU–Vietnam Free-Trade Agreement and rising demand for certified sustainable seafood. Traditional outlets Japan and South Korea remained steady, reflecting mature, brand-loyal markets.

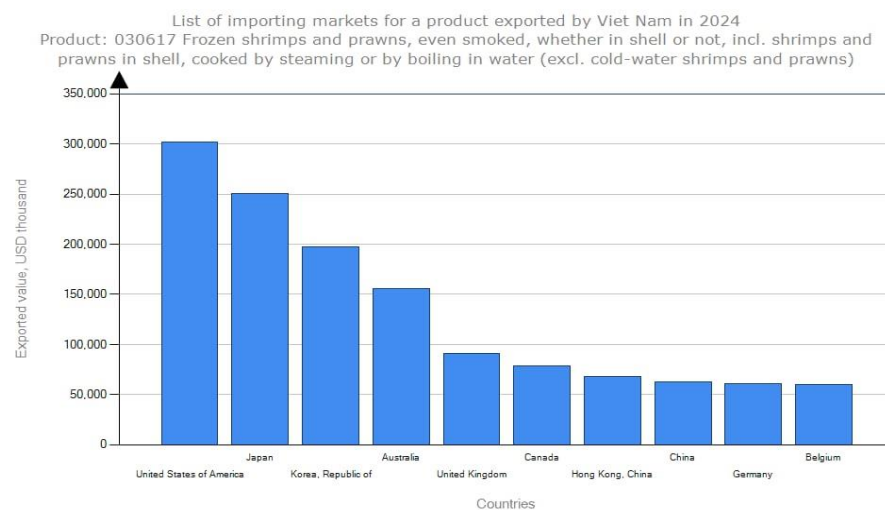


Figure 4: Importing countries for Vietnamese shrimp in 2024

Prospects for market diversification for a product exported by Viet Nam in 2024  
 Product : 030617 Frozen shrimps and prawns, even smoked, whether in shell or not, incl. shrimps and prawns in shell, cooked by steaming or by boiling in water (excl. cold-water shrimps and prawns)

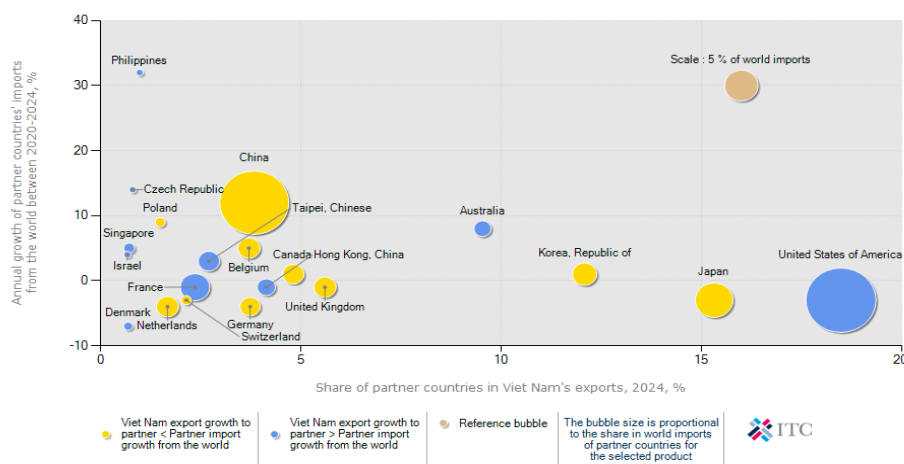


Figure 5: Share of partner countries in Vietnam's shrimp export

Source: Trade Map, 2024

On the supply side, farm output reached about 1.2 million t in 2024 (+5.3 %), with the Mekong Delta still accounting for the lion's share. Yet production remains fragmented, and many smallholders rely on third-party laboratories or exporters for residue testing, adding cost and time. In addition, weak end-to-end traceability continues to expose exporters to antibiotic-residue alerts, tarnishing Vietnam's otherwise strong export performance.

Looking ahead, processors plan to diversify into the Middle East and Latin America and to develop ready-to-eat and organic lines that command price premia. Realizing that potential, however, hinges on remedying persistent SPS bottlenecks—particularly ISO 17025 lab capacity and digital farm-level tracking—addressed in later sections of this study.

## 5.2. SPS Compliance Challenges

Vietnam's shrimp export industry has experienced notable growth, but sustaining access to premium markets like the EU, U.S., and Japan requires stricter adherence to Sanitary and Phytosanitary (SPS) measures. Despite ongoing reforms, the sector continues to face both regulatory and operational obstacles that undermine compliance and competitiveness.

### 5.2.1. Governance Gaps

SPS enforcement remains fragmented across the Ministry of Agriculture and Rural Development (MARD), Ministry of Industry and Trade (MOIT), and Ministry of Health (MOH), causing delays and inconsistencies in regulation and certification. This disjointed structure impedes policy implementation and fails to deliver unified support for exporters.

### 5.2.2. Infrastructure and Traceability

Vietnam's testing infrastructure is underdeveloped. Most domestic laboratories lack ISO/IEC 17025 accreditation, reducing the credibility of their test results in foreign markets. Exporters frequently rely on third-party international labs, increasing costs and delays. Meanwhile, traceability remains weak due to fragmented, small-scale shrimp farming and inconsistent record-keeping from farm to processor.

### 5.2.3. Barriers for Smallholders and Certification Costs

Small and medium-sized enterprises (SMEs) struggle to meet international SPS standards due to limited technical capacity, lack of access to sustainable practices, and high certification costs. Many cannot afford standards like GlobalGAP or ASC without financial support. These limitations prevent broader adoption of sustainable practices and constrain market diversification.

### 5.2.4. Reputation and Market Risks

Frequent violations—such as antibiotic residues—have resulted in import rejections and heightened scrutiny. Though farmed shrimp is not directly affected, the EU’s IUU fishing “yellow card” tarnishes Vietnam’s overall seafood brand, resulting in stricter inspection regimes.

### 5.2.5. Current Responses and Needs

The government has introduced reforms, such as promoting certified farm models, expanding farmer education, and investing in digital traceability systems. However, these efforts must be scaled and coordinated to achieve consistent SPS compliance nationwide. Addressing these gaps is essential for Vietnam to retain market share, build credibility, and meet the demands of an evolving global seafood market.

## 5.3. Key Differences from China’s Approach

Table 1: Key differences between China and Vietnam shrimp industry

| Category         | Vietnam                                                                                                                                                                                                                                                  | China                                                                                                                                                                                                                                                                                   |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Method | <ul style="list-style-type: none"><li>- Predominantly small to medium-scale farms, with increasing adoption of high-tech aquaculture practices.</li><li>- Emphasis on sustainability and certifications like Global GAP and organic standards.</li></ul> | <ul style="list-style-type: none"><li>- World's largest producer of farmed shrimp, with significant investments in large-scale aquaculture.</li><li>- Government support for sustainable practices and technological advancements.</li><li>- Expansion of e-commerce and cold</li></ul> |

|                    |                                                                                                                                      |                                                                                                                                                                                                                           |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | - Focus on value-added processing to enhance export value.                                                                           | chain logistics to meet domestic demand.                                                                                                                                                                                  |
| Production Volume  | - Total shrimp production reached approximately 1.2 million tonnes in 2024, a 5.3% increase from 2023. (VietnamPlus, 2024)           | - Shrimp production was about 3.7 million tonnes in 2024, with projections to reach 5.1 million tonnes by 2033. (IMARC, 2023)                                                                                             |
| Export Value       | - Shrimp exports are valued at \$4 billion in 2024, contributing 40-45% to Vietnam's total seafood export value. (VietnamPlus, 2024) | - Shrimp export value decreased from \$2.4 billion in 2018 to \$1.6 billion in 2022, reflecting a downward trend. (Infofish, 2023)                                                                                        |
| Import Volume      | - Vietnam primarily focuses on exports; import volumes are minimal and not a significant aspect of the industry.                     | - In 2024, China imported approximately 1 million metric tons of shrimp, with imports valued at \$4.45 billion, indicating a 7% decrease in volume and a 15% decrease in value from the previous year. (S&P Global, 2024) |
| Key Export Markets | - United States, China, Japan, European Union, and South Korea.                                                                      | - Japan, United States, and South Korea are primary export destinations, with a focus on processed seafood products.                                                                                                      |
| Trade Balance      | - Strong export-oriented industry with a positive trade balance in seafood.                                                          | - Despite being a major producer, China's shrimp imports exceed exports, leading to a negative trade balance in this sector.                                                                                              |

It can be seen that Vietnam's shrimp export industry faces ongoing challenges in meeting international SPS standards, particularly regarding traceability, antibiotic residues, and certification costs. Meanwhile, China has developed a strong SPS framework focused on centralized management, digital traceability, and government-backed compliance systems, primarily for its domestic market. While Vietnam cannot fully replicate China's top-down model due to structural differences, it can selectively adopt several effective practices. These include creating a centralized national database for shrimp farms and processors, piloting SPS-compliant zones in key export provinces like Ca Mau, and investing in digital traceability platforms. Vietnam could also consider offering subsidies or incentives for smallholders to obtain certifications and upgrade. In summary, selectively applying China's SPS strategies could help Vietnam enhance

food safety, meet export requirements more effectively, and strengthen its global competitiveness - especially if tailored to Vietnam's more decentralized and export-driven context.

#### **5.4. Transferability of China's SPS Model to Vietnam**

##### *5.4.1. Practices Readily Transferable*

Several elements of China's SPS architecture can migrate to Vietnam with only incremental adjustments. Extending the national eSPS portal to pull real-time farm and inspection data from provincial servers would replicate China's centralized traceability database and make Vietnam's compliance history transparent to importers. A country-wide mandate for HACCP-based processor audits would build on successes already recorded in Bạc Liêu and Cà Mau, where adoption has cut EU rejections (World Bank, 2020). A tiered exporter-registration scheme, modelled on China's risk ranking, would let inspectors focus on high-risk firms while rewarding consistent performers with faster clearance. Laboratory capacity could be lifted through ISO 17025 twinning, linking under-equipped sites such as the Cần Thơ center to NAFIQAD's accredited Ho Chi Minh City laboratory under a 60 per-cent public/40-per-cent private cost share. Finally, China's mass-training template fits Vietnam's extension network: by leveraging the Sustainable Aquaculture Project's mobile app, guidebooks and on-farm demonstrations, basic modules on residue control and disease management can reach thousands of smallholders at modest cost. Collectively, these "low-hanging fruit" require no profound institutional overhaul yet would lift Vietnam's SPS profile in the near term.

##### *5.4.2. Practices Requiring Adaptation*

However, full replication of China's top-down model would collide with Vietnam's fragmented governance and smallholder structure. Instead of creating an all-powerful agency, Vietnam should formalize an inter-agency coordination mechanism led by NAFIQAD but linked to MoH and provincial departments for enforcement consistency. Large integrated mega-farms are unrealistic; pilot cluster or cooperative models that pool feed, testing and certification costs suit Vietnam better, echoing Mekong Delta cooperatives under the OCOP program. Financing must rely on PPP and donor grants (e.g., ongoing JICA upgrades) rather than China-style state subsidies.

##### *5.4.3. Practices Not Suitable for Direct Adoption*

Some Chinese tools would backfire in Vietnam's context. Province-level e-certificate quotas could freeze out dynamic provinces and choke genuine growth. Likewise, a rigid exporter grading system risks marginalizing smallholders who lack funds for top-tier ratings, repeating the pangasius-sector experience where audit fees excluded micro-producers. Finally, heavy dependence on sophisticated digital infrastructure would overwhelm provinces still building basic connectivity; a phased roll-out tied to VNPT/Viettel e-ID services is safer.

#### **6. Policy recommendations for Vietnam**

## 6.1. Recommendations for Government

*Firstly*, Vietnam's foremost priority should be establishing a centralized SPS management structure. Currently, fragmented responsibilities among ministries and provinces hinder effective enforcement and response. Inspired by China's AQSIQ, Vietnam should create an independent authority with the jurisdiction to set harmonized standards, manage a national database of aquaculture stakeholders, and oversee compliance across all relevant agencies. Centralized coordination would ensure timely policy implementation, eliminate redundancy, and enhance responsiveness to emerging SPS challenges.

*Secondly*, upgrading Vietnam's laboratory testing infrastructure is also critical to reducing export rejections. Although some progress has been made, many facilities still lack the capacity to detect residues and pathogens reliably. The government should prioritize investments in regional labs—particularly in the Mekong Delta and South-Central coast—equipping them with technologies like Liquid Chromatography–Mass Spectrometry (LC-MS/MS) and Polymerase Chain Reaction (PCR). Achieving ISO/IEC 17025 accreditation will ensure test results are internationally recognized. Strategic partnerships with the EU or Japan could provide technical support and increase credibility (UNIDO, 2023).

*Lastly*, comprehensive training for farmers and processors is essential to sustain SPS compliance. Programs should focus on best practices in antibiotic use, water quality management, disease control, and HACCP protocols. Peer-education networks and model farms can enhance outreach, particularly among smallholders. Collaborations with agencies such as FAO and USAID, along with local industry associations, will help scale up these efforts. Changing stakeholder perceptions—from viewing SPS as a barrier to seeing it as a pathway to market access—is vital for long-term compliance and competitiveness (Tran, 2018; Vu, 2024).

On the other hand, various countries have taken various paths to enhancing SPS compliance, offering various models for Vietnam to draw lessons from. Thailand's implementation of the **single-window e-Phyto system** substantially streamlined phytosanitary certification and reduced its cost as well as enhanced efficiency for exporters through automating document transfer and preventing delay. Indonesia utilized **farmer-cluster traceability programs** to achieve success, enabling large-scale compliance with SPS measures while establishing local responsibility through joint investment in compliance infrastructure and community monitoring. India established successful **public-private export inspection councils**, combining government regulation and private sector expertise and thereby effectively regulating resources, developing technical capacity, and enhancing credibility of compliance abroad under shared responsibility.

Matching these various strategies, several of them align with Vietnam's constraints, such as low-cost financial inputs, fragmented smallholder production structures, and governance issues. Thailand's e-Phyto system is an example of how technology can neutralize bureaucratic inefficiencies, lower costs, and speed up export processing. Indonesia's farmer-cluster approach

aligns with Vietnam's need for consolidated smallholder compliance and provision sharing among small-scale farmers. India's public-private partnerships illustrate affordable regulatory innovations within grasp by operating in government-industry stakeholder collaboration. Vietnam can thus strategically combine lessons from China's centralized SPS model with such adaptive peer solutions, fashioning an innovation-rich customized hybrid model that optimizes the use of resources, donor assistance, and industry self-regulation.

## ***6.2. Improving Awareness and Ability for Enterprises***

Besides, it is important to acknowledge that Vietnamese companies, specifically small and medium enterprises, have to make significant changes to meet these new SPS standards. Numerous firms have to invest in upgrading their infrastructure, new managerial procedures, and ensuring stringent traceability and quality control measures. To make these changes possible, government assistance is also indispensable. Such assistance can be in the form of financial grants, subsidies, low-interest loan schemes, and extensive advisory services. In addition, the encouragement of the formation of public-private partnerships and strong industry associations will enable firms to collectively tackle compliance challenges and adjust efficiently and durably.

On the positive side, opportunities for effectively transferring certain Chinese methods to Vietnam are high, primarily due to the structural dynamics and economic similarity between the aquaculture sectors of both countries. China's example of organizing a high volume of small-scale agricultural enterprises under central management, extensive training schemes, and high-tech laboratory networks has created paradigms that Vietnam can feasibly replicate. In addition, Vietnam's existing trade relations and international agreements, such as the EVFTA and RCEP, offer frameworks and channels for accessing technical support and promoting international collaboration for ensuring successful implementation of these changes.

## ***6.3. Feasibility and Challenges***

The successful implementation of these recommendations requires substantial and well-planned fiscal investment from the Vietnamese government. Allocating dedicated budgets for a centralized SPS regulatory authority—including staffing, infrastructure, and operational activities—is essential. Upgrading laboratory capacity demands significant funding for advanced equipment, international accreditation, and continuous technical training. Similarly, scaling up training programs for farmers and processors entails resources for materials, facilitators, and demonstration activities.

Given these financial demands, Vietnam should actively pursue international collaboration and development assistance through mechanisms like the EVFTA and RCEP. Public-private partnerships can further enhance cost-sharing and resource efficiency. By aligning strategic budget planning with foreign technical support, Vietnam can realistically close its compliance gaps and elevate its SPS capacity. This approach will not only secure market access but also strengthen the



credibility of Vietnamese seafood in global trade. In doing so, Vietnam can safeguard public health and ensure sustainable growth of its shrimp export industry.

#### ***6.4. Mechanisms and Applications***

The reform will begin with the Ministry of Agriculture and Rural Development, working jointly with the Ministries of Health and Industry & Trade, to draft a Prime-Ministerial Decree that creates a National Seafood-Safety Authority holding binding powers over inspection, certification and laboratory control. The drafting, public consultation and Office-of-Government review are expected to take nine months, after which a unified e-permit portal and risk-based inspection plan will be piloted in Cà Mau and Sóc Trăng—provinces that together account for about 40 per cent of shrimp export volume. If independent evaluators from VASEP and Cần Thơ University confirm reduced licensing time ( $\leq 5$  days), antibiotic-residue compliance ( $\geq 99$  per cent) and a one-quarter fall in duplicate inspections, the model will scale nationwide over the following twelve months. Three enabling instruments support the launch: (i) five regional seafood laboratories funded through public-private partnerships, targeting interim ISO 17025 accreditation within thirty months and a public–industry operating-cost split of 40/60; (ii) a phone-based traceability app that merges farm registration, antibiotic logs and QR-coded export certificates, deployed first to 1 000 farms where 4G coverage already exceeds 90 per cent; and (iii) twenty GlobalGAP-ready “compliance clusters” receiving tapered audit subsidies plus access to a VND 2 trillion revolving credit line ( $\leq 5$  per cent interest, three-year tenor, 20 per cent government guarantee). Quarterly public dashboards will disclose key performance indicators to enable mid-course correction.

Comparable reforms abroad underline the strategy’s feasibility. China’s consolidation of AQSIQ into the State Administration for Market Regulation cut repeat inspections by 28 per cent and persuaded the European Commission to remove its “high-risk” alert on Chinese shrimp by 2010 (SAMR, 2020; EC, 2011). India’s MPEDA laboratory network, upgraded to ISO 17025, now delivers results in under three days and correlates with a 60 per cent drop in EU rejections between 2018 and 2022 (MPEDA, 2023). Thailand’s Department of Agriculture trimmed phytosanitary certificate processing times by 30 per cent after piloting a single-window e-Phyto system in 2022 (Thai DOA, 2023), while an FAO-supported project in South Sulawesi moved fifty Indonesian farms to full GAP compliance within a single harvest cycle (FAO, 2023). Finally, China’s exporter help-desk and credit facility, introduced in 2012, limited United States refusal rates to below 0.8 per cent (USDA, 2021), illustrating the tangible compliance gains that can emerge from integrated financial and advisory support.

## **Conclusion**

As global food safety standards tighten, the contrasting experiences of China and Vietnam in shrimp exports highlight critical lessons. China's turnaround—from export bans to compliance leadership—shows that SPS reforms, when supported by strong governance and international cooperation, can restore market trust and competitiveness. Vietnam, though a major exporter, faces persistent SPS challenges that threaten its standing in high-value markets.

This paper argues that Vietnam must act decisively to close these gaps, from farm-level practices to regulatory coordination. Fortunately, foundational elements such as institutional awareness and international trade support—especially through agreements like the EVFTA—are already in place. Adapting China's reform model to Vietnam's context can guide effective SPS improvements.

In conclusion, the short-term costs of strengthening SPS systems are outweighed by long-term gains in market access, export stability, and food safety credibility. By prioritizing quality and compliance alongside volume, Vietnam can reinforce its global seafood reputation and secure the sustainable growth of its shrimp industry. The strategic imperative is clear: aligning with global SPS standards is not just necessary—it is a competitive advantage for Vietnam's future in international trade.

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