Certification Assessment

TomGoxy® ZERO

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Executive summary

TomGoxy Zero could build ASC-based certification as its core, use BAP and GLOBALG.A.P. if commercially required and create a mangrove add-on to monetise its intensive-plus-restorative model instead of pursuing organic or carbon-neutral labels

TomGoxy Zero demonstrates how intensive vannamei shrimp farming can be combined with mangrove restoration in a commercially viable way. The partnership between Van Oord Ocean Health, RYNAN Technologies Vietnam and Larive International delivers a model where environmental regeneration and high-yield aquaculture go hand in hand, offering a blueprint for scalable, sustainable shrimp production.

1. Rationale for certification

Certification is the bridge between this operational sustainability and market value.

- **Market access:** Credible eco-labels are a licence to operate in premium EU/UK retail, where sustainability credentials have shifted from "nice-to-have" to mandatory. Certified products are better positioned to secure premium shelf space, higher prices and long-term buyer relationships.
- **Environmental credibility:** Third-party verification reduces greenwashing risk by enforcing traceability, ecosystem protection (including mangroves), animal welfare and responsible resource use, while providing clear benchmarks for continuous improvement.
- **Strategic positioning:** ASC has effectively become the baseline requirement for EU retail entry. Although achieving and maintaining certification requires investment and a 3–5 year horizon, it creates a defensible competitive position as sustainability requirements tighten.

2. High-over priorities for certificates

A. **Licence to operate in EU/UK retail:** Secure the minimum certification backbone that unlocks premium European markets (ASC at farm/feed level), without overloading the system with labels that add complexity but limited commercial value.

B. **Recognition of the mangrove–shrimp model:** Ensure that the certification approach not only safeguards habitat but also allows TomGoxy Zero to highlight its unique value: intensive production combined with active mangrove restoration and blue-carbon benefits.

C. **Commercial relevance by market:** Use additional schemes (BAP, GLOBALG.A.P.) only where they are clearly required by target buyers or regions (e.g. North America, specific EU retailers), rather than as default.

D. **Feasibility and alignment with the farm design:** Avoid schemes that structurally conflict with the high-intensity concept or site conditions (e.g. organic density and buffer zone requirements, or costly carbon-neutral claims at current volumes).

3. Certification landscape

- **ASC (Aquaculture Stewardship Council).** Dominant eco-label in EU/UK retail, certifying farms and feed with strong habitat rules (mangrove cut-off date May 1999 and ≥50% restoration of converted areas). It is an excellent baseline for European retail, enforcing rigorous standards on environment, social responsibility and animal welfare. However, it is not specifically designed to recognise or reward active mangrove restoration beyond compliance with restoration requirements. Estimated annual cost: ~€6,000–€15,000; typical process: 2–3 months.
- **BAP (Best Aquaculture Practices).** Full value-chain certification under a "star" system (hatchery, feed mill, farm, processing), with strong recognition in the US, Canada and parts of Asia. It does not contain specific mangrove provisions beyond national law and requires separate water-in/water-out channels, which is a technical constraint for the TomGoxy Zero farm design. Annual cost: roughly US$4,500–US$9,000; typical process: 4 to 6 months.

Executive summary

TomGoxy Zero could build ASC-based certification as its core, use BAP and GLOBALG.A.P. if commercially required and create a mangrove add-on to monetise its intensive-plus-restorative model instead of pursuing organic or carbon-neutral labels

- GLOBAL G.A.P.: A B2B farm assurance standard widely used by EU retailers, focused on good agricultural practices and record-keeping. It has no dedicated mangrove framework. It becomes relevant primarily when TomGoxy Zero supplies retailers directly under their preferred assurance schemes. Approximate annual cost: ~€6,000.
- Organic (Naturland / EU Organic). Requires low stocking densities (max. 15 PL/m²), organic feed and ~15 m buffer zones. These conditions are fundamentally incompatible with TomGoxy Zero's high-intensity concept and the current Vinh Long site, making organic certification a non-starter for the present model.
- Carbon Neutral. Provides B2B credibility and can support ESG communication, but it is not an entry ticket for EU markets and is constrained by tightening EU rules on consumer-facing climate claims. Given TomGoxy Zero's initial volumes, the cost and complexity of robust carbon-neutral certification currently outweigh the commercial benefits.

4. Certification roadmap

A key conclusion is that existing schemes strengthen operational discipline but do not reward intensive systems that actively restore mangroves and deliver verified blue-carbon outcomes. Current certifications either protect remaining mangroves or leave them outside scope. They do not inherently valorise the "intensive-plus-restorative" model that defines TomGoxy Zero.

A. Establish the baseline

- Confirm ASC as the core certification backbone for EU/UK markets.
- Conduct an ASC gap assessment at farm and feed level, including habitat, effluent, social and animal welfare requirements.
- Develop and implement an improvement plan (biosecurity, documentation, traceability, mangrove management) to reach ASC readiness.
- Decide where BAP is commercially necessary (specific buyers/regions) and ensure that any design implications (e.g. water-in/water-out) are understood before committing.

B. Expand selectively

- Obtain ASC certification and use it to anchor commercial discussions with EU/UK importers and retailers.
- Add BAP only for value chains where this clearly strengthens access (e.g. North America, Asia), avoiding unnecessary duplication.
- Keep GLOBALG.A.P. as an optional add-on for direct retailer programmes that explicitly request it.

C. Differentiate through mangrove restoration

- Co-develop a TomGoxy Zero Mangrove Add-on with a reputable certification body or independent auditor, designed to sit on top of ASC (and, where relevant, BAP).
- Define criteria for minimum mangrove ratios, restoration commitments, effluent and escape-prevention in mangrove systems, and blue-carbon monitoring and reporting.
- Integrate the add-on audit with the regular ASC/BAP audit cycle to minimise transaction costs and audit fatigue.
- Use the verified mangrove and carbon performance as the core of TomGoxy Zero's market story, particularly in premium EU/UK channels.

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Introduction and background

Research background

Background

In the Mekong Delta, Van Oord, RYNAN Smart Aquaculture and Larive International are partnering to integrate mangrove restoration with shrimp farming, improving sustainability and efficiency. The TomGoxy Zero approach supports CERF's ambition for scalable, climate-resilient, nature-based solutions and is intended as a lighthouse model for Vietnam and other major shrimp producers facing climate risk and stricter EU standards.

To advance the mangrove-integrated *Litopenaeus Vannamei* concept, exploration of the premium market segment is essential to differentiate mangrove-cultivated shrimp from traditionally produced shrimp with higher carbon footprints. Stronger price realisation for verifiably sustainable, mangrove-cultivated shrimp will accelerate adoption of these models and unlock investment at farm and processor level.

Two studies are designed to validate premium market potential and build a credible, certifiable route-to-market, linking demand, standards and measurable product quality, to underpin a bankable business case and enable scalable rollout of TomGoxy Zero.

Research structure

1) Study 1A: Premium market assessment & differentiation strategy.

This study maps priority premium segments (EU/NL and selected export markets), buyer requirements, acceptable claims and willingness to pay, quantifies potential price uplifts and defines the go-to-market positioning for mangrove-cultivated Vannamei shrimp.

2) Study 1B – Route to certification and quality assurance (this document).

This study determines the optimal certification pathway, develops sustainability criteria, sets product-quality specifications, benchmarks performance versus conventional shrimp and delivers a practical certification roadmap for producers and processors.

The two components inform each other: market insights from Study 1A guide the prioritisation of criteria and claims in Study 1B, while the feasibility and costs established in Study 1B refine the commercial assumptions and pricing scenarios in Study 1A. This report presents the methods and outputs for Study 1B.

This report presents **Study 1B**, with outcomes that, together with Study 1A's market evidence, validate market potential, establish a certification roadmap and define quality benchmarks to underpin a bankable business case and enable scalable rollout of TomGoxy Zero.

1. Introduction

TomGoxy Zero

TomGoxy Zero demonstrates how intensive shrimp farming can combine environmental restoration and commercial viability

Establishment

This concept emerged from a strategic partnership that unites complementary expertise, with each partner bringing distinct capabilities to enable success. RYNAN Technologies Vietnam provides the TomGoxy farming technology, farm system expertise in design, construction, and farm operations. Van Oord Ocean Health contributes knowledge in mangrove restoration, ecological monitoring, and carbon market integration. Larive International leads on project development, structuring, management, and the scaling of the model to new markets.

Concept

TomGoxy Zero represents a paradigm shift in sustainable aquaculture, pioneering an intensive shrimp farming system that integrates mangrove restoration with resource-efficient production practices. The initiative demonstrates a commercially viable model where environmental regeneration and high-yield aquaculture coexist, potentially offering a blueprint for scalable and sustainable shrimp production globally.

Core aspects

The TomGoxy Zero system eliminates nutrient discharge into waterways and supports mangrove restoration, enhancing biodiversity, coastal protection, and carbon sequestration. At the same time, it delivers substantial efficiency gains, achieving up to a 300% increase in productivity, a 75% reduction in energy use, and a 60% reduction in water consumption compared to conventional shrimp farming. The system produces around 24 metric tons of antibiotic-free, fully traceable Vannamei shrimp per 1,000 m² annually across three production cycles, demonstrating that high yields can be achieved alongside measurable environmental benefits.

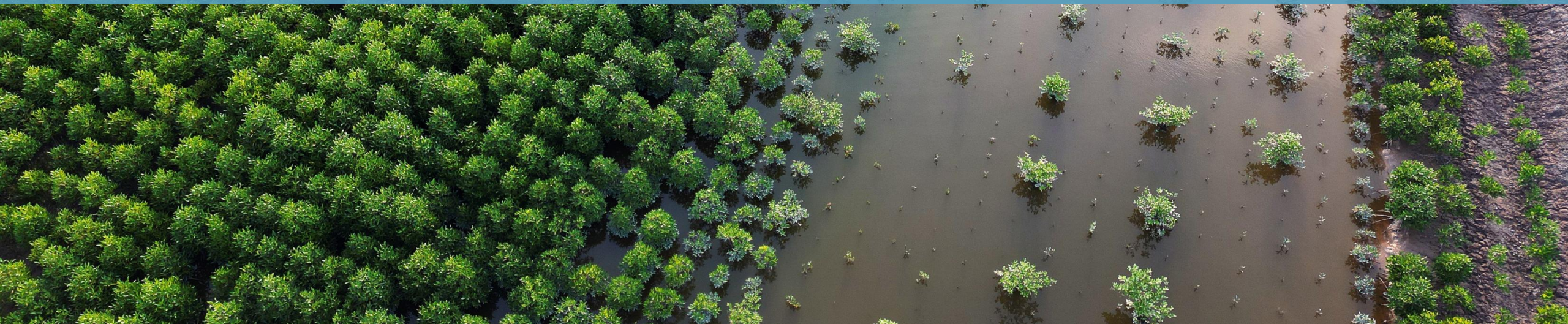
Future ambitions

TomGoxy Zero delivers a new standard for sustainable aquaculture, providing intensive Vannamei farming with mangrove filtration. The pilot project serves as an operational showcase for global scaling. The sector currently produces 5.4 million metric tons of Vannamei annually, spread across 47 countries. By combining mangrove nature-based solutions with a profitable business case, we deliver a scalable solution that balances commercial farming with the global need for environmental restoration.

Route to premium

While the concept demonstrated significant productivity gains, achieving these comes at a cost. Allocating land to mangrove restoration rather than shrimp ponds reduces the area available for production and, consequently, farm earnings. To assess the potential for scaling up, this study examines the route to premium markets, that can pay the price levels required to ensure the commercial viability of this more sustainable production model.

2. Rationale for certification



2. Rationale for certification

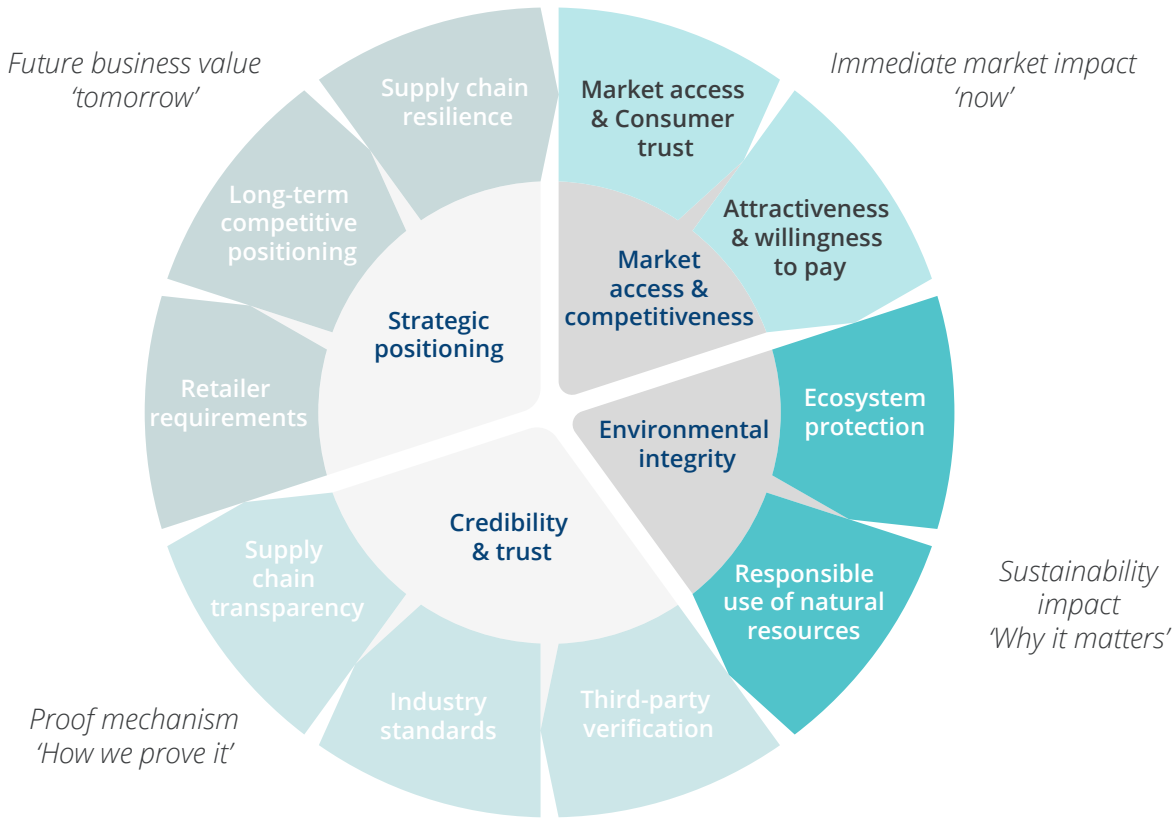
Market access & competitiveness and Environmental integrity

Market access and consumer trust:

Certification serves as a gateway to premium retail channels, particularly in European markets where sustainability credentials are increasingly non-negotiable. Consumers demonstrate higher trust in certified products when making purchasing decisions, as certifications provide tangible proof of quality and sustainability claims[3]. This trust translates directly into brand loyalty and repeat purchases, especially among environmentally-conscious consumer segments who actively seek out certified products.

Attractiveness and willingness to pay:

Market data from European supermarkets shows that certified products, particularly organic-certified items, command significantly higher price points compared to non-certified alternatives. Organic certification demonstrates the strongest impact on consumer willingness to pay, with premium prices sustained across markets in Germany, Switzerland, Sweden and the UK. Beyond pricing, certification enhances overall product attractiveness by differentiating products in crowded retail environments and communicating values that resonate with target consumer segments[2].



Ecosystem protection:

Certification standards enforce comprehensive environmental protections that preserve critical coastal ecosystems. Mangrove management requirements ensure these vital carbon sinks and biodiversity hotspots are protected rather than destroyed for production expansion. Standards mandate creating close-to-natural environments in farming operations, maintaining biodiversity and preventing water pollution that affects surrounding ecosystems. Animal welfare provisions prohibit harmful practices such as ablation and ligation, restrict antibiotic use and require natural feeding practices that respect the biological needs of the species being farmed.

Responsible use of natural resources:

Certifications establish clear parameters for sustainable resource utilisation that balance production needs with long-term environmental stewardship[1]. This includes requirements for green energy adoption to reduce carbon emissions, strict limitations on chemical inputs to protect water quality and soil health and maximum stocking density requirements that prevent ecosystem degradation. By enforcing these standards, certifications help the aquaculture sector contribute to climate action rather than exacerbate environmental problems.

2. Rationale for certification

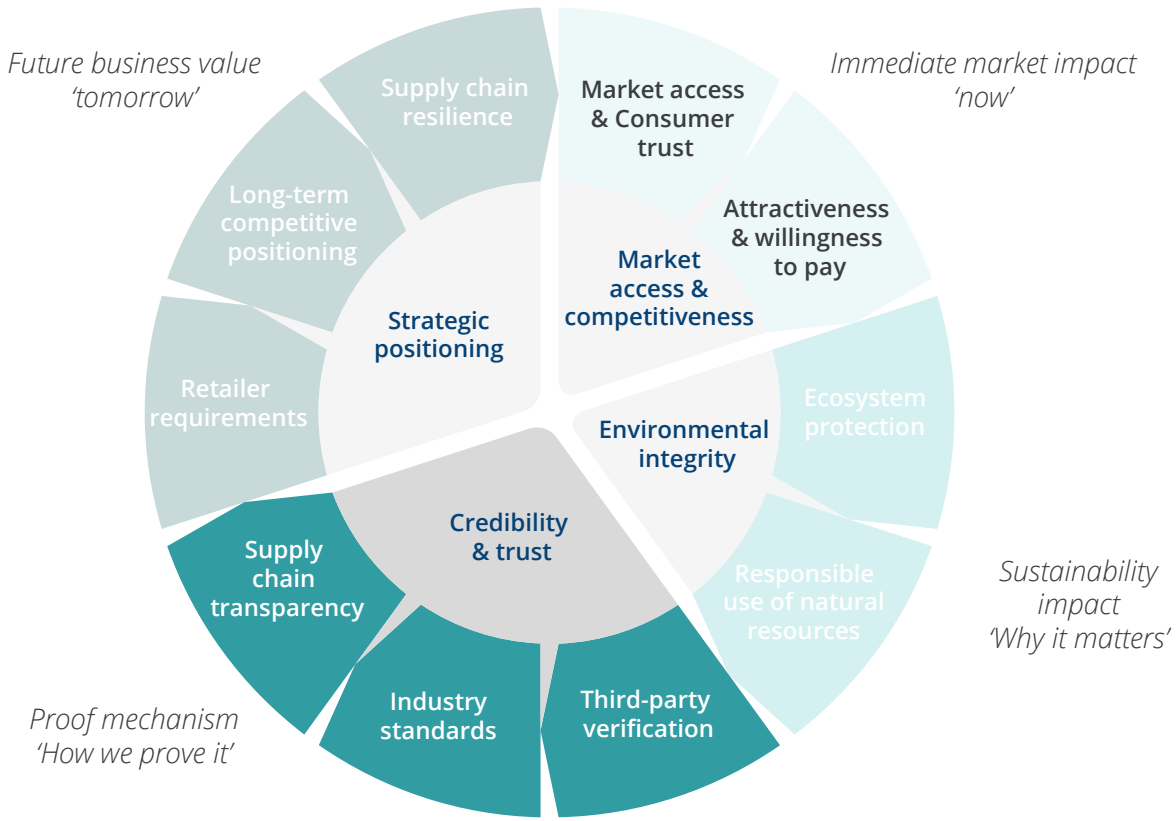
Credibility and trust

Third-party verification:

Audits conducted by external inspection bodies provide objective validation of sustainability claims, eliminating credibility issues. These auditors follow standardised protocols and report findings to certification bodies. This independence is crucial for preventing greenwashing and ensuring certification marks carry genuine meaning. The verification process includes detailed documentation review, on-site inspections and ongoing monitoring, creating accountability that extends beyond initial certification to continuous compliance.

Industry standards:

Certification programmes establish clear, measurable benchmarks that define what constitutes sustainable and responsible practices within aquaculture. These standards create a common language and framework that enables comparison, drives continuous improvement and raises industry-wide performance[10]. Regular re-certification requirements (typically annual or biannual) ensure certified operations maintain compliance over. This creates pressure for ongoing innovation and improvement, as standards typically evolve to incorporate new scientific knowledge and rising stakeholder expectations.



Supply chain transparency:

Certification mandates comprehensive traceability systems that enable end-to-end visibility from feed to farm origin through processing to final product. This transparency serves multiple purposes: it allows verification of certification claims at each stage, enables rapid response to quality or safety issues, provides consumers with confidence in product origin and handling, and creates accountability throughout the value chain. Advanced traceability solutions, including QR codes linking to detailed farm and production information, transform opacity into transparency, building consumer engagement and trust while also providing valuable data for supply chain optimisation.

2. Rationale for certification

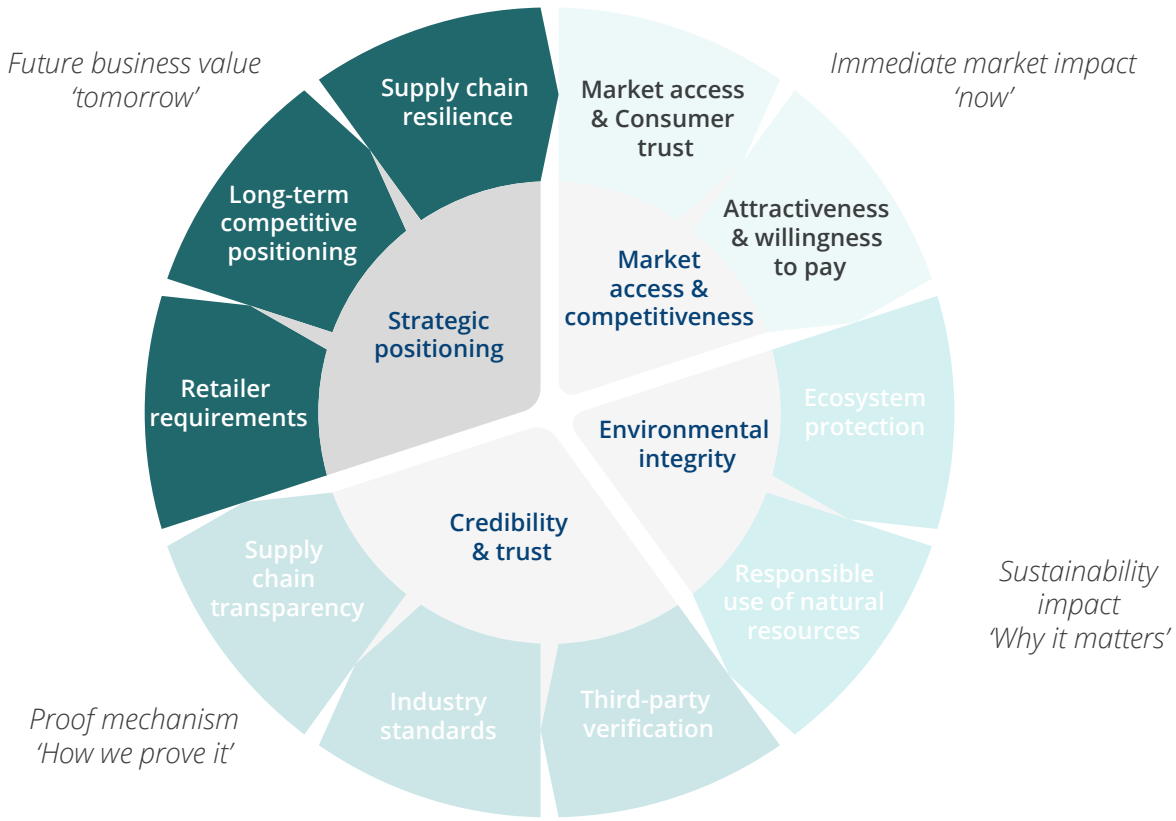
Strategic positioning

Retailer requirements:

ASC certification evolved from a competitive differentiator to a baseline entry requirement for European retail. Retailers are increasingly mandating sustainability certifications as prerequisites for supplier partnerships, making certification essential. This shift reflects growing regulatory pressure, consumer expectations and retailers' own sustainability commitments. Without proper certification, access to high-volume, premium retail channels becomes limited, effectively excluding non-certified products from key market opportunities.

Long-term competitive positioning:

While certification requires (substantial) upfront investment and typically takes 3-5 years to complete, it creates a competitive advantage that is difficult for competitors to replicate quickly[22]. The timeline and complexity serves as a barrier to entry, rewarding early movers. The certification journey positions the business for long-term success by establishing credibility that compounds over time and becomes increasingly valuable as sustainability requirements tighten.



Supply chain resilience:

Certifications mandate comprehensive traceability systems and quality controls throughout the entire supply chain, from farm to final product. This creates multiple benefits: enhanced ability to identify and address issues quickly, stronger relationships with suppliers who meet certification standards, reduced operational risks through systematic monitoring and greater flexibility to adapt to disruptions. The rigorous documentation and regular inspections inherent in certification create a more robust and responsive supply chain infrastructure[23].

3. High-over priorities for certificates

3. High-over priorities for certificates

Aquaculture certifications ensure sustainable, responsible production by validating core pillars

Aquaculture certifications typically focus on several key pillars to ensure sustainable and responsible farming practices. These pillars include animal welfare, traceability, social accountability and environmental responsibility, which collectively contribute to a more ethical and sustainable aquaculture sector. Below provides an overview of these critical pillars as they are addressed by leading certification schemes[3]. These key pillars are typically the foundation for most aquaculture certification schemes, ensuring a balanced approach.

Animal welfare and health

This pillar focuses on farmed species being treated humanely and managed for optimal health, minimising suffering and preventing disease outbreaks. Key areas include:

- Proactive health management plans and disease prevention strategies.
- Limited use of antibiotics and chemicals, with a focus on responsible use.
- No routine prophylactic antibiotics (treating animals preventively without signs of disease).
- Escape prevention for non-native species to prevent ecological damage.
- Humane slaughter and handling methods for minimal stress.

Traceability and transparency

This pillar focuses on that certified products can be tracked from farm to final consumer, providing transparency about the product's origin and production process[10]. Key areas include:

- Full traceability from farm or hatchery to processing and retail.
- Chain of Custody ensures certified products are kept separate from non-certified products[8].
- Proper documentation of harvest dates, product batches, transport and processing steps to ensure the product is accurately traced.
- Transparency in reporting environmental and social impacts related to farming operations.

Social accountability and worker welfare

This pillar focuses on ensuring that workers are treated fairly, their rights are respected, and safe working conditions are maintained. Key areas include:

- Fair wages and benefits for workers.
- Safe working conditions, with training in health and safety protocols[20].
- Freedom of association, allowing workers to organise.
- Engagement with local communities to promote social responsibility and address community needs.
- Grievance mechanisms for workers to report issues safely and confidentially[21].

Food safety and quality

This pillar ensures that farmed seafood is safe for human consumption and produced under hygienic conditions, following all necessary food safety protocols[23]. Key areas include:

- HACCP-based controls for food safety, ensuring products are harmful contaminants free.
- Regular testing for residues, including antibiotics, chemicals, and other harmful substances.
- Maintaining clean facilities at all stages of production (farm, processing, and storage).
- Packaging and labelling compliance with food safety regulations, ensuring products are properly identified and traceable.

Climate impact

This pillar focuses on the impact of operations on climate change. Key areas include:

- Measuring and reducing carbon emissions associated with farm operations (e.g., energy use, feed sourcing, transport)[25].
- Implementing climate-friendly practices, such as the use of renewable energy, efficient water management and reducing greenhouse gas emissions.
- In some certifications, carbon-neutral claims or strategies for offsetting emissions (e.g., mangrove restoration or other nature-based solutions) are incorporated.

3. High-over priorities for certificates

Aquaculture certifications ensure sustainable, responsible production by validating core pillars

Economic viability and scalability

This pillar evaluates whether aquaculture operations are financially sustainable, ensuring farms can continue to operate profitably while adhering to environmental and social standards[2]. Key areas include:

- Cost efficiency in farm management, feed use and operational activities.
- Long-term financial sustainability, including access to finance or market incentives for sustainable practices.
- Creating scalable models supporting smallholder farmers and promote inclusive growth in coastal communities.
- Ensuring operations expand without compromising environmental or social responsibilities.

Environmental responsibility and sustainability

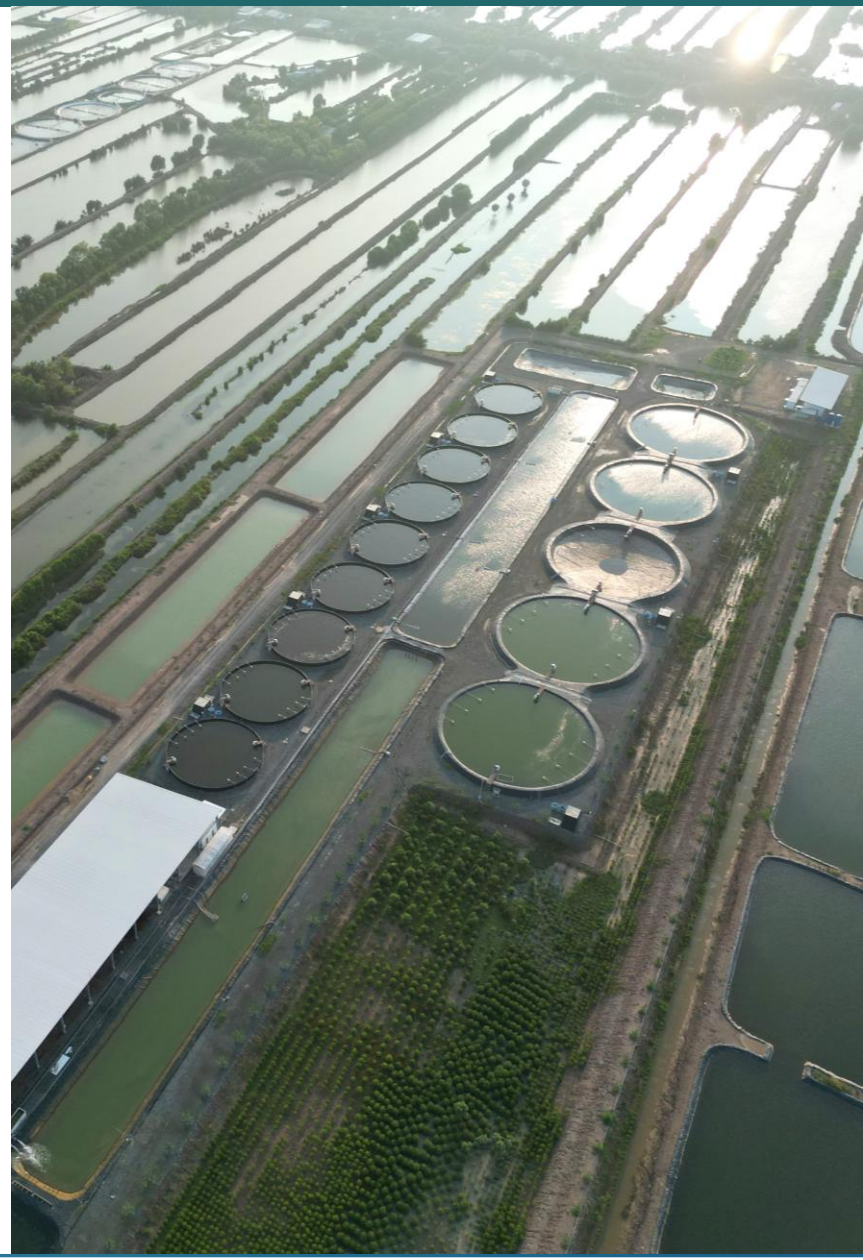
This pillar focuses on minimising the environmental footprint ensuring farms minimise impact on surrounding ecosystems[5]. Key areas include:

- Water quality management, including the treatment of effluents to prevent water pollution.
- Sustainable feed sourcing, reducing pressure on wild fisheries (e.g., using responsibly sourced fishmeal and plant-based feed).
- Minimising biodiversity loss by protecting surrounding ecosystems and preventing habitat degradation.
- Implementing systems for reducing energy consumption and managing waste.
- Ensuring that aquaculture activities do not result in mangrove deforestation and contribute to mangrove restoration.

Certification and compliance

This pillar focuses on that farms, feed mills and processing plants comply with relevant standards and are regularly audited to maintain certification[10]. Key areas include:

- Independent third-party audits to verify compliance with the standards.
- Ongoing surveillance and audits to monitor continued adherence to certification requirements.
- Clear certification guidelines and procedures to ensure that farms and processors are meeting the relevant social, environmental and food safety criteria.
- Transparency in reporting results and sharing improvements with stakeholders and consumers.



4. Certification Landscape

Certificate ASC

Value chain stages: Feed mills, broodstock hatchery, nursery, grow-out, CoC/ handling, consumer on-pack label

Globally recognised certification for responsibly farmed seafood. Verifies environmental, social, animal-health and traceability performance; enables on-pack ASC label. Chain of Custody (CoC) required across the supply chain. It is run by an independent non-profit founded in 2010 (originated by WWF and IDH) with its head quarters in the Netherlands.

Scope

ASC certifies farm (incl. hatchery) and feed, however no farm-processing production standard, this is handled via Chain of Custody for handlers/processors.

- Feed mills: ASC Feed Standard (mandatory for ASC farms from 31 Oct 2025).
- Farms (incl. hatcheries): ASC Farm Standard (mandatory from 1 May 2027).
- Final product: Eligible for ASC on-pack label.
- Transition: 1 May 2025–30 Apr 2027: Shrimp Standard runs along new Farm Standard.

Key principles (performance-based)

- Legal compliance and management.
- Environmental stewardship: Water quality and effluent control, waste management, biodiversity protection (incl. escape prevention), no new conversion of sensitive habitats (e.g., mangroves) and restoration obligations for historical impacts.
- Responsible feed: Controls on marine inputs: responsible plant sourcing.
- Animal health and welfare: Preventive health plans; responsible, no prophylactic antibiotics.
- Social responsibility: Fair, safe working condition/ hours / wages, freedom of association, community engagement and grievance.
- Transparency and traceability: Public performance metrics; full traceability via CoC[5].

Mangrove-specific requirements (ASC)

No conversion of mangrove areas after May 1999. Minimal footprints for essential infrastructure (e.g., pumps/pipes) are allowed only if 100% of any disturbed wetland is restored. If wetlands were converted before May 1999, the farm must restore ≥50% of those natural wetlands and report restored areas to ASC.[6]

Process

Pre-/initial assessment → improvements → on-site audit (docs, interviews, facilities) → public comment → certification decision (valid ~3 years with annual surveillance). CABs are accredited/overseen by ASI.

There is a ASC Improver Programme for smallholders to reach certification[4].

Benefit to farmers

- Operational: Better hygiene and biosecurity; reduced disease risk; structured continuous improvement; stronger data & traceability.
- Financial: Eligibility for sustainability-linked finance; streamlined reporting against ESG asks; risk reduction from improved health and environmental controls.
- Commercial: Prepares for evolving regulations; unlocks buyers who require credible sustainability certification; reduces sales friction in export supply chains.

Access to markets and buyers' acceptance

EU/UK retail: Widely treated as the baseline for "responsible aquaculture", often a prerequisite in retailer sourcing policies.

There is a growing acceptance in North America among importers and foodservice, especially when CoC is in place.

ASC enables entry and trust but is not a unique differentiator on its own in mature markets. It is suggested to pair with additional value claims (e.g., provenance & digital traceability, habitat restoration, renewable energy, no routine antibiotics) and strong packaging/storytelling.

TomGoxy Zero relevance

ASC does not fully capture the TomGoxy Zero mangrove co-benefits, but it aligns with shrimp production standards and is widely required by EU/UK retailers, making it a practical baseline for market entry, best paired with a dedicated mangrove/restoration claim.

Certificate BAP

Value chain stages: Feed mills, broodstock hatchery, nursery, grow-out, processing, CoC/ handling, limited consumer on-pack label

Comprehensive, third-party certification covering the full aquaculture supply chain and used to demonstrate responsible farming to buyers. The certificate is established by the Global Aquaculture Alliance (GAA) in 2002 and rebranded to the Global Seafood Alliance (GSA) in 2021. Starting with standards for shrimp farms as a response to threats to the shrimp sector and eventually expanding to cover the entire aquaculture supply chain, including farms, hatcheries, feed mills and processing plants.

Over 330 hatcheries, 2300 farms, 150 feed mills and 490 processing plants are BAP certified[7].

Scope

BAP certifies each step from hatcheries, feed mills, farms, processing plants including the CoC. It uses a "Star" system indicating how many links are certified. Some buyers request at least two stars (e.g., farm + processing)[9].

Key principles (traceability across all)

- Environmental responsibility
- Animal health and welfare
- Food safety
- Social accountability

Major requirements / criteria

- Aim for 100% recirculation; a single water-in gate is acceptable; overflow releases may occur (e.g., heavy rain).
- There must be separate water-in canal and water-out let ponds. If the same pond is used for discharge, water testing is mandatory.
- There is no specific limit stated for stocking densities.
- Non-native species escapes are not allowed. Farms must have systems to prevent it.
- No specific BAP mangrove rule beyond national regulations, where an area was historically mangrove, ≥60% should be kept as mangrove[8].

Certification process

- Register farm/facilities with BAP.
- Prepare documents/ self-assessment (HR, environment, water systems, welfare, traceability).
- *(Optional) Pre-audit / gap check.*
- On-site audit by BAP-approved auditor.
- Corrective actions submitted for any non-conformities.
- Certification issued under the BAP star system (farm/hatchery/feed mill/processor)
- Annual surveillance audit to maintain certification.[12]

Certification costs

Registration fee: USD 275, annual audit fee: ~USD 3,600. The programme fee is USD 1.25/MT based on prior-year production; min USD 650, max USD 5,000. Note: At ~200 MT/year, the minimum program fee (USD 650) can raise the cost/kg.

Benefit to farmers

- Operational credibility improves transparency, data, perceived responsible performance.
- Streamlines ESG reporting helping eligibility for sustainability-linked financing.
- Recognised route to demonstrate responsible high-density Vannamei production.

Access to markets

Mainly US and Canada in the retail and food services. Also recognised in EU, Australia, and many Asian markets (Japan, China, Hong Kong, Singapore, others).

TomGoxy Zero relevance

BAP aligns with TomGoxy's responsible production model at high density, including strict escape-prevention for non-native species like Vannamei in Vietnam. Its value is strongest when targeting markets that specifically require BAP, such as North America and parts of Asia. A constraint for BAP is the separation of water-in and water-out channels, which requires further technical assessment.

Certificate Global GAP

Value chain stages: Feed mills, broodstock hatchery, nursery, grow-out, CoC/ handling

Business-to-business farm-assurance standard for aquaculture. Verifies good practices across food safety, environment, animal welfare, worker well-being and traceability.

Consumer on-pack claims are uncommon, retailers mainly use it as a sourcing requirement. Chain of Custody (CoC) is available for handlers.

The owner is the certificate is AGRAYA GmbH (formerly FoodPLUS GmbH) as well as GGN labels, the headquarters is in Cologne, Germany.

GLOBALG.A.P. primarily focuses on farm-level and feed certification but also incorporates a Chain of Custody (CoC) system that is essential for exporters handling GLOBALG.A.P.-certified aquaculture products. CoC ensures traceability of the product as it moves through the supply chain from the farm to the retailer or final buyer[10].

Scope

- Hatchery and nursery: covered by the Aquaculture (IFA) standard.
- Grow-out farms: core scope (species modules available).
- Feed mills: supplied via the CFM Compound Feed Manufacturing standard.
- Processing/handlers: no processing-plant production standard; GLOBALG.A.P. CoC covers segregation/traceability for traders, processors, cold stores.
- Aquaculture-specific CoC coverage: holding/crowding facilities, live-well boat transfer, pre-slaughter/slaughter activities, post-harvest mass balance and traceability.

Note: GLOBALG.A.P. is not a food-safety certification; GFSI food-safety certification is recommended but not mandatory.

Key principles

- Food safety (HACCP-based controls).
- Environmental responsibility (water use/quality, effluents, waste).
- Animal health & welfare (biosecurity, veterinary oversight).
- Worker welfare (health & safety, basic rights)[11].
- Traceability & records across production.

Certification process

- Registration (operation and, if relevant, CoC).
- Self-assessment & documentation preparation.
- (Optional) pre-audit gap check and improvements.
- On-site assessment by approved certification body (docs, interviews, facilities).
- Corrective actions for any non-conformities.
- Certification decision; certificates validated in GLOBALG.A.P. IT systems.
- Ongoing oversight: annual self-assessments, surveillance audits, desk/peer review, and the Integrity Surveillance Program (ISP).

Annual fees based on production units (e.g., area, MT, employees) and services used.

Benefit to farmers

- Operational: clearer control points; better records, water management, biosecurity, H&S; access to IT tools (GGN registration).
- Efficiency: reduces duplicate audits via benchmarking/equivalence.
- Capability: training/competence requirements support consistent practice.
- Traceability: CoC enables segregation and end-to-end tracking.

Access to markets

EU especially Central and Northern EU and the UK and US.

TomGoxy Zero relevance

GLOBALG.A.P. certification is relevant for TomGoxy Zero primarily if they plan to supply directly to EU retailers who require this certification as a supplier qualification. If TomGoxy sells to processors or exporters, GLOBALG.A.P. is not required, as the processor handles supply chain certifications. The certification would become strategically important for direct EU retail market expansion and would complement their existing ASC certification efforts.

Organic Aquaculture for the EU market (Naturland and EU Organic)

Low stocking densities and buffer zones are decisive blockers for TomGoxy

Two organic routes are relevant for EU market entry: Naturland and EU Organic. Naturland is a private, chain-wide standard; EU Organic is the EU's legal framework. Both require low densities, organic inputs, and full traceability.

Naturland (Organic Aquaculture Standard)

Established in 1996, Naturland is a chain-wide organic scheme for fish and seafood. It sets rigorous requirements from rearing to processing, covering careful site selection, low stocking densities, water and sediment monitoring, animal welfare and the exclusive use of certified organic feed (no GM, no prohibited additives), alongside basic social standards. The standard is updated regularly based on scientific evidence and practical experience[3].

EU Organic (Reg. (EU) 2018/848)

EU Organic is the EU's legal framework for organic production and labelling. It sets detailed rules to support sustainable development, fair competition, fraud prevention and consumer trust. The regulation applies to aquaculture products placed on the EU market including those produced in countries like Vietnam, provided they comply with EU Organic requirements[14].

Value chain and criteria (apply to both)

- Seed (PL): Post-larvae must come from an organically certified hatchery.
- Stocking density: Low density required (Naturland: max 15 PL/m²).
- Feed: Certified organic feed only from approved plant/animal ingredients; non-permitted inputs are not allowed.
- Traceability: Full documentation across the chain to maintain the organic claim.

Buffer zones

Buffer zones prevent contamination from prohibited substances. As a practical rule of thumb, ~15 metres (~50 ft) is commonly used in organic cropping; final widths for aquaculture are set by the certifier based on site risks (water flows, adjacent activities, etc.)[15].

Geographic focus

- Naturland: Primarily Germany, Switzerland, Austria.
- EU Organic ("Bio" label): The common EU label, most widespread in Western Europe, with growing presence in Switzerland.

TomGoxy Zero relevance

Organic certification is currently not feasible for TomGoxy Zero. The Tra Vinh site lacks the required buffer zone and organic schemes mandate low stocking densities that conflict with TomGoxy's high-intensity model. Practically, this would require a redesign of farm layout (dedicated buffer corridors, water-flow separation) and a shift to much lower biomass, both with major yield impacts.

Near term, TomGoxy Zero is better served by non-organic routes (e.g., ASC) plus possible verifiable add-on claims (mangrove restoration, no routine antibiotics, digital traceability). If organic remains a goal, consider a segmented "organic line" at a suitable site with compliant buffers and low-density modules, while the main site stays conventional.

Climate impact partners carbon neutral

Value chain stages: individual organisations within the value chain on product level or company level

CarbonNeutral is a certification run by Climate Impact Partners (formed from the 2021 merger of ClimateCare and Natural Capital Partners) under the CarbonNeutral Protocol (since 2002). It allows a credible "carbon neutral" claim for a defined boundary (company, site, product, or event) and period (typically 12 months). Organisations certify independently, not jointly with other value-chain partners. It may be worth Scope 3 once data and EU requirements tighten.

The application process

The organisation defines the boundary, measure GHG emissions using recognised methods, demonstrate reductions (actions/targets), compensate 100% of the remainder with eligible, retired carbon credits, and disclose the approach transparently.

Carbon neutral is not net-zero (which requires deep, long-term absolute reductions before neutralising small residuals), but it is a credible near-term claim that buyers and retailers understand[16].

Assessed by an independent third party against the Protocol. You prepare your own inventory and documentation. Claim typically include a company, site/operation and product. For TomGoxy, a site or product claim is most practical.

Costs and timing (indicative)

For one location, the assessment is the main fixed cost (≈ EUR 7k minimum, up to ~ EUR 11k for all three scopes), with annual reconciliation thereafter. Credits are mandatory, budget separately for purchase and retirement after the footprint is calculated. The critical path is completing the inventory and assessment, then procuring/retiring credits.

Market access

Useful as a B2B credibility signal (tenders, buyer ESG portals) but not a market-entry ticket. Consumer-facing "carbon neutral" claims are increasingly restricted in the EU, so kept usage off-pack and fact-based[17]. Climate Impact Partners indicated they have not seen shrimp farms use Carbon Neutral before; it does not by itself open specific markets and should be positioned as a supporting credential alongside core certifications (e.g. ASC).

Risk of "Greenwashing"

Heavy promotion of a carbon-neutral certification carries the risk of being accused of greenwashing, as the products still need to be shipped across the world. Additionally, increasing greenwashing accusations and regulatory pressure from the European Union make carbon-neutral certification less suitable for retail promotion.

TomGoxy relevance

A carbon-neutral site or product claim can sit alongside ASC or other certificates, strengthening ESG credibility in EU/UK and North America.

The TomGoxy's mangrove concept pairs naturally with blue-carbon/nature-based credits, ensure high quality and separate them from in-farm restoration accounting to avoid double counting.

Climate Impact Partners noted they have not yet seen a shrimp farm pursue CarbonNeutral and expressed interest. However, given current volumes and margins, certification costs would likely outweigh TomGoxy's near-term value. Carbon credits must first be established, typically under the Verra methodology.[18]

Case example of the Selva shrimp certification

A developed certification to differentiate the product and raise the bar on sustainability and traceability

The Selva Shrimp certificate (BlueYou): restorative mangrove aquaculture

The Selva Shrimp certification was initiated by BlueYou, an aquaculture brand, as part of its Selva Shrimp brand initiative established in 2008 to promote restorative mangrove aquaculture in southern Vietnam. This certification is specifically designed for selva culture, where black tiger shrimp (Monodon shrimp) are cultivated within mangrove areas.

The Selva Shrimp program consists of three main components. First, it provides a technical framework for farm-level improvements and mangrove restoration based on specific standards for farming operations and post-harvest chain of custody, with traceability applicable to the supply chain of harvested shrimp from farmers to licensed processing plants. Second, it implements a third-party verification and auditing scheme including guidelines for auditing by conformity assessment bodies (CAB).

Objective

Selva Shrimp provides a scalable business model for restorative mangrove aquaculture, coupling recovery with social inclusion and responsible consumption. The programme focuses on practical assurance, traceable supply and measurable ecosystem outcomes. The Selva Shrimp programme's key objectives:

1. Assurance: Build and maintain a robust verification and auditing framework for restorative mangrove aquaculture, adaptable to diverse intertidal foodscapes worldwide.
2. Traceability: Develop, operate, and enforce a digital traceability system that safeguards supply-chain integrity from farm origin to the final packed product.
3. Inclusion and scale: Enable viable participation of coastal communities and smallholder farmers, achieving cost efficiencies and scale in accessing and undergoing third-party audits and certification.
4. Science & monitoring: Establish a scientific database and continuously monitor blue carbon, mangrove cover and biodiversity outcomes across all Selva project areas[19].

Two level verification and auditing

- Level 1 Selva standard: Assessment, verification and third-party audit against the Selva Shrimp principles and standards, tailored to the local mangrove foodscape.
- Level 2 External certification: Assessment and certification against independent, ISEAL-aligned standards (e.g., Naturland Organic Aquaculture, EU Organic, ASC, Fair Trade USA Seafood).

To reduce cost and duplication, required checks are conducted through one integrated audit, leveraging existing smallholder group structures (farmer groups/cooperatives/ICS).

Key Criteria

- Mangrove–water surface ratio: minimum 50% / 50%.
- Inputs (on-farm): use organic/natural fertilisers and compost sourced within farm boundaries.
- Allowances (per Selva standard): antibiotics, chemicals, synthetic fertilisers, and external feed may be allowed, subject to the scheme's specific rules and full documentation.
- Stocking density: natural/low density (< 22 PL/m²).
- Documentation: clear records of all inputs (PLs, fertilisation), harvests, and sales to maintain traceability.

Branding and differentiation

Selva Shrimp functions as both standard and brand, signalling verified mangrove co-benefits, social inclusion and traceable supply. It sets a practical bar for sustainable aquaculture in mangrove landscapes and can be paired with other third-party certifications to meet buyer policies while retaining a distinct Selva market identity.

5. Certification Comparison

Value chain certificate comparison

Only ASC covers (indirectly via MSC CoCs) all steps of the value chain

	ASC	Best Aquaculture Practices	GLOBALG.A.P.	Naturland	EU Organic	CERTIFIED CARBON NEUTRAL® carbonneutral.com
Broodstock / hatchery	✓ In farm standard	✓	✓	✓ Organic origin/ controls	✓ Organic origin/ controls	N/A
Farm (grow out)	✓ Farm standard	✓ Farm standard	✓ IFA Aquaculture	✓ Naturland Aquaculture	✓ EU Organic aquaculture rules	Can certify site footprint, not practices
Feed	✓ Feed standard	✓ Feed mill standard	✓ Compound feed manufacturing standard	✓ Organic feed	✓ Organic feed	Can include feed in footprint
Processing	Via MSC CoC and ASC module. No processing standard	✓	Via CoC. No processing standard	✓ Naturland processing rules	✓ EU Organic processing and labelling	N.A
Chain of Custody (CoC)	Via MSC CoC and ASC module	✓	✓	✓ Organic CoC/ controls	✓ EU control system/ CoC	N.A
Exporter / trader	Via CoC	✓	✓	✓	✓ Organic operator control	N.A
Retailer	✓ Consumer on-pack label	Limited consumer on-pack label	B2B focus	✓ Logo under license	✓ (EU organic label rules)	(B2B claim possible; avoid on-pack in EU)

Conclusions on existing certificates

ASC

Is a strong non-profit eco-label with strong EU/UK pull. Certifies farm (incl. hatchery) and feed (ASC Feed deadline); on-pack claim requires MSC CoC + ASC module. Clear habitat rules (mangrove cut-off and restoration), strong ESG depth. Good baseline for European retail; not designed to reward intensive systems that actively restore mangroves.

BAP

Run by GSA and is best suited for entry to US, Canada and parts of Asia. Certifies the full chain (hatchery, farm, feed mill, processing) under a "star" system and a BAP CoC is available. No global mangrove requirement (defaults to national law). Suits high-throughput programmes but does not natively value verified mangrove restoration outcomes.

GLOBALG.A.P. (GAP)

Business-to-business farm assurance used as a listing baseline in EU and UK. Covers hatchery and farm, feed via CFM and handlers via CoC (no dedicated processing-plant production standard). GPA focuses on good practices and records; no specific mangrove cut-off/restoration construct.

Relevance for TomGoxy Zero

All three schemes help with market acceptance (and ASC guards against new mangrove loss), but none integrates intensive shrimp production with verified mangrove restoration/blue-carbon outcomes. In other words, they protect or ignore mangroves, yet they do not reward intensive-plus-restorative models.

Direction for TomGoxy Zero

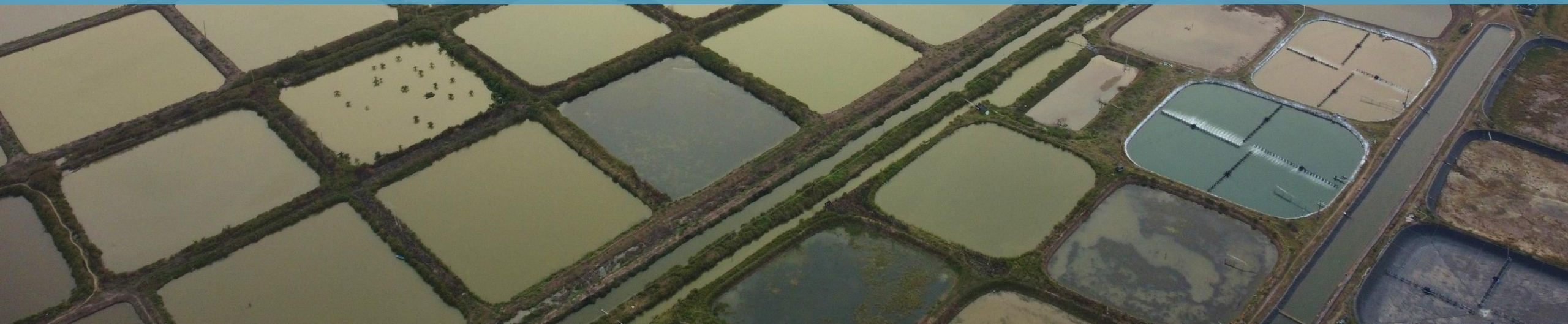
It is worth considering whether to add a new module that combines intensive shrimp farming with mangroves. Following the example of BlueYou of developing a new concept alongside an existing certificate as an add-on.

- Habitat and blue carbon: minimum mangrove : water ratio by block; no-net-loss + quantified restoration; annual canopy/area and blue-carbon reporting.
- Water and biosecurity: recirculating/segregated in–out canals; effluent KPIs (e.g., N, P, TSS); escape-prevention for non-native species.
- Animal health and welfare: preventive plans; no routine antibiotics; residue compliance.
- Data and traceability: pond-level digital records (feed, FCR, therapeutics, harvest); CoC alignment to processor.
- Social safeguards: worker H&S, fair conditions; community mangrove stewardship. Audit the add-on in one integrated audit with the chosen base scheme to avoid duplication; publish a short annual outcomes sheet (mangrove area restored/ha, survival, FCR, water-quality KPIs, escape incidents).

Positioning

Keep ASC/BAP/GAP for buyer acceptance; use the TomGoxy mangrove-intensive add-on to differentiate: "Intensive shrimp with verified mangrove restoration and measurable blue-carbon outcomes, fully traceable."

6. Certification roadmap



Certification roadmap – Preparation for starting the process [1/3]

Preparation for initial audit

	Disease Control & Biosecurity	Sustainability & environmental impact	Feed Management & Resource Efficiency	Animal welfare	Social responsibility
BAP CERTIFIED	1. Implement disease prevention protocols/biosecurity measures 2. Establish quarantine procedures and pathogen exclusion systems 3. Create inspection schedule water quality and animal condition 4. Develop pond preparation and water management protocols 5. Ban prophylactic/growth-promoting antibiotic use 6. Require trained aquatic animal health specialist diagnosis before any antibiotic treatment 7. Implement withdrawal periods before harvest to ensure no residues.	1. Ensure habitat conservation and protection of local ecosystems 2. Monitor and maintain water quality parameters within specified limits 3. Manage effluents responsibly to prevent envir. degradation 4. Implement water treatment systems 5. Develop plan prevent infestation 6. Create specific environmental monitoring for different farm types (cage, RAS, flow-through)	1. Comply fish-in fish-out ratio limits for fishmeal/fish oil use 2. Source feed from BAP-certified feed mills (for 4-star certification) 3. Optimise use of key ingredients 4. Limit wild-caught fish in feed formulations; favour alternative ingredients 5. Maintain proper feed storage and usage protocols 6. Track FCR and resource efficiency	1. Maintain appropriate density based on species, water quality, and hydrographic patterns 2. Implement humane stunning methods before slaughter 3. Ensure stress-minimising transport protocols 4. Regular monitoring of animal behaviour and health conditions 5. Document animal welfare procedures and training 6. Maintain optimal water quality (dissolved oxygen, temperature)	1. Follow ILO labour conventions 2. Ensure compliance with health, safety and labour laws 3. Provide transparent wage terms and employment contracts 4. Prohibit discrimination, harassment and corporal punishment 5. Ensure freedom of association and collective bargaining 6. Establish grievance mechanisms and complaint procedures
asc ASC-AQUA.ORG	1. Disease prevention requirements to minimise outbreaks 2. Hygienic conditions 3. Early detection and monitoring systems 4. Preventive solutions (probiotics, feed additives) encouraged. 5. Hatchery involvement in disease prevention through genetics	1. Farm siting, protection of local ecosystems and not in protected areas, buffer zone required, mangrove restoration mandated 2. Water management: responsible water use, prevention of salination of waterbodies or land, water quality parameters must be within limits, minimise impact through conservation measures, mangrove ecosystem protection and restoration.	1. Feed from ASC-certified feed mills 2. Minimise use of wild fish ingredients in feed 3. Source feed from deforestation-free suppliers 4. Prioritise marine ingredients from responsible sources (Marine Trust, MSC certified) 5. Avoid endangered species and illegal/unreported/unregulated fishing sources 6. Track and optimise FCR 7. Implement feed inventory and usage documentation systems	1. Source broodstock from ablation-free lines (transition period: May 2025 – May 2031). 2. Eliminate antibiotic use 3. Implement humane stunning methods (electric stunning preferred) before slaughter 4. Establish stress-free handling through production cycle 5. Ensure rapid loss of sensibility during slaughter process 6. Develop/document animal welfare procedures and training 7. Monitor and assess shrimp welfare indicators regularly	1. Assess wage gaps, create improvement plans, track progress 2. Implement human rights policy based, establish forced/child labour protocols 3. Transparent contracts, migrant worker safeguards. 4. Local participation and confidential grievance mechanisms 5. Prohibit discrimination, harassment, corporal punishment, forced labour 6. Follow labour laws
GLOBALG.A.P.	1. Implement biosecurity pathogen exclusion, quarantine, sanitation, disinfection 2. Use SPF stock when available 3. Develop contingency plans for disease outbreaks 4. Implement water treatment for incoming water and wastewater 5. Regular health monitoring and disease surveillance systems 6. Document health management procedures and mortality tracking	1. Conduct risk assessment for environmental impacts 2. Monitor water quality parameters continuously (dissolved oxygen, temperature) 3. Implement measures to minimise environmental impact on biodiversity 4. Establish waste management and effluent treatment protocols 5. Document environmental management practices 6. Develop procedures chemical and medicinal product use	1. Source compound feed from GLOBALG.A.P. certified feed manufacturers 2. Document feed sourcing, storage, and usage 3. Maintain proper feed storage conditions and hygiene 4. Track feed conversion ratios and production efficiency 5. Implement procedures for feed quality control 6. Record all feed-related data for traceability	1. No eyestalk ablation 2. Maintain appropriate density based on water quality and species requirements 3. Continuous monitoring and maintenance of optimal conditions 4. Implement humane stunning and slaughter methods 5. Minimize stress during all handling operations 6. Document all animal welfare practices and incidents 7. Regular behavioural and health observations	1. Implement ILO Core Labour Conventions and UN Guiding Principles 2. Ensure no debt bondage, forced/child 3. Respect freedom of association and collective bargaining 4. Prohibit discrimination, harassment 5. Establish confidential complaint mechanisms without retaliation 6. Maintain worker registers, employment documents, legal eligibility verification 7. Follow local labour laws

Certification application

Being certified

Maintaining certification

Certification roadmap – Application process for certification [2/3]

Preparation for initial audit

Certification application

	Stage 1 Application	Stage 2 Audit planning	Stage 3 Audit	Stage 4 Certification finalisation
BAP CERTIFIED **Duration process:** 4-6 months **Application fee:** ~$275 **Annual audit fee:** ~$3,600 **Programme fee:** $650 - $5.000 (1.25$ / MT) **Royalty rates:** None	1. Review of standards for organisation 2. Electronic application and agreement 3. BAP sends audit invoice 4. Farm pays invoice	1. Certification body (CB) assigned by BAP 2. Scheduling of audit by the CB 3. Assignment of auditor and audit date confirmation	1. On-site audit complete 2. Any non-conformities presented to facility 3. If necessary: submission of corrective action to CB 4. Auditor reviews and closes out non-conformities 5. Technical review of the audit by certification body 6. Certification body determines improvement and BAP compliance	1. BAP sends program fee invoice 2. Farm pays invoice 3. BAP releases certificate & validation letter of CB 4. Facility is listed on BAP producer page
asc ASC-AQUA.ORG **Duration process:** 2-3 months **Cost of process:** **Annual audit fee:** € 6,000 to €15.000 **Program fee:** Farms excluded **Royalty rates:** 0,5%	1. Review of standards for organisation 2. Signing Conformity Assessment Body (CAB) 3. Farm pays invoice 4. Overview of process and requirements	1. CAB announces audit will be conducted 2. Announcement made 30+ days before visit 3. ASC is alerted of audit	1. Assessment of all relevant documentation 2. On-site audit, management and staff interviews 3. Assessment of performance against ASC farm standards 4. Any non-conformities presented to farm 5. If necessary: submission of corrective action to CB within 3 months 6. Certification body determines improvement and ASC compliance	1. Publication of draft report by ASC 2. 15 days for stakeholders to comment on draft 3. CAB releases certificate & validation letter 4. Facility is listed on ASC producer page
GLOBALG.A.P. **Duration process:** 2-3 months **Annual audit fee:** ~€ 6,000 **Program registration fee:** €100 annual (100 – 500 MT) **Certificate fee:** €50	1. Review of requirements for GlobalGAP 2. Registrate farm online and receive GGN number. 3. Farm pays invoice 4. Conduct self-assessment with check-list	1. Choose a Global GAP approved Certification Body. 2. Farms scedules a date with the CB. 3. Farm will prepare all necessary document for the audit.	1. Assessment of all relevant documentation 2. On-site audit, sampling, management and staff interviews 3. Assessment of compliance with Global Gap. 4. Any non-conformities presented to farm 5. If necessary: submission of corrective action to CB within 30 days minor/90 days major. 5. Certification body determines the compliance.	1. CB issues the official GlobalGAP certificate for the shrimp farm 2. Registration in GlobalGAP IT System 3. CAB releases certificate. 4. Facility is listed on GlobalGap producer page

Being certified

Maintaining certification

Certification roadmap – Being and remaining certified [3/3]

Preparation for initial audit

Certification application

Being certified

	Maintaining certified	Key differences
BAP CERTIFIED	Certificate valid for three years 1. Annual Review Audits - Required every year (Years 2 and 3) 2. Surveillance Audits - Conducted in 2nd and 3rd year after initial certification 3. Recertification - Full audit after 3 years 4. Continuous Compliance - Maintain standards across all four pillars: 1. Environmental responsibility 2. Social accountability 3. Food safety 4. Animal health & welfare 5. Address Non-conformities - Correct and submit evidence to certification body 6. Annual Fees - Pay program and certification fees 7. Logo License - Maintain licensing agreement with GSA for logo use	Certificate duration: 3 years Surveillance frequency: Annual (Years 2 & 3) Audit intensity: Annual review Public transparency: Less public
asc ASC-AQUA.ORG	Certificate valid for three years 1.Annual Surveillance Audits - Mandatory every year at the anniversary date (±3 months window) 2. Minimum 2 surveillance audits during the 3-year certification cycle 3. Re-certification Audit - Full reassessment at end of 3-year cycle (conduct at least 6 months before certificate expiry) 4. Continuous Compliance - Maintain all standards throughout certification period 5. Address Non-conformities: 1. Minor: Resolve within 3-12 months 2. Major: Resolve within 3 months or certificate suspended 3. Critical: Immediate action required 6. Audit must occur during production - Farms must have product/activity on-site (with some exceptions for fallow periods) 7. Public Reporting - Audit reports posted publicly for stakeholder comment 8. Improvement Plans - Review and update annually	Certificate duration: 3 years Surveillance frequency: Annual (minimum 2 in 3 years) Audit intensity: Full surveillance + re-cert Public transparency: Reports publicly posted
GLOBALG.A.P.	Certificate valid for three years 1.Annual Recertification Audit - Required every year before certificate expiry 2.Audit Window: 8-month window (4 months before to 4 months after expiry date) 3.Minimum 6 months between consecutive audits 4.Annual Registration Confirmation - Confirm scope and registration with CB before expiry 5.Pay Annual Fees: 1.Producer registration fee 2.Certificate license fee 3.Audit fees to certification body 6.Continuous Improvement Plan - Maintain and update farm-level improvement plan 7.Mandatory GRASP - Maintain compliance with social responsibility add-on 8.Certified Feed Sourcing - Continue sourcing from GlobalG.A.P. certified feed mills 9.Record Keeping - Maintain comprehensive documentation 10.If certificate expires >12 months - Must repeat initial audit process	Certificate duration: 1 year Surveillance frequency: Annual recertification Audit intensity: Full annual audit Public transparency: Listed in database

Maintaining certification

ASC Improver Program – The smallholder route

The cost of third-party auditors remains a limiting factor for smallholders seeking ASC certification

The route to certification can be costly for farmers as it requires a third-party auditor and may demand operational changes at farm level. This means the business case for certification only becomes attractive once a farm reaches sufficient production volumes.

ASC Improvement Program (or Improver Program)

The ASC (Aquaculture Stewardship Council) Improvement Program is designed for farms that are not yet ready or eligible for full ASC certification but are committed to improving their practices. It primarily operates through Aquaculture Improvement Projects (AIPs), which offer a structured, time-bound roadmap for stepwise improvements in sustainability and responsible farming.

Key features of the ASC Improver Program

1. AIP to ASC Certification

A phased improvement plan that brings farms to a performance level where they can meet the full ASC certification farm standard and pursue certification.

1. AIP to Better Practices

A pathway focusing on improving specific environmental or social practices without necessarily aiming for full ASC certification.

The program includes trained Implementers who assist farms in designing, developing and executing improvement plans and Independent Verifiers, who confirm progress. The goal is to drive widespread positive changes in seafood farming, including farms that are not yet certified in sustainability efforts.

Improvement plans are typically structured over a maximum of three years and involve regular self-evaluations and external verification. The programme complements ASC's full certification scheme by supporting farms on their journey toward more responsible production, whether or not they ultimately certify[4].

Certification process for smallholder farms

Smallholder farms that successfully complete the improvement plans and meet the required standards can progress to full ASC certification. The Improver Programme thus serves as a steppingstone, bridging the gap between current practices and the full requirements of ASC certification.

However, even after completing the ASC Improver Programme and reaching the eligibility point for full ASC certification, farms still need an independent auditor to verify compliance with ASC social, operational and environmental standards. The costs of this certification process, including auditor fees, preparatory assessments and any certification-related expenses are borne by the farm. In some cases, development projects, NGOs or supply chain partners may provide financial or technical support, but this is not guaranteed.

Roadmap to certification – The smallholder route

Collective certification to reduce the cost

Individual vs collective certification for smallholders

When assessing certification options that offer the most value for shrimp farmers, ASC and BAP emerge as the most relevant schemes. However, the requirement for third-party audits make individual certification economically challenging for smallholder farmers, given their relatively low production volumes.

To overcome this, opportunities exist for collective certification, in which smallholders are organised into cooperatives/clusters. Both ASC and BAP offer collective certification options.

1. ASC producer group certification

ASC allows 'group certification,' enabling cooperatives or associations of small farms to be certified as a group rather than only as individually certified farms, provided all member farms comply with the relevant ASC Farm Standard and group requirements[26]. Key elements include:

- Group Management Body (GMB): The group must establish a formal GMB with authority over all members. This body is responsible for implementing the ASC standard, maintaining a documented Internal Management System (and acting as the legally responsible client for certification.
- Internal Management System (IMS): The IMS must cover membership rules, internal inspections, corrective actions, training, product segregation, and record-keeping for all sites and product flows.
- Member commitment: Member farms sign an agreement committing to comply with ASC requirements, allow internal and external audits and accept sanctions such as suspension or exclusion when necessary. Only smallholder producers are eligible to participate under the group and new members can only be added through controlled procedures.

ASC auditing

Certification bodies audit both the central management system and a sample of member farms rather than every site at every audit. This sampling model, combined with group-level document checks and interviews, improve efficiency and allows cost sharing among members.

Risks & limitations

The main limitation of this collaborative approach is its interdependence, all farm must comply with ASC farm standards. If one member fails to meet the requirements, the certification of the entire group can be jeopardized, illustrating the principle "you are only as strong as your weakest link."

2. BAP Cluster program

The BAP certification offers a specific 'Cluster program' that allows multiple smallholders to be certified together under a sponsoring organisation. The sponsor can be a processor, importer, buyer, farmer cooperative or association or other legally recognised entity that coordinates the certification process for member farms[27].

The advantages are: The application/ registration fee is calculated per cluster rather than per farm. Second, certification body (CB) audit fees and travel costs can be reduced when audits for multiple farms in the same region are consolidated. The sponsor typically manages documentation, training and audit logistics, reducing the administrative burden on individual smallholders.

BAP auditing

Unlike ASC group certification, the BAP Cluster Programe does not use a sampling model. All farms in the cluster must be audited annually against the full BAP standard. Certification remains facility-specific, even though farms are organised under a common sponsor.

Risks & limitations

Because each farm is audited individually, overall auditing costs remain relatively high and cannot be shared to the same extent as in ASC's sampling-based group model. Farmers benefit from some economies of scale (e.g. shared preparation, group discounts, coordinated logistics), but the fundamental cost of individual audits still limits affordability for the smallest producers.

Roadmap to certification – The smallholder route

Cooperative Certification application

Stage 1 Farm interest

Cluster Program

1. Farm interested in obtaining certification.
2. Farmer is already a member of a cooperative or farmers' association.

or

3. Joins one that wants to apply for BAP cluster certification.

Group certification

1. Farm is interested in obtaining certification.
2. Farmer is already part of cooperative or farmer association.

or

3. Joins a cooperative or farmers association with interest in cluster certification.

Stage 2 Cooperative planning

Cluster Program

1. Cooperative/ other sponsoring org. registers the cluster with BAP and selects / is assigned a CB.
2. Cluster shares list and basic data of all member farms to be included in the cluster.
3. Farms complete a self-assessment against BAP requirements and agree improvements required.

Group certification

1. Cooperative/association is a group of smallholders that want to become ASC certified.
2. Cooperative sets up GMB and an IMS incl: rules and farm list, internal inspections and corrective actions, record-keeping and product tracking ASC Programme Centre.
3. Group carries out a baseline self-assessment against the ASC Farm Standard and, where needed, joins or aligns with an ASC Improver Programme / AIP to close key gaps.

Stage 3 Audit planning

Cluster Program

1. BAP/CB sends programme and audit invoice. Cooperative collects contributions from members.
2. Cooperative and CB agree on audits planning.
3. Farms prepare documents (licenses, production records, feed and chemical use, labour records, etc.) for the audit.

Group certification

1. Group finalises improvement actions, so all member farms meet ASC requirements.
2. GMB selects an accredited Conformity Assessment Body (CAB) and agrees on the scope, timing and sampling for the group audit.
3. Internal inspections are completed; only farms that comply are kept in the group list for the audit.

Stage 4 Audit

Cluster Program

1. CB conducts on-site audits at all farms in the cluster and at the cooperative.
2. Any non-conformities are explained to the cooperative and farmers.
3. Cooperative and farms implement corrective actions and send evidence to the CB.CB reviews the evidence and decides on certification; eligible farms receive BAP certificates under the cluster and are listed as BAP-certified producers.

Group certification

1. CAB reviews the group documentation and IMS.
2. CAB visits a sample of member farms for on-site inspection and interviews with farmers and workers.
3. Any non-conformities (group or farm-level) are reported; the group implements corrective actions within the agreed timeframe and provides evidence.
4. CAB decides on group certification; if successful, the group receives an ASC certificate and member farms can sell as ASC-certified (as long as they remain in compliance).

Being certified

TomGoxy Zero Certification

To capture the benefits and value of mangroves in the aquaculture model, an add-on certification needs to be established

Based on the current certification landscape, no existing scheme adequately covers the mangrove components of the TomGoxy Zero concept. Developing a dedicated TomGoxy Zero certification that recognizes the benefits of integrating and reforesting mangroves within Vannamei shrimp farming would add value to the business case, raise the bar for farming practices, differentiate the product, and strengthen the brand.

Given the established certifications already focused on responsible and sustainable shrimp farming, a TomGoxy Zero certificate should be positioned as an add-on to production-focused standards such as ASC and BAP, with clear emphasis on environmental impact, carbon sequestration, and biodiversity.

Development approach

To establish this certification, co-develop it with an independent auditor (e.g., Control Union, KIWA, or TÜV). Jointly define and document the core requirements, then establish a clear audit protocol.

TomGoxy Zero criteria

Some of the criteria that can be taken into account in the development of the certification can be:

- Minimum mangrove coverage of at least one-third of the farm area.
- Defined post-filtration water quality thresholds (example parameters provided in Table 1)
- Verified farm-level carbon sequestration capacity through Verra methodology.
- Life-cycle assessment (LCA) completed with explicit emissions thresholds.
- Full traceability and up-to-date farm mapping/records through a QR code.

Market adoption

Creating the certification is only the first step; it must be actively promoted to buyers and retailers to build recognition and demand. Since certification development is also brand building, it should align with buyer and retailer needs. Therefore, collaboration with retailers and buyers during the establishment phase is strongly advised.

TomGoxy®ZERO

Table 1: Examples of water parameter

TT	Parameter	Unit	Permissible value
1	Total Nitrogen (TN	mg/l	<1
2	Total Phosphorus (TP)	mg/l	< 1

Roadmap to certification

ASC as a baseline with an own mangrove add-on

Existing schemes (ASC, BAP, GLOBALG.A.P., Naturland) strengthen market access and operational discipline across core pillars animal welfare, traceability, social safeguards, food safety and environmental performance, but none explicitly rewards intensive shrimp systems that restore mangroves or deliver verified blue-carbon outcomes.

For TomGoxy Zero, ASC is the most practical baseline for EU/UK retail entry; BAP can complement where North American/Asian buyers ask for it. Organic routes (e.g., Naturland/EU Organic) conflict with TomGoxy's high-density model and buffer requirements and are therefore not near-term options. Foodservice channels (e.g., Hanos, restaurants) are less certificate-driven because labels are not consumer-facing, reinforcing retail-led prioritisation.

The strategic gap and opportunity is a credible add-on that recognises mangrove restoration, water-quality outcomes and measurable carbon benefits alongside standard farm certification. Building such an add-on with an independent auditor and integrating its checks into a single audit with ASC (or BAP), would differentiate TomGoxy Zero while keeping costs and duplication manageable.

Recommendations for TomGoxy Zero

- Adopt ASC as the baseline for EU/UK retail, add BAP in case of buyers in North America.
- Develop a TomGoxy Zero Mangrove Add-on (e.g., with Control Union/KIWA/TÜV) covering minimum mangrove ratio, effluent thresholds, escape-prevention, no routine antibiotics, pond-level digital traceability and annual canopy/blue-carbon reporting, audited in one go with ASC/BAP.
- De-prioritise organic certification. TomGoxy Zero's high-density systems are incompatible with organic low-density requirements, and farm locations must be designed to incorporate buffer zones.
- Engage retailers early (EU focus) to co-shape claims and on-pack storytelling. For foodservice, use B2B specs rather than consumer labels.
- Consider a measured climate claim later (e.g., carbon-neutral at site/product level) once inventory and credits are robust, position off-pack to avoid EU greenwashing risk.

This pathway preserves buyer acceptance today and creates a distinctive, defensible edge for TomGoxy Zero's tomorrow with intensive shrimp with verified mangrove restoration and measurable blue-carbon outcomes, fully traceable and retail-ready.

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