

Aquaculture Project Planning Checklist

The pre-procurement checklist used by the FishMatch Group concierge on live commercial mandates. Complete each section **before** issuing RFQs to equipment suppliers — projects that skip this stage typically pay 30–40% cost overruns and lose 5–10 survival points against plan.

How to use this checklist

Work through the 12 sections in order. Each item is a decision, artifact or datapoint that must exist before equipment is committed. When every box is ticked you have a bankable planning package — the same evidence lenders, insurers and EPC bidders expect to see.

1 · Project Thesis & Market

- ☐ Target species defined with justification (biology fit, market demand, regulatory status).
- ☐ Product form defined (whole fresh, HOG, fillet, HLSO shrimp, live, value-added).
- ☐ Target market(s) named with priced offtake assumptions per kg (domestic vs export).
- ☐ Competitor benchmark: 3–5 comparable farms with cost, yield and market position.
- ☐ Revenue model over 10 years with sensitivity to price $\pm 20\%$ and FCR $\pm 15\%$.

Why it matters: Equipment specs derived from a fuzzy market thesis will over- or under-size the entire facility.

2 · Site Suitability

- ☐ Water source secured (well, surface, seawater) with annual flow rate & seasonal minimums.
- ☐ Water chemistry: temperature range, salinity, alkalinity, hardness, pH, iron, ammonia — 12-month dataset.
- ☐ Soil study & topography survey (for ponds and civil works).
- ☐ Power availability confirmed (kVA, tariff, reliability, backup feasibility).
- ☐ Discharge route and effluent limits documented against local regulation.
- ☐ Access, logistics, cold-chain distance to airport/port measured in km and hours.

Why it matters: Site suitability is the cheapest, highest-leverage stage of the entire project.

3 · Regulatory & Permits

- ☐ Aquaculture licence application initiated with expected timeline.
- ☐ Environmental Impact Assessment (EIA) scoped and consultant engaged.
- ☐ Water abstraction and discharge permits confirmed as achievable.
- ☐ Import permit for broodstock / fingerlings validated with origin country.
- ☐ Veterinary registration and health certification pathway mapped.
- ☐ Zoning, land tenure and building permits confirmed by local counsel.

Why it matters: Permit refusals after CAPEX is committed destroy IRR faster than any technical risk.

4 · Species Biology & Production Plan

- ☐ Growth curve modelled to harvest weight with temperature-adjusted daily growth coefficient.
- ☐ Stocking density defined (kg/m³ or PL/m²) with justification.
- ☐ Feed conversion ratio (FCR) target set with feed brand & pellet size schedule.
- ☐ Survival rate assumption per life stage (hatchery, nursery, grow-out).
- ☐ Production cycles per year and staggered stocking calendar drafted.
- ☐ Peak biomass calculated (kg) — the design point for oxygen, filtration and cooling.

Why it matters: Peak biomass — not average biomass — determines every life-support specification.

5 · Mass & Energy Balance

- ☐ Peak feed load per day (kg) calculated from biomass × feeding rate.
- ☐ Oxygen demand at peak biomass (kg O₂/day) — respiration + nitrification + safety factor.
- ☐ Ammonia and CO₂ production rates calculated per feed load.
- ☐ Water exchange or make-up rate (% system volume/day) defined.
- ☐ Heating / cooling load (kW) calculated for target species temperature band.
- ☐ Total installed electrical load (kW) and annual energy consumption (MWh) modelled.

Why it matters: This is the mass-energy backbone every supplier will size their equipment against.

6 · System Selection: RAS vs Pond vs Hybrid

- ☐ System type chosen against biology, land/water, energy cost, market and financing.
- ☐ For RAS: mechanical filtration, biofiltration type, degassing, oxygenation, disinfection, temperature control specified.
- ☐ For ponds: shape, depth, liner, aeration density (HP/ha), water exchange scheme specified.
- ☐ Redundancy strategy defined (N+1 on critical life-support components).
- ☐ Layout drawing with tank/pond footprint, flow diagram and biosecurity zoning.

Why it matters: No system is universally 'better' — the decision must be data-driven, not preference-driven.

7 · Biosecurity & HACCP

- ☐ Biosecurity zoning plan (clean / dirty / quarantine) documented.
- ☐ Personnel flow, vehicle flow and equipment flow mapped between zones.
- ☐ Disinfection protocols (footbaths, hand wash, equipment dip) defined per zone.
- ☐ Broodstock / fingerling health screening protocol with laboratory partner.
- ☐ HACCP plan drafted with critical control points and monitoring frequencies.
- ☐ Disease response plan with isolation, treatment and disposal procedures.

Why it matters: Lenders and insurers evaluate biosecurity as a proxy for overall operational discipline.

8 · Oxygen & Emergency Life-Support

- ☐ Primary oxygen source specified (LOX tank, PSA generator, blowers) with sizing.
- ☐ Backup oxygen source with independent power path and automatic switchover.
- ☐ Backup electrical power (genset with ATS) sized for full life-support load.
- ☐ Alarm system with SMS/phone escalation and 24/7 on-call protocol.
- ☐ Response-time SLA for on-site intervention documented (target < 15 minutes).
- ☐ Insurance policy alignment: verify life-support redundancy meets insurer requirements.

Why it matters: Oxygen is the only life-support parameter that kills within minutes at high biomass.

9 · CAPEX, OPEX & Financing

- ☐ Phased CAPEX schedule with equipment, civil, engineering, working capital, ramp-up reserve.
- ☐ Planning & engineering budget = 5–10% of total CAPEX (do not compress below 2–3%).
- ☐ OPEX model: feed, energy, labour, oxygen, health, maintenance, replacement stock.
- ☐ Working capital reserve sized for first full biological cycle (12–24 months typical).
- ☐ Financing structure: equity, senior debt, grants, DFI/ESG-linked, offtake financing.
- ☐ Technical Due Diligence (TDD) package prepared to lender/investor standard.

Why it matters: Projects that treat planning as optional discover at term-sheet stage that they are not bankable.

10 · Vendor-Neutral Procurement Package

- ☐ Locked functional specification (performance-based, not brand-based) for each equipment package.
- ☐ RFQ documents issued to ≥ 3 qualified manufacturers per package.
- ☐ Scoring matrix defined: spec, price, lead time, support, warranty, references.
- ☐ Contract structure with performance guarantees, LDs and acceptance criteria.
- ☐ Commissioning, training and acceptance-test protocols specified.
- ☐ Warranty, spare-parts, and after-sales SLA terms defined.

Why it matters: Buying equipment before the functional spec is locked designs the facility around hardware, not biology.

11 · Team, Operations & Training

- ☐ Farm manager identified with commercial aquaculture experience for the target species.
- ☐ Organisation chart with hatchery, grow-out, maintenance, water quality, biosecurity roles.
- ☐ Standard Operating Procedures (SOPs) drafted for daily, weekly, monthly tasks.
- ☐ Training programme scoped with supplier commissioning and independent trainers.
- ☐ Monitoring & record-keeping system chosen (paper, spreadsheet, dedicated software).
- ☐ KPI dashboard defined: growth, FCR, survival, DO, water quality, energy.

Why it matters: The best-engineered facility underperforms without a trained team and disciplined SOPs.

12 · Risk, ESG & Reporting

- ☐ Risk register with probability × impact scoring across biological, technical, market, regulatory, ESG.
- ☐ Insurance package quoted: mortality, business interruption, property, third-party liability.
- ☐ ESG framework aligned with ASC, BAP, GlobalG.A.P. or applicable buyer standard.
- ☐ Life-Cycle Assessment (LCA) initiated for carbon and water footprint reporting.
- ☐ Investor reporting cadence and KPI pack defined (monthly ops, quarterly financial).
- ☐ Exit / expansion optionality documented (Phase 2 land, permits, offtake headroom).

Why it matters: Bankable projects treat ESG and reporting as design inputs, not compliance afterthoughts.

Next steps — turn this checklist into a bankable package

Every unchecked item is a decision the project has not yet made. Every checked item is evidence a lender, insurer or EPC bidder can rely on. FishMatch Group operates as a vendor-neutral procurement and planning partner — we do not sell equipment.

Three ways to move forward

- **Planning Center** — run the checklist with our concierge and receive a scored Project Readiness report: fishmatchgroup.com/planning-center
- **Budget & Cost Planner** — model CAPEX, OPEX and financing across scenarios: fishmatchgroup.com/budget-planner
- **Vendor-neutral RFQ** — issue a locked functional spec to ≥ 3 qualified manufacturers: fishmatchgroup.com/quote

This checklist is companion material to the flagship article *Why successful aquaculture projects begin long before equipment is purchased* — read the full analysis at fishmatchgroup.com/blog/why-successful-aquaculture-projects-begin-before-equipment.