



BUSINESS PLAN · INDIA

Boat-Building and Fabrication Yard

price every addition in kilograms and in degrees

SHIPPING, PORTS AND MARINE SERVICES

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August 2026

This document is confidential and prepared for planning purposes. All financial figures are illustrative model assumptions for an Indian MSME context and must be validated against live quotes, local rates and professional advice before any investment or borrowing decision.

1. Executive Summary

This plan sets out a **Boat-Building and Fabrication Yard** — fishing vessels in FRP and steel, passenger ferries, launches and tourism craft, workboats and pilot and patrol craft, refit and repowering, and marine fabrication. By Year 3 it delivers **32 hulls** and bills **₹32.00 crore**, and it **inclines every hull as built and prices every owner addition in kilograms and in degrees**.

This plan is the fourth in vertical 58 and **inherits the ten maritime anchor rules (a)-(j)** set out in §17 of the ship-repair yard plan.

Item	Detail	Year 3
What is sold	Fishing vessels in FRP and steel, passenger ferries launches and tourism craft, workboats and pilot and patrol craft, refit repowering and modification, and marine fabrication and structures	₹32.00cr
Hulls / refits / fabrication	16 fishing vessels at ₹80.00L, 8 ferries at ₹100.00L, 8 workboats at ₹72.00L, 64 refits at ₹5.50L, 32 fabrication projects	32 hulls; 64; 32
PAT / net margin	Labour, resin, steel and engines, with 54.5% of revenue leaving as material before anybody is paid	₹2.01cr / 6.3%
ROCE on ₹9.00cr	Sheds and slipway, moulds and tooling, fabrication plant, inclining and test equipment	31.0%
Range of positive stability, design against as built	Fourteen degrees lost to features the buyer chose and paid for	72° / 58°
Hull design life / warranty offered / median life of a yard	The boat outlives the promise, and the promise outlives the promisor	30 / 10 / 11 years

❏ **EVERY FEATURE THAT SELLS THE BOAT LOWERS ITS RANGE OF STABILITY. A bigger deckhouse, a wider beam, a hardtop, extra tankage, tiled soles and heavy joinery are exactly what a buyer walks aboard and admires — and every one of them raises the centre of gravity or adds topside weight. ON A TYPICAL 18-METRE FISHING VESSEL THE RANGE OF POSITIVE STABILITY FELL FROM 72 DEGREES AT DESIGN TO 58 AS BUILT: 19.4% GONE, ALL OF IT PAID FOR BY THE OWNER AS AN UPGRADE.**

And the buyer cannot detect the trade-off, because he inspects the boat in the one condition where it does not exist. He walks the deck alongside a jetty in flat water, where a tall deckhouse is simply roomier and a wide beam is simply steadier. THE FEATURES ARE EVALUATED IN A MARINA AND PAID FOR IN A SEAWAY, AND THE TWO EVENTS ARE SEPARATED BY A YEAR AND BY WEATHER HE DOES NOT CHOOSE.

2. Business Description, Vision & Legal Structure

A private limited yard building small commercial craft to classification and statutory standards, with its own moulds and lamination shop, steel fabrication bay, slipway and an in-house naval architecture and weight-control function.

Element	Position
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Legal form	Private limited company; classification society approval as a recognised builder; Mercantile Marine Department and state fisheries approvals for registered craft; inland vessel and passenger-craft survey compliance; Factories Act, pollution control consent for resin, styrene and blasting
Where the money is made	Fishing vessels are 40% of revenue at a 24% margin; workboats and patrol craft at 33% and refit at 38% carry disproportionate profit on 29% of revenue
What is different	An inclining experiment on every hull as built rather than on the lead hull or the drawing, with the GZ curve, range of positive stability and downflooding angle published in the sales document at the same size as the saloon dimensions
Vision	A yard whose stability numbers describe the boat that was actually delivered

Why this shape	Reasoning
Incline every hull as built, not the design	The design weight is a hypothesis and the as-built weight is the boat. On our own hulls the difference was 3.8 tonnes on a 41-tonne lightship — 9.3% — and every kilogram of it went in above the waterline
Price additions in kilograms and in degrees	An owner asking for a hardtop is asking for a number he has never been shown. Quoting it in rupees alone is technically a quotation and functionally a concealment
Warranty funded by a third-party bond	Under \$7 the hull outlives the yard; a warranty carried on our own balance sheet is a promise conditional on our survival, and the buyer is not able to price that condition
Refit kept alongside new build	It is 11% of revenue at the best margin in the book, it keeps trades employed between hulls under rule (f), and it is where an owner's later modifications come back to us to be re-inclined

3. Promoter & Ownership

Item	Position
Promoter	Naval architect, twenty years in small-craft design and build; spent them watching owners specify the deckhouse that ate the stability margin he had designed in, and signing off because the boat still passed
Promoter equity	₹3.60cr of the ₹9.00cr project cost (40%), unsecured and not withdrawable during the loan term
Ownership	Promoter and family 62%; design and yard leadership under ESOP 18%; a marine-sector investor 20%
Governance	Every hull is inclined as built before delivery and its GZ curve, range of positive stability and downflooding angle are printed in the handover document at the same size as the accommodation dimensions. No owner-requested addition is quoted in rupees alone — every one is quoted in kilograms and in degrees of stability lost. Any request that takes the as-built vessel outside its stability envelope is refused, whatever the order value

The last sentence has a price and it is the largest single commitment in this plan. **Nine orders worth ₹4.20 crore were refused in Year 3 because the deckhouse, the hardtop or the tankage the buyer wanted would not fit inside the envelope** — and in every case a yard down the coast built it. **WE ARE NOT REFUSING A DANGEROUS BOAT. WE ARE REFUSING A BOAT THAT WOULD STILL HAVE PASSED EVERY SURVEY IT WAS REQUIRED TO PASS, AND THAT IS A MUCH HARDER CONVERSATION TO HAVE WITH A CUSTOMER.**

4. Market Analysis — India

Segment	What drives it	Position taken
Fishing vessels, FRP and steel	Fleet replacement, deep-sea diversification and state subsidy schemes; the volume segment and the most price-driven, and the one where fit-out creep is worst	16 hulls at ₹80.00 lakh
Passenger ferries, launches and tourism craft	Inland waterways, island connectivity and coastal tourism; survey-driven and specification-heavy, with passenger-craft stability rules that actually bite	8 hulls at ₹100.00 lakh
Workboats, pilot and patrol craft	Ports, agencies and offshore support buying on written specification with a stability booklet required — the segment that already asks for the numbers	8 hulls at ₹72.00 lakh
Refit, repowering and modification	Engine replacement, hull repair, gear changes and owner modifications; the best margin at 38% and the place modifications return to be re-inclined	64 jobs at ₹5.50 lakh
Marine fabrication and structures	Pontoons, gangways, tanks and steel structures; fills the fabrication bay between hulls	32 projects at ₹6.00 lakh

Where fourteen degrees of stability went

Addition made between design and delivery	Degrees lost
Deckhouse extension	5
Tankage and generating sets	4
Hardtop and mast	3
Tiles, joinery and insulation	2
Range of positive stability, design 72° to as built	58°, 19.4% gone

Indian small-craft building has real momentum — fleet modernisation, inland waterway and coastal tourism growth, and a serious push on domestic construction of workboats and patrol craft. IT REMAINS A TRADE IN WHICH THE STABILITY BOOKLET, WHERE ONE EXISTS AT ALL, DESCRIBES A BOAT THAT LEFT THE DRAWING OFFICE AND NOT THE ONE THAT LEFT THE SLIPWAY.

5. Competition & Position

Competitor type	What they do well	Where the gap is
Traditional coastal boatyards	Fast, cheap, deeply experienced in local hull forms, and willing to build whatever the owner draws on a wall	No naval architecture, no weight control, and a stability calculation that either does not exist or was done for a different boat
Established FRP builders	Good moulds, consistent lamination, real production capability and genuine class approvals	The inclining is done on the lead hull and every subsequent boat is assumed identical, which it never is after fit-out
Defence and PSU shipyards	Scale, engineering depth and privileged access to patrol and government orders	Uninterested in 16 fishing vessels a year, and priced for a different customer

Imported and knocked-down craft	Proven designs, complete documentation, strong finish	Cost, lead time, and fit-out changed locally after arrival with nobody recalculating anything
This yard	Every hull inclined as built, published GZ curves, additions priced in kilograms and degrees, a bonded warranty	Quotes less deckhouse for more money, and says no to the order that pays best

The competitive difficulty is that our discipline is invisible and our refusal is not. A buyer comparing two quotes sees the same length, the same engine and a smaller saloon on ours. HE CANNOT SEE THE FOURTEEN DEGREES, HE HAS NEVER BEEN SHOWN A GZ CURVE, AND NOBODY HAS EVER TOLD HIM THAT THE ROOM HE IS BUYING IS SUBTRACTED FROM SOMETHING — SO OUR CARE READS AS MEANNESS AND OUR REFUSAL READS AS INCOMPETENCE.

6. Every Feature That Sells the Boat Lowers Its Range of Stability

This is the finding, and it concerns a trade-off in which one side is visible on a jetty and the other only in weather.

What the buyer evaluates	Where he evaluates it
Saloon volume and headroom	Alongside, in flat water
Beam, deck space and finish	Alongside, in flat water
Hardtop, tankage, generating sets	From a brochure
Range of positive stability	Never
Where the trade-off is settled	In weather he does not choose

Everything that makes a small craft attractive to its buyer makes it worse at sea, and the relationship is not incidental — it is arithmetic. A taller deckhouse and heavier topside fit-out raise the centre of gravity; a wider beam gives initial stiffness and a shorter range of positive stability; extra tankage and generating sets added after the lines are fixed reduce freeboard and eat the reserve. ON A TYPICAL 18-METRE HULL OUR MEASUREMENTS SHOWED 3.8 TONNES ADDED TO A 41-TONNE LIGHTSHIP — 9.3% — AND THE RANGE OF POSITIVE STABILITY FALLING FROM 72 DEGREES TO 58.

What makes it structural rather than a matter of care is where the buyer stands when he decides. He inspects alongside, in flat water, on the one day of the boat's life when a tall deckhouse is purely roomier and a wide beam feels purely steadier. He cannot experience the deficit until conditions arrive that he does not choose and may not see for a year — and by then the boat is his, the money is spent, and the difference presents itself as the sea being rough rather than the boat being wrong. THE ATTRIBUTE HE PAID FOR AND THE ATTRIBUTE HE LOST ARE THE SAME PHYSICAL FACT, MEASURED ON DIFFERENT DAYS.

And nobody in the chain is behaving badly, which is why it persists. The owner asks for a bigger deckhouse because he will live in it. The yard builds it because it is a paid extra and the boat still passes survey. The surveyor passes it because it complies with the criteria applied to it. The stability booklet, where one exists at all, was computed at design stage from design weights — SO THE DOCUMENT DESCRIBES A BOAT THAT WAS NEVER BUILT, AND IT IS NOT A FALSE DOCUMENT, IT IS AN OBSOLETE ONE THAT NOBODY UPDATED BECAUSE NOBODY WAS ASKED TO.

So every hull is inclined as built and every addition is priced in the unit that will matter. An inclining experiment on all 32 hulls at ₹1,87,500 each, with the GZ curve, the range of positive stability and the downflooding angle printed in the handover document at the same size as the accommodation dimensions. 106 owner change requests came in: 91 were accepted with the kilograms and the degrees stated on the quotation, and 15 were refused because they took the vessel outside its envelope. Nine orders worth ₹4.20 crore were declined outright. **GENERAL RULE: WHERE THE FEATURES A BUYER CAN INSPECT ARE THE ONES THAT DEGRADE THE PRODUCT IN CONDITIONS HE CANNOT, PRICE EVERY ADDITION IN THE UNIT THAT WILL MATTER — AND REFUSE THE ONES THAT BREACH THE ENVELOPE.**

7. The Warranty Outlives the Builder

The second thread is the control on the hazard the first one's remedy creates, and it concerns a promise whose term exceeds the promisor's.

Term	Years
Design life of the hull	30
Structural warranty offered	10
Median life of a small Indian boatyard	11
Years the boat runs with nobody left to ask	19

A hull built properly lasts thirty years and a yard of this size typically lasts eleven. So a ten-year structural warranty is a promise roughly coterminous with the company that makes it, and the boat spends the majority of its working life with no builder to call, no drawings anybody can find and no record of what it weighed when it was new. THE BUYER COMPARES WARRANTIES CAREFULLY AND NEVER EVALUATES THE ONE VARIABLE THAT DECIDES WHETHER ANY OF THEM IS WORTH ANYTHING — WHETHER THE ISSUER WILL STILL EXIST.

Which is precisely the hazard the §6 remedy creates, and why the two threads are one arrangement. Publishing an as-built stability book means the boat now carries our numbers for thirty years — and those numbers stop being true the first time an owner bolts on a hardtop, a tuna tower or a second genset without telling anybody. **A PUBLISHED CURVE THAT NOBODY MAINTAINS IS WORSE THAN NO CURVE AT ALL, BECAUSE THE NEXT OWNER, THE NEXT SURVEYOR AND THE NEXT INVESTIGATOR WILL ALL RELY ON IT — AND IT WILL DESCRIBE A BOAT THAT STOPPED EXISTING IN YEAR FOUR.**

So the remedy is made independent of us in three ways. The as-built stability book, weight record, lamination schedule and drawings for every hull are lodged with an independent registry rather than held only in our office, so they survive our insolvency — ₹0.26 crore a year. The warranty is funded by a third-party insurance-backed bond rather than by our balance sheet, at ₹0.42 crore a year, so the promise does not depend on our existing to honour it. And any owner who modifies the vessel gets a free re-incline within twelve months at our cost — 48 of them this year at ₹24 lakh — because the only way a published number stays true is if somebody is obliged to check it.

The point is narrow and it is the whole of this plan. Measuring the boat is worth nothing unless the measurement survives both the owner's next idea and our own eventual disappearance. **A YARD THAT PUBLISHES A NUMBER IT DOES NOT ARRANGE TO OUTLIVE HAS NOT MADE A DISCLOSURE. IT HAS LEFT A**

8. Operations Plan (design, budget, build, weigh, publish)

- **Design.** Lines, scantlings and stability computed to the intended operating conditions, with a stated weight budget and a declared stability envelope before any mould is opened.
- **Budget.** Every owner request costed in rupees, kilograms and degrees; accepted inside the envelope, refused outside it, and the running weight total shown to the owner at each stage payment.
- **Build.** Lamination or fabrication to the approved schedule with weights recorded by compartment as fit-out proceeds rather than estimated at the end.
- **Weigh.** An inclining experiment on the completed hull with tanks and consumables in a defined condition — all 32 hulls, ₹1,87,500 each.
- **Publish.** GZ curve, range of positive stability and downflooding angle in the handover document at the same size as the accommodation dimensions, and lodged with an independent registry.

Step	What is recorded	Why
Inclining experiment, as built	Every hull, not the lead hull	32 of 32; ₹1,87,500 each
Owner change requests	Priced in kilograms and degrees	106; 91 accepted, 15 refused
Orders declined on the envelope	Whatever the order value	9; ₹4.20cr
Records lodged with an independent registry	Stability, weights, lamination, drawings	32 of 32; ₹0.26cr
Free re-incline after owner modification	Within 12 months, at our cost	48; ₹0.24cr

The operational hinge is an owner who wants his 18-metre trawler's deckhouse extended aft by 2.4 metres to sleep two more crew, and a hardtop over the working deck. It is a ₹9.60 lakh extra on an ₹80 lakh boat and it is the easiest money in the yard. Our weight model says the two additions cost 5 degrees and 3 degrees of range respectively, taking the as-built vessel from 58 to 50 and putting the downflooding angle below the criterion we build to. We quote it in kilograms and degrees, offer a redesigned lower deckhouse that costs us margin, and he goes to a yard that quotes ₹8.40 lakh and asks no questions. HIS NEW BOAT WILL PASS ITS SURVEY, FISH FOR TWENTY YEARS AND PROBABLY BE ENTIRELY FINE — AND THAT IS WHY THIS ARGUMENT IS UNWINNABLE AT THE POINT OF SALE.

9. Classification, Survey and Statutory Framework (India)

Area	Requirement
Three authorities, not one	Under anchor rule (a) the classification society, the Mercantile Marine Department or state fisheries authority, and the survey regime for passenger and inland craft each apply their own standard on their own cycle, and approval by one is not approval by another
Stability requirements	Passenger and inland vessels carry real stability criteria and inclining requirements; small fishing craft frequently do not, or the requirement is satisfied by a lead-hull experiment — which is exactly the space in which \$6 lives

Build and materials	Class-approved lamination schedules and steel scantlings, welder qualification, resin and gel-coat specification, and inspection at defined stages of build
Yard as a factory	Under rule (d) the hull under construction is asset and workplace at once: Factories Act, confined-space entry into tanks and voids, hot work, and styrene and dust exposure limits in the lamination shop
Environment and safety	Pollution control consent for resin emissions, blasting and effluent; hazardous waste for resin residue and abrasive; fire load in a shed full of styrene
Commercial	Product liability and builder's risk cover under rule (d); stage-payment contracts and title on part-built hulls; GST on works contracts; under rule (h) engines, gear and resin are import-priced and long-lead; Companies Act, EPF, ESI and TDS

The framework does its job: it approves the scantlings, qualifies the welders, inspects the build and applies stability criteria wherever the vessel's service demands them. NEITHER PROBLEM IN THIS PLAN IS A REGULATORY FAILURE. The first is that a survey tests compliance at a moment and cannot test a trade-off the buyer made willingly and understood incompletely; the second is that no regulator can require a company to exist in twenty years, and a warranty is only ever as good as its issuer's balance sheet on the day it is called. Both are cases where the rule is sound and the information reaches the buyer too late to act on.

10. Organisation & Manpower Plan

Function	Yr 1	Yr 3	Note
Direct trades (laminators, fabricators, carpenters, fitters, painters)	58	138	Derived: 232,640 man-hours ÷ 1,693 = 137.4
Supervisors and foremen	8	17	One per eight tradesmen
Design, naval architecture and weight control	5	11	Every addition costed in kilograms and degrees
Stores, procurement and materials	5	10	Engines and resin long-lead under rule (h)
Quality, class liaison and inclining team	4	9	32 inclining experiments a year
Finance, administration and HR	4	8	—
Sales and customer liaison	3	7	9 refused orders to explain
Managing director	1	1	Cannot waive the envelope
Total	88	201	₹4.04L average CTC; ₹8.12cr payroll

Direct headcount is derived, not chosen	Working	Hours
Fishing vessels	16 × 4,800 hours	76,800
Ferries, launches and tourism craft	8 × 7,600 hours	60,800
Workboats, pilot and patrol craft	8 × 5,200 hours	41,600
Refit and repowering / fabrication	64 × 420 hours; 32 × 640 hours	26,880; 20,480
Inclining, weight control and records	32 hulls × 190 hours	6,080

Direct workforce required	232,640 ÷ 1,693 productive hours per person-year	137.4, staffed at 138
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The 74% productive factor is where rule (f) does its work in a building yard rather than a repair one. 286 available days at eight hours gives 2,288, but resin cure times, monsoon humidity that stops lamination outright, staging changes and waiting for a long-lead engine are physical constraints that look like scheduling choices. A YARD THAT PLANS AT NINETY PER CENT HAS NOT FOUND PRODUCTIVITY, IT HAS ASSUMED A CLIMATE. Realisation is ₹1,376 a man-hour, and materials, engines and equipment are 54.5% of revenue before a single wage is paid.

11. Implementation Timeline & Milestones

Phase	Months	Milestone
Yard, funding and first team	0-10	Sheds and slipway, class recognition, term loan, 88 staff, first moulds
Inclining capability before the first delivery	0-8	Weighing and inclining equipment and a trained team before hull number one is handed over
Weight-budget discipline in the first contract	0-4	Additions quoted in kilograms and degrees from the first order the yard ever takes
Moulds and production capability	8-20	Fishing and workboat moulds; fabrication bay commissioned
Registry lodgement and warranty bond in place	6-14	Before the first hull is delivered, so no boat has ever left without its records surviving us
Refit and repowering bay scaled	16-30	64 jobs a year; keeps trades employed and brings modifications back to be re-inclined

Milestone that must not slip	Why
Inclining before the first handover	A yard that delivers uninclined hulls for a year and then starts measuring has a fleet of boats afloat whose numbers it cannot produce and cannot honestly reconstruct
Registry and bond before the first delivery	Records lodged retrospectively depend on the yard still existing to lodge them, which is precisely the failure mode \$7 is about
Kilograms-and-degrees quoting from order one	The first time a change is quoted in rupees alone, the practice is established and every later refusal looks arbitrary rather than principled
Weighing by compartment during fit-out	A weight reconstructed at the end is an estimate; the 3.8 tonnes that moved the curve went in a few hundred kilograms at a time, and none of it was recorded by anybody

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions in Indian rupees, not forecasts or guarantees. Drivers are shown so every number can be changed.

12.1 Revenue build (₹ lakh)

Stream	Yr 1	Yr 2	Yr 3	Share	GM
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Fishing vessels, FRP and steel	560	1,000	1,280	40.0%	24.0%
Passenger ferries, launches and tourism craft	320	540	800	25.0%	30.0%
Workboats, pilot and patrol craft	220	380	576	18.0%	33.0%
Refit, repowering and modification	150	250	352	11.0%	38.0%
Marine fabrication and structures	70	110	192	6.0%	27.0%
Total	1,320	2,280	3,200	100%	28.8%

Workboats and patrol craft at 18% of revenue are the segment that already asks for a stability booklet, and they are also the best new-build margin at 33%. That is not a coincidence: the buyers who require the numbers are the buyers who are not choosing on saloon volume. THE DISCIPLINE THAT COSTS US NINE FISHING ORDERS A YEAR IS THE SAME DISCIPLINE THAT WINS THE WORKBOAT TENDERS.

12.2 What is committed, and what it is measured on

Commitment	Yr 1	Yr 3
Hulls inclined as built and published with a GZ curve	100%, 13 of 13	100%, 32 of 32
Range of positive stability, design against as built	72° / 58° at intake	72° / 66°; loss cut from 14° to 6°
Owner additions quoted in kilograms and degrees	100%, 41 requests	100%, 106; 91 accepted, 15 refused
Orders declined because the fit-out breached the envelope	3, ₹1.28cr	9, ₹4.20cr
As-built records lodged with an independent registry	100%, 13 of 13	100%, 32 of 32
Warranty carried on our own balance sheet	none; bonded	none; bonded, ₹0.42cr

Row two is the one that shows the remedy working rather than merely being expensive. The 14-degree loss was what we measured on hulls built the ordinary way; on our own builds, with the weight budget policed from the first drawing, it is 6. WE DID NOT ELIMINATE IT AND WE DO NOT CLAIM TO — AN OWNER STILL WANTS A DECKHOUSE. WE MOVED IT FROM SOMETHING NOBODY MEASURED TO SOMETHING HE CHOSE WITH THE NUMBER IN FRONT OF HIM.

12.3 Profit & loss (₹ lakh)

Line	Yr 1	Yr 2	Yr 3
Revenue	1,320	2,280	3,200
Direct cost (resin, steel, engines, equipment, yard labour and subcontract)	(941)	(1,628)	(2,277)
Gross profit	379	652	923
Inclining experiment on every hull, weight control and published stability book	(24)	(40)	(60)
Warranty bond premium, third-party insurance-backed	(16)	(28)	(42)
Design, naval architecture and weight-budget control	(56)	(92)	(134)
As-built records lodged with an independent registry	(11)	(18)	(26)
Free re-incline after any owner modification	(8)	(15)	(24)

Yard overhead, moulds, sheds, utilities and equipment	(40)	(64)	(76)
Sales, marketing and boat shows	(36)	(58)	(82)
Stores, procurement, product liability and administration	(67)	(105)	(146)
EBITDA	121	232	333
Depreciation and amortisation	(34)	(44)	(54)
Finance cost	(28)	(40)	(49)
Other income (mould hire, design fees, scrap)	16	26	38
PBT	75	174	268
Tax (fully taxable business income, ~25%)	(19)	(44)	(67)
PAT	56	130	201
Net margin	4.2%	5.7%	6.3%
ROCE on ₹9.00cr	9.7%	20.9%	31.0%

12.4 Project cost & funding (₹ lakh)

Use of funds	₹L	%	Source of funds	₹L
Sheds, slipway, hardstanding and launching facility	234	26%	Promoter equity	360
Moulds, plugs and tooling	180	20%	Term loan	288
Working capital margin (materials and engines against stage payments)	162	18%	Working capital limit	198
Fabrication plant, cranes, lifting and handling	126	14%	Unsecured promoter loan	54
Inclining, weighing and test equipment	63	7%	—	—
Design, naval architecture and CAD systems	54	6%	—	—
Licences, class approvals, registrations and deposits	45	5%	—	—
Preliminary, pre-operative and contingency	36	4%	—	—
Total	900	100%	Total	900

12.5 Sensitivities (₹ crore PAT, Year 3)

Scenario	What changes	PAT
Base case as planned	As above	₹2.01cr

Trade-standard practice instead	Build the 9 refused orders as the owners wanted them (+₹4.20cr revenue, +₹1.21cr), accept all 106 change requests without a stability assessment (+₹0.68cr of extras), no inclining on any hull (+₹0.60cr), no warranty bond and honour claims from cash while we exist (+₹0.42cr), no registry lodgement (+₹0.26cr), no free re-incline (+₹0.24cr), liability cover at market (+₹0.11cr), lighter scantlings and a cheaper lamination schedule where class does not check (+₹0.86cr), moulds run beyond their fair life with less fairing and finish rework (+₹0.52cr), thinner naval architecture (+₹0.34cr) — but pay the warranty claims that do land (–₹0.18cr) and lose the workboat and patrol buyers who require published stability (–₹1.44cr revenue, –₹0.48cr): revenue ₹35.44cr at 33.4% gross margin	₹5.43cr
Resin, steel and engine prices up 22%	Under rule (h) materials are ₹17.43cr of revenue; 22% is ₹3.83cr and only half is recoverable on contracts already signed at fixed stage prices: ₹0.57cr	₹0.57cr
Fishing-vessel demand halves	Fuel, catch or a subsidy change: ₹6.40cr of revenue at a 24% margin, ₹1.54cr of gross profit; it is 40% of the book: revenue ₹25.60cr	₹0.85cr
A monsoon-extended season	Under rule (f) lamination stops in humidity; output down 14% is ₹4.48cr of revenue and ₹1.29cr of gross profit: revenue ₹27.52cr	₹1.04cr
A stability-related casualty on a boat we built	Investigation, cover excess and an order-book freeze, ₹1.12cr pre-tax; the published curve and the lodged records are the defence, which is the second reason they exist	₹1.17cr

The trade-standard row is ₹5.43 crore against ₹2.01 crore, and the two largest lines are the finding itself: ₹1.21 crore from building the nine boats we refused and ₹0.68 crore from selling every addition without assessing it. None of it is unlawful. Every one of those boats would pass its survey, and most of them will fish or ferry for twenty years without incident. THE FIRM THAT BUILDS WHATEVER IS ORDERED EARNS TWO AND A HALF TIMES AS MUCH, DELIVERS BOATS THE BUYERS PREFER, AND WILL ALMOST CERTAINLY NEVER BE SHOWN TO HAVE DONE ANYTHING WRONG.

12.6 Volumes and unit economics (Year 3)

Physical driver	Volume	Realisation	Revenue
Fishing vessels	16	₹80.00L	₹1,280L
Ferries, launches and tourism craft	8	₹100.00L	₹800L
Workboats, pilot and patrol craft	8	₹72.00L	₹576L
Refit and repowering jobs	64	₹5.50L	₹352L
Fabrication projects	32	₹6.00L	₹192L
Hulls delivered	32	232,640 man-hours	₹3,200L

Derived figure	Working	Result
Direct workforce	232,640 ÷ 1,693 productive hours per person-year	137.4, staffed at 138

Range of positive stability lost	72° less 5, 4, 3 and 2 for deckhouse, tankage, hardtop and joinery	58°, a 19.4% loss
Weight added between design and delivery	3.8 tonnes on a 41-tonne lightship	9.3%
Inclining experiment per hull	₹0.60cr over 32 hulls	₹1,87,500
Free re-inclines after modification	48 at ₹0.50 lakh	₹0.24cr
Realisation and materials share	₹3,200L ÷ 232,640 hours; ₹1,742.8L ÷ ₹3,200L	₹1,376; 54.5%

₹1,87,500 is what it costs to know what a boat actually weighs and where its weight is, on a hull selling for ₹80 lakh — under two and a half per cent. The equipment is a set of weights, a pendulum and two days alongside, and any yard in India could hire it. THE REASON IT IS NOT DONE IS NEITHER COST NOR DIFFICULTY. IT IS THAT THE RESULT WOULD HAVE TO BE SHOWN TO SOMEBODY, AND THE ONLY PERSON IT WOULD BE SHOWN TO IS THE MAN WHO PAID EXTRA FOR THE DECKHOUSE THAT MOVED IT.

13. Funding Requirement & Bankability

Item	Position
Requirement	₹9.00cr: ₹3.60cr promoter equity, ₹2.88cr term loan, ₹1.98cr working capital limit, ₹0.54cr unsecured promoter loan
Security	Sheds, slipway, moulds, plant and equipment; hypothecation of work in progress and stores; personal guarantee of the promoter
Debt service	Year 3 EBITDA ₹3.33cr against interest ₹0.49cr and scheduled repayment ₹0.48cr; DSCR 3.43x from Year 3
The moulds are the balance sheet	₹1.80cr of the project cost is moulds, plugs and tooling — assets with no resale value to anybody but a builder of the same craft, and which a lender should treat as sunk rather than secured. The realisable security here is the shed, the slipway and the plant
Working capital and stage payments	Engines and resin are bought long-lead under rule (h) against stage payments that lag them; ₹1.62cr of margin is sized to the gap on a typical order book of eight hulls in build
What a lender should test	Not the order book — the measured design-to-as-built stability loss and the count of orders refused. The first says whether weight control is real, and the second is the only evidence that the envelope is a rule rather than a brochure

Year	EBITDA	Interest	Repayment	DSCR
Year 1	₹1.21cr	₹0.28cr	Moratorium	—
Year 2	₹2.32cr	₹0.40cr	₹0.34cr	3.14x
Year 3	₹3.33cr	₹0.49cr	₹0.48cr	3.43x

14. Risk Analysis & Mitigation

Risk	Impact	Mitigation
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Every feature that sells the boat lowers its range of stability	The relationship is arithmetic, not incidental: a taller deckhouse and heavier topside fit-out raise the centre of gravity, a wider beam shortens the range of positive stability, and tankage and gensets added after the lines are fixed eat the reserve. On a typical 18-metre hull, 3.8 TONNES ADDED TO A 41-TONNE LIGHTSHIP (9.3%) TOOK THE RANGE FROM 72 DEGREES TO 58 — deckhouse 5, tankage 4, hardtop 3, joinery 2. AND THE BUYER EVALUATES ALONGSIDE, IN FLAT WATER, ON THE ONE DAY A TALL DECKHOUSE IS PURELY ROOMIER. He cannot experience the deficit until weather he does not choose, by which time it presents itself as the sea being rough rather than the boat being wrong. Nobody behaves badly — the owner wants the room, the yard sells a paid extra, the surveyor passes what complies. The stability booklet, where one exists, was computed from DESIGN weights, so it describes a boat that was never built: not a false document, an obsolete one nobody was asked to update	INCLINE EVERY HULL AS BUILT AND PRICE EVERY ADDITION IN THE UNIT THAT WILL MATTER. An inclining experiment on all 32 hulls at ₹1,87,500 each, with the GZ curve, range of positive stability and downflooding angle printed in the handover document AT THE SAME SIZE as the accommodation dimensions. Every owner request quoted in rupees, KILOGRAMS and DEGREES: 106 requests, 91 accepted with the number stated, 15 refused. Weights recorded by compartment during fit-out rather than reconstructed at the end. Design-to-as-built loss cut from 14 degrees to 6. It costs 9 orders and ₹4.20cr a year. GENERAL RULE: WHERE THE FEATURES A BUYER CAN INSPECT ARE THE ONES THAT DEGRADE THE PRODUCT IN CONDITIONS HE CANNOT, PRICE EVERY ADDITION IN THE UNIT THAT WILL MATTER — AND REFUSE THE ONES THAT BREACH THE ENVELOPE
The warranty outlives the builder	A hull built properly lasts 30 years; a yard of this size typically lasts 11. So a 10-year structural warranty is roughly coterminous with the company issuing it, and the boat spends most of its life with no builder to call and no record of what it weighed when new. THE BUYER COMPARES WARRANTIES CAREFULLY AND NEVER EVALUATES THE ONE VARIABLE THAT DECIDES WHETHER ANY OF THEM IS WORTH ANYTHING. And it is exactly the hazard the \$6 remedy creates: publishing an as-built stability book means the boat carries OUR numbers for thirty years, and they stop being true the first time an owner bolts on a hardtop or a second genset. A PUBLISHED CURVE NOBODY MAINTAINS IS WORSE THAN NO CURVE, because the next owner, surveyor and investigator will all rely on it — and it will describe a boat that stopped existing in year four	MAKE THE REMEDY INDEPENDENT OF US IN THREE WAYS. Stability book, weight record, lamination schedule and drawings for every hull LODGED WITH AN INDEPENDENT REGISTRY so they survive our insolvency (₹0.26cr). Warranty funded by a THIRD-PARTY INSURANCE-BACKED BOND rather than our balance sheet (₹0.42cr), so the promise does not depend on our existing to honour it. And a FREE RE-INCLINE within twelve months of any owner modification — 48 this year at ₹0.24cr — because the only way a published number stays true is if somebody is obliged to check it. A YARD THAT PUBLISHES A NUMBER IT DOES NOT ARRANGE TO OUTLIVE HAS NOT MADE A DISCLOSURE; IT HAS LEFT A DOCUMENT LYING ABOUT FOR SOMEBODY TO RELY ON IN TWENTY YEARS
Material and engine prices	Under rule (h) materials are ₹17.43cr, 54.5% of revenue; +22% is ₹3.83cr and only half is recoverable on signed stage prices: ₹0.57cr of PAT	Engines and long-lead items ordered against confirmed contracts with price validity matched to the stage schedule; escalation clauses on notified resin and steel indices; refit at 38% is labour-weighted
Fishing-vessel demand	40% of revenue on a segment driven by fuel, catch and subsidy policy; halving it is ₹1.54cr of gross profit and ₹0.85cr of PAT	Five streams with different drivers; workboats and patrol craft are tendered on specification and counter-cyclical; refit and fabrication run when new build thins

Monsoon and yard productivity	Under rule (f) lamination stops in humidity; a 14% output loss is ₹1.29cr of gross profit	Covered lamination sheds with humidity control on critical layups; steel fabrication and refit scheduled into the monsoon; the 74% productive factor is planned for rather than discovered
Stability-related casualty	Investigation, cover excess and an order-book freeze, ₹1.12cr; under rule (d) the next renewal is priced on our own record	The published curve and the lodged records are the defence as well as the disclosure; refused orders documented with the reason; product liability cover carried above market
Yard safety and fire	Under rule (d) the hull is asset and workplace at once, and a lamination shed is a styrene fire load	Confined-space entry and hot-work permits; styrene and dust exposure monitoring; fire detection and suppression sized to the resin store; builder's risk cover on hulls in build

15. SWOT Analysis

Strengths	Weaknesses
The only yard inclining every hull as built; design-to-as-built loss cut from 14° to 6°; additions priced in kilograms and degrees; records lodged independently; a bonded warranty that does not depend on our survival; the best workboat margin in the book	6.3% net margin; commitments cost ₹2.84cr against ₹2.01cr of PAT; 9 orders a year refused; a smaller saloon for more money; 54.5% of revenue is material; ₹1.80cr of moulds with no resale value
Opportunities	Threats
Workboat, pilot and patrol tenders that already require stability booklets; passenger-craft rules that bite; owners who have had one bad night; refit work returning modified boats to be re-inclined	Buyers who choose on saloon volume; material and engine prices; fishing policy; monsoon productivity; and the structural fact that the boat we refuse to build will almost certainly be fine

The honest summary is that this yard sells less accommodation for more money, and refuses the orders that pay best, on the strength of a number no buyer has ever been shown. It is paid for by workboat and patrol tenders that require the number anyway, by refit at 38%, and by owners who have had one bad night and now ask a different question. THE BET IS THAT A FISHERMAN WHO HAS ONCE FELT HIS OWN BOAT HANG AT THE END OF A ROLL WILL NEVER AGAIN BUY THE BIGGER DECKHOUSE — AND THAT ENOUGH OF THEM HAVE HAD THAT NIGHT.

16. Recommended AiSevak Tools for This Business

- **Business plan and project report generator** — for a term loan on sheds, slipway and plant, with moulds treated as sunk rather than secured.
- **Compliance calendar** — class recognition, Mercantile Marine Department and fisheries approvals, passenger-craft survey, pollution consent and Factories Act, remembering rule (a) that each runs its own cycle.
- **Cost and pricing calculator** — man-hours per hull, material and engine landed cost, and a change-order quotation that carries rupees, kilograms and degrees on the same line.
- **GST and invoicing helper** — works-contract treatment on boat building, stage-payment invoicing and title on part-built hulls, and refit versus new-build treatment.

- **Labour and payroll toolkit** — direct headcount derived from man-hours at a realistic productive factor, Factories Act compliance, EPF and ESI.
- **Contract and terms drafting helper** — the stability envelope clause, the kilograms-and-degrees change-order form, the registry lodgement undertaking, and the bonded warranty terms.
- **Loan and subsidy application helper** — fisheries and shipbuilding incentive schemes, and a limit sized to the gap between long-lead purchases and stage payments.

Every tool above is **free to use on AiSevak and needs no signup to explore**. The toolkit link at the end of this plan opens the whole maritime set.

17. Key Assumptions & Notes

- **All financials are illustrative model assumptions, not forecasts, projections or guarantees.** Revenue, hull counts, prices, man-hours, stability figures and weight additions are editable inputs; outcomes depend on fisheries policy, material and engine prices, monsoon productivity and tender demand. Figures are in Indian rupees. **This plan is the fourth in vertical 58 and inherits the ten maritime anchor rules (a)-(j) from §17 of the ship-repair yard plan — in particular (a) three authorities, since class, the Mercantile Marine Department or fisheries authority and the passenger-craft survey regime each apply their own standard; (d) the hull under construction is asset and workplace at once, which is what a lamination shed's fire load and confined-space entries mean; (f) capacity is physical, which here is monsoon humidity stopping lamination outright; and (h) engines, gear and resin are import-priced and long-lead.**
- **The central finding is that every feature that sells the boat lowers its range of stability.** A taller deckhouse and heavier topside fit-out raise the centre of gravity, a wider beam shortens the range of positive stability, and tankage and generating sets added after the lines are fixed eat the reserve. **On a typical 18-metre hull, 3.8 tonnes added to a 41-tonne lightship — 9.3% — took the range from 72 degrees to 58: deckhouse 5, tankage 4, hardtop 3, joinery 2. A 19.4% loss, all of it paid for by the owner as an upgrade.**
- **What makes it structural is where the buyer stands when he decides.** He inspects alongside, in flat water, on the one day of the boat's life when a tall deckhouse is purely roomier and a wide beam feels purely steadier. **He cannot experience the deficit until conditions he does not choose, and by then it presents itself as the sea being rough rather than the boat being wrong. The attribute he paid for and the attribute he lost are the same physical fact, measured on different days.**
- **And nobody in the chain behaves badly, which is why it persists.** The owner wants the room, the yard sells a paid extra, the surveyor passes what complies. **The stability booklet, where one exists at all, was computed at design stage from design weights — so it describes a boat that was never built. It is not a false document; it is an obsolete one that nobody was asked to update. GENERAL RULE: WHERE THE FEATURES A BUYER CAN INSPECT ARE THE ONES THAT DEGRADE THE PRODUCT IN CONDITIONS HE CANNOT, PRICE EVERY ADDITION IN THE UNIT THAT WILL MATTER — AND REFUSE THE ONES THAT BREACH THE ENVELOPE.**
- **The remedy is measurement and a refusal.** An inclining experiment on all 32 hulls as built at ₹1,87,500 each, with the GZ curve, range of positive stability and downflooding angle printed at the same size as the accommodation dimensions; weights recorded by compartment during fit-out; every owner request quoted in rupees, kilograms and degrees. **106 requests, 91 accepted with the number stated and 15 refused; 9 orders worth ₹4.20 crore declined outright; and the design-to-as-built loss cut from 14 degrees to 6 — not eliminated, because an owner still wants a deckhouse, but moved from something nobody measured to something he chose with the number in front of him.**

- **The second thread is that the warranty outlives the builder, and it is the control on the hazard the first remedy creates.** A hull lasts 30 years and a yard of this size typically lasts 11, so a 10-year warranty is coterminous with its issuer. **And publishing an as-built stability book means the boat carries our numbers for thirty years — numbers that stop being true the first time an owner bolts on a hardtop. A published curve nobody maintains is worse than no curve at all, because the next owner, surveyor and investigator will all rely on it.**
- **So the remedy is made independent of us in three ways.** Every hull's stability book, weight record, lamination schedule and drawings lodged with an independent registry (₹0.26 crore); the warranty funded by a third-party insurance-backed bond rather than our balance sheet (₹0.42 crore); and a free re-incline within twelve months of any owner modification, 48 this year at ₹0.24 crore. **A yard that publishes a number it does not arrange to outlive has not made a disclosure — it has left a document lying about for somebody to rely on in twenty years.**
- **Volumes, headcount and compliance.** 16 fishing vessels at ₹80.00 lakh, 8 ferries at ₹100.00 lakh, 8 workboats at ₹72.00 lakh, 64 refits at ₹5.50 lakh and 32 fabrication projects at ₹6.00 lakh — ₹32.00 crore across 32 hulls. **Direct headcount is derived, not chosen: $232,640 \text{ yard man-hours} \div 1,693 \text{ productive hours per person-year} = 137.4$, staffed at 138**, where 1,693 is $286 \text{ available days} \times 8 \text{ hours} \times 74\% \text{ productive}$ — **the 74% being resin cure times, monsoon humidity that stops lamination, staging and long-lead waits, so a yard planning at ninety per cent has assumed a climate.** Realisation ₹1,376 a man-hour; materials 54.5% of revenue; 201 staff at ₹4.04 lakh average CTC. Compliance covers class-approved scantlings and lamination schedules, welder qualification and stage inspection; Mercantile Marine Department, fisheries and passenger-craft survey; Factories Act, confined-space and hot-work permits, styrene and dust limits; pollution consent and hazardous waste; product liability and builder's risk cover; GST on works contracts; Companies Act, EPF, ESI and TDS. **Neither problem here is a regulatory failure: a survey tests compliance at a moment and cannot test a trade-off the buyer made willingly and understood incompletely, and no regulator can require a company to exist in twenty years.** Professional advice should be taken on the stability envelope and change-order wording, warranty bonding, registry lodgement and product liability cover.

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Every tool referenced in this plan is available on aisevak.in. Open the [Shipping, Ports and Marine Services toolkit](#) to browse and use them all at <https://aisevak.in/verticals/maritime> — or go straight to any specific tool at <https://aisevak.in/service/<tool-name>>. No signup needed to explore; each tool guides you step by step.

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