



B U S I N E S S P L A N · I N D I A

Water-Treatment Solutions

Acceptance is seven days and service life is twenty years, so the plant is sold with the operation contract or it is not sold

WATER SUPPLY, TREATMENT AND SOLUTIONS

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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 **Water-Treatment Solutions** business — designing, building and operating water treatment plants, sewage treatment plants and effluent treatment plants for housing societies, hotels, hospitals, industrial units and small municipalities. By Year 3 it commissions **17 plants totalling 3,570 KLD of new capacity**, operates **152 plants and 31,000 KLD under long-term contract**, and sells **₹19.00 crore**.

This plan is the fourth in vertical 56 and **inherits the ten anchor rules (a)-(j)** set by the packaged drinking-water plan.

Item	Detail	Year 3
What is sold	Design-build with a bundled five-year operation contract, long-term O&M, rescue and third-party O&M, retrofits of failed plants, consumables, and a continuous monitoring and compliance-reporting service	₹19.00cr
Built / operated	17 plants commissioned; 152 under contract at 204 KLD average	3,570 / 31,000 KLD
PAT / net margin	Contracting margins are thin; the O&M book is what makes the business worth owning	₹0.58cr / 3.1%
ROCE on ₹5.00cr	Asset-light: workshop, site equipment, monitoring hardware and a laboratory	23.4%
Plants we built and operate, still meeting outlet spec at year 5 or later	The number the industry does not have	36 of 38
Third-party plants NOT meeting spec on the day we took them over	Every one of them passed a performance test once	61 of 78

☐ **ACCEPTANCE IS SEVEN DAYS AND SERVICE LIFE IS TWENTY YEARS. A treatment plant is handed over on a performance guarantee test — seventy-two hours to a week of continuous running at rated flow, meeting specified outlet parameters. Pass it, and the contract closes, retention is released, and the people who designed it leave. THE PLANT THEN RUNS FOR FIFTEEN TO TWENTY-FIVE YEARS, OPERATED BY A SOCIETY'S CARETAKER, A WARD'S STAFF OR A FACTORY'S MAINTENANCE MAN.**

AND ALMOST EVERY DESIGN DECISION THAT DETERMINES WHETHER IT WORKS IN YEAR SEVEN IS INVISIBLE IN A SEVEN-DAY TEST. A week at rated flow, run by the team that built it, proves the plant CAN work. It proves nothing whatever about whether it WILL, when the man operating it has eleven other jobs.

2. Business Description, Vision & Legal Structure

A private limited company doing process design, fabrication, installation and commissioning of WTPs, STPs and ETPs, and holding long-term operation contracts on the plants it builds and on plants built by others.

Element	Position
Legal form	Private limited company; state pollution board vendor registration; contractor registrations for municipal and institutional tendering; GST and labour compliances for site work

Where the money is made	Design-build is thin-margin volume; the O&M book is the business ; monitoring and rescue contracts carry the best margins
What is different	We do not sell a plant unless we are also operating it for at least five years
Vision	A treatment company judged on plants running in year seven rather than on tests passed in week one

Why this shape	Reasoning
Design-build-operate, never design-build alone	It is the only structure in which the twenty-year horizon sits inside the contract instead of outside it. A designer who will operate the plant designs a different plant, and the difference is not a matter of conscience
Rescue and third-party O&M taken deliberately	It is where the evidence is: taking over other people's plants is how this business learned what a performance test does not catch
Own monitoring hardware and platform	An operation contract without continuous data is a promise to visit, not a promise to perform
Own laboratory and fabrication	Outlet parameters checked by us rather than by the client's annual consultant; components made to our own specification rather than the tender's minimum

3. Promoter & Ownership

Item	Position
Promoter	Process engineer with sixteen years in water and wastewater; has taken over enough failed plants to know which design decisions caused each failure
Promoter equity	₹1.80cr of the ₹5.00cr project cost (36%), unsecured and not withdrawable during the loan term
Ownership	Promoter family 78%; ESOP and key staff 14%; angel investor 8%
Governance	The tender committee cannot submit a design-build bid without an attached operation contract of at least five years. It is not a policy in a manual; the bid system will not generate a submission without the O&M schedule populated

That control matters because **the rule fails in a specific and predictable way: a large, prestigious, cash-rich tender arrives with EPC-only terms and an order value that would fill the year. The argument for making an exception is always excellent, always specific, and would be made once. ONCE MADE, THE FIRM IS AN EPC CONTRACTOR WITH A SIDELINE IN O&M, AND EVERY PLANT IT DESIGNS AFTERWARDS IS DESIGNED FOR A TEST.**

4. Market Analysis — India

Segment	What drives it	Position taken
Housing society STPs	Mandatory above a size threshold in most states; built to obtain occupancy, then operated by a committee minimising maintenance charges	The core of the DBO book
Industrial ETPs	Consent conditions, inspection risk, and increasingly a customer's own audit	Higher value, better-operated, better clients

Hotels, hospitals and institutions	Continuity, odour, and a reputational exposure a society does not have	The best O&M retention in the book
Rescue and retrofit of failed plants	Plants that stopped meeting spec years ago and a consent renewal that finally noticed	₹2.28cr, and the source of the evidence in this plan
Small municipal WTP and STP	Scheme-funded, tendered on price, operated by ward staff	Taken only where an O&M term is included

What a performance guarantee test can and cannot see

Design decision	Visible in a 7-day test?
Correct process selection and sizing at rated flow	Yes
Outlet parameters under design conditions	Yes
Standby blower and pump redundancy	No
Retrievable diffuser headers	No
Sludge handling that a caretaker can actually run	No
Behaviour at 40% of design flow at 3 a.m.	No

Demand is regulatory in origin and enormous: **STPs are mandatory for residential projects above a size threshold across most Indian states, ETPs are a condition of industrial consent, and the installed base is now large enough that RESCUE AND RETROFIT IS BECOMING A BIGGER MARKET THAN NEW BUILD. That second market exists entirely because of the first market's acceptance criteria.**

5. Competition & Position

Competitor type	What they do well	Where the gap is
EPC treatment contractors	Real process capability, competitive pricing, genuine execution speed at scale	Paid on commissioning and gone at the defect-liability expiry; the design answers to the test
Low-cost O&M operators	Cheap, flexible, and genuinely what a cost-pressed committee wants to buy	Staffed to visit rather than to operate; no data, so nobody can tell the difference until a consent renewal
Equipment OEMs	Good components, real engineering support, warranty depth	Sell equipment into somebody else's design and carry none of the plant's outcome
Large environmental firms	Balance sheet, municipal credentials, long-term concession capability	Focused on scale where societies and small industry are too small to serve
This business	Design, build, operate and monitor under one roof, with the O&M term as a bid condition	Positioned on the twenty-year horizon, in a market that buys on a seven-day one

The competitive difficulty is exact: this business loses tenders because its plants are better, and loses them at the moment of the price comparison rather than at the moment of the failure. A second blower, retrievable diffusers and real sludge handling add cost that a lowest-bidder evaluation reads as expensive rather than as durable, AND THE EVALUATION CANNOT READ IT ANY OTHER WAY, because the criterion it is applying is the performance test.

6. Acceptance Is Seven Days and Service Life Is Twenty Years

This is the finding, and it is about the horizon a contract is able to test.

Horizon	Length	Who is responsible
The performance guarantee test	3 to 7 days	The builder
Defect liability	12 months	The builder, narrowly
Service life	15 to 25 years	Somebody else entirely
Period the design actually decides	All of it	—

A treatment plant is accepted on a performance guarantee test: seventy-two hours to seven days of continuous operation at rated flow, meeting the outlet parameters in the specification. It is a genuine, demanding test and it is honestly conducted. Pass it, the contract closes, retention is released, and the people who designed the plant leave. THE PLANT THEN OPERATES FOR FIFTEEN TO TWENTY-FIVE YEARS, IN THE HANDS OF A HOUSING SOCIETY'S CARETAKER, A MUNICIPAL WARD'S STAFF OR A FACTORY'S MAINTENANCE MAN — none of whom was present when it was designed and none of whom will ever read the design basis.

And almost every decision that determines whether it is still working in year seven is invisible in that week. Whether there is a standby blower. Whether the diffusers can be lifted without draining the tank. Whether sludge is dewatered by something a caretaker can operate or by drying beds nobody empties. Whether the plant behaves at forty per cent of design flow at three in the morning, which is what it will actually see for most of its life. Whether there are four sample points or none. NONE OF THESE CHANGES A SINGLE READING IN A SEVEN-DAY TEST AT RATED FLOW WITH THE BUILDER'S OWN TEAM ON SITE. THE TEST PROVES THE PLANT CAN WORK. IT PROVES NOTHING ABOUT WHETHER IT WILL.

This is not the familiar problem of a cost landing on a later owner — the owner here is present, paying, and paying attention. IT IS THAT THE INSTRUMENT OF ACCEPTANCE HAS A HORIZON OF ONE WEEK, THE ASSET HAS A HORIZON OF TWENTY YEARS, AND NOTHING IN THE CONTRACT SPANS THE GAP. And because tenders are evaluated on price against a specification the test can verify, an engineer who designs for year seven is simply more expensive than one who designs for day seven, WITH NO PLACE ON THE EVALUATION SHEET TO SAY WHY. Nobody is cheating: the tender is fair, the test is real, the low bidder is competent, and the plant will fail in year six.

So the horizon goes inside the contract. NO DESIGN-BUILD WORK IS TAKEN WITHOUT AN OPERATION CONTRACT OF AT LEAST FIVE YEARS ATTACHED — 41% → 100% of design-build, enforced in the bid system rather than in a policy — WHICH MEANS THE PEOPLE WHO CHOSE THE BLOWER ARE THE PEOPLE WHO WILL BE CALLED WHEN IT FAILS. 34 EPC-only tenders worth ₹11.80 crore were declined in Year 3, at ₹0.68 crore of forgone gross profit. The evidence that it works is in two numbers: of our own plants past year five, 36 OF 38 STILL MEET OUTLET SPECIFICATION; of the third-party plants we take over, 61 OF 78 WERE NOT MEETING IT ON THE DAY WE ARRIVED — AND EVERY ONE OF THOSE 78 PASSED A PERFORMANCE TEST ONCE. GENERAL RULE: WHERE ACCEPTANCE IS A WEEK AND SERVICE LIFE IS TWENTY YEARS, THE TEST MEASURES THE BUILDER AND NOT THE BUILDING — SO GUARANTEE THE OUTCOME OVER THE PERIOD YOU DESIGNED FOR, OR DO NOT SELL THE PLANT.

7. The Asset Is the Compliance and the Operation Is Unobserved

The second thread is what happens to a plant once it belongs to somebody with a maintenance budget.

What compliance attaches to	Checked how?
That an STP has been installed	Inspected once
That it has a consent to operate	A document
That outlet parameters were met on a sample day	Occasionally
That it ran yesterday	Nobody looks

An STP in a housing society is built to obtain an occupancy certificate, and after that its existence is the compliance. The consent to operate is issued against an installed asset; the inspection confirms the asset is there; the outlet sample, when one is taken, is taken on a day everybody knows about. NOTHING ANYWHERE METERS WHETHER THE PLANT ACTUALLY RAN. And running it costs power, chemicals and an operator, in a building whose committee is elected on holding maintenance charges down — so a great many plants are switched on for inspections and bypassed the rest of the year.

What makes this tractable rather than hopeless is that a plant which is not running is trivially easy to detect — just not by testing water. YOU DO NOT NEED AN OUTLET SAMPLE TO KNOW AN STP IS BYPASSED. YOU NEED AN ENERGY METER. A blower that is off draws nothing, and a plant's power consumption against its design profile is an unambiguous, continuous, unfakeable record of whether it operated — available for the price of a sub-meter and a SIM card. 53 OF THE 78 PLANTS WE TOOK OVER WERE RUNNING BELOW FORTY PER CENT OF DESIGN RUN-HOURS, AND NOT ONE OF THEIR OWNERS HAD BEEN TOLD.

So the operation is metered rather than asserted. Energy, blower run-hours, sludge removed and outlet flow are logged continuously on all 152 plants under contract, and a monthly operation report goes to the client's committee and — where the client consents — to the regulator. It costs ₹36,842 per plant per year, about 7.8% of an average operation fee, and it is the only thing in this industry that turns "we operate your plant" from a promise into a record.

8. Operations Plan (design, build, operate, report)

- **Design.** Process selection and sizing to the actual diurnal load rather than the rated average; standby on every item whose failure stops the plant; retrievable diffuser headers; sludge handling specified for the person who will run it, not for the commissioning team.
- **Bid.** The bid system will not produce a design-build submission without a five-year-plus operation schedule attached; EPC-only enquiries are declined in writing, with the reason.
- **Build and commission.** Fabrication to our specification rather than the tender minimum; the performance test run as a formality rather than as the objective.
- **Operate.** Trained operators on a route; the plant's own data reviewed weekly rather than on complaint; consumables from our own supply so dosing is not silently reduced to save money.
- **Report.** Energy, run-hours, sludge and flow to the client every month, and to the regulator where consented; outlet parameters tested in our laboratory rather than by the client's annual consultant.

Step	What is recorded	Who sees it
Design basis	Diurnal load, redundancy, access, sludge route	Issued to the client, not filed
Bid	O&M term attached, or declined with reason	System constraint on submission
Operation	Energy, blower run-hours, sludge removed, outlet flow	Continuous; monthly to client and regulator
Outlet	Parameters against consent conditions	Our laboratory, monthly
Guarantee	Rectification at our cost where a plant we built fails spec	Provisioned, not argued

The operational hinge is a 240 KLD society STP tender where our design comes in ₹9.4 lakh above the lowest bidder on a ₹47 lakh plant — twenty per cent — and the entire difference is four items: a standby blower, mechanical sludge dewatering instead of drying beds, diffusers on retrievable headers, and four sample points. NOT ONE OF THOSE FOUR CHANGES A SINGLE READING IN THE SEVEN-DAY PERFORMANCE TEST THE TENDER SPECIFIES. All four decide whether the plant is running in year six. The committee evaluating the bid is not being foolish — it is applying the only criterion it has been given, and on that criterion we are simply expensive. We lose the tender, and about four years later somebody calls us about a retrofit.

What the ₹9.4 lakh difference buys	₹L	Shows up in the 7-day test?
Standby blower with automatic changeover	3.2	No — the duty blower works fine in week one
Mechanical sludge dewatering instead of drying beds	3.6	No — no sludge has accumulated yet
Diffusers on retrievable headers	1.9	No — nothing needs lifting for six years
Four sample points and a sub-meter	0.7	No — the test has its own instruments
Total	9.4	None of it

This table is the whole plan on one page. Twenty per cent of the plant's price buys four items, EVERY ONE OF WHICH IS INVISIBLE TO THE CRITERION THE TENDER IS EVALUATED ON, and every one of which decides whether it is running in year six. The committee reading the two bids is not choosing between a good plant and a bad one. IT IS BEING SHOWN TWO PLANTS THAT ARE IDENTICAL ON EVERY DIMENSION IT HAS BEEN GIVEN A WAY TO SEE, one of which costs ₹9.4 lakh more.

9. Consent, Discharge & Contracting Compliance (India)

Area	Requirement
Consent	State pollution control board Consent to Establish and Consent to Operate under the Water Act and Air Act; discharge standards under the Environment (Protection) Rules. THE CONSENT IS ISSUED AGAINST AN INSTALLED ASSET AND RENEWED ON DOCUMENTS
Discharge standards	Prescribed outlet parameters for treated sewage and trade effluent; reuse standards where treated water is used for flushing, landscaping or cooling
Building and occupancy	State building rules mandating STPs above a size threshold; occupancy certificate conditions, which are the reason most society STPs exist

Online monitoring	Continuous effluent monitoring is mandated for specified categories of larger industry and connected to board servers — and is not required at all for the housing-society plants that make up most of the installed base
Contracting	Tender conditions, performance guarantee tests, defect liability periods and retention; bank guarantees and their release
Labour and safety	Contract Labour Act for site work; confined-space entry procedures for tank work; EPF, ESI, Minimum Wages
Tax	Fully taxable business income; GST on works contracts and on operation services, at differing treatment

What the law reaches	What it does not
That a plant exists and holds a consent	Whether it ran yesterday
Outlet parameters on a sampled day	Outlet parameters on the other 364
Continuous monitoring for large industry	The society plants that are most of the installed base
A performance test at handover	Any performance requirement in year seven

The regulatory architecture is not weak — the standards are specific, the consent regime is real, and continuous monitoring is already mandated where the pollution load is largest. The gap is at the small end: a housing society's STP is required to exist, required to hold a consent, and required to meet parameters WHEN SOMEBODY SAMPLES IT. Nothing requires it to have been switched on, and the installed base of such plants is now very large.

10. Organisation & Manpower Plan

Function	Yr 1	Yr 3	Note
Managing director	1	1	Cannot authorise an EPC-only bid
O&M field operators and technicians	58	94	Derived, not assumed: 152 plants × 0.62 operators per plant
Project execution and commissioning	24	34	17 plants a year
Design and process engineering	18	26	Designs for year seven
Fabrication workshop	16	22	To our specification
Sales, tendering and proposals	12	16	34 tenders declined
Monitoring, data and compliance reporting	8	14	152 plants, continuous
Laboratory	8	12	Outlet parameters, monthly
Finance, admin and HR	10	13	Retention and bank guarantees
Total	155	232	17 built; 152 operated; 31,000 KLD

The 14 people in monitoring, data and compliance reporting are the commitment made flesh. Their salaries are ₹0.34 crore — ₹2.43 lakh average CTC across 14 — and ₹0.22 crore covers sensors, connectivity, calibration and the reporting platform. **That is ₹36,842 per plant per year across 152 plants, or ₹439 per KLD of capacity under contract.**

11. Implementation Timeline & Milestones

Phase	Months	Milestone
Registrations and finance	0-5	Board vendor registration, contractor registrations, term loan and bank guarantee limits
Workshop and site fleet	3-11	Fabrication, testing rig, commissioning and dewatering equipment
Bid-system constraint	2-6	O&M schedule made a mandatory field on design-build submissions BEFORE the first tender season
Monitoring platform	4-14	Sub-metering, connectivity and reporting live across the first 60 plants
Laboratory	6-12	Outlet parameters, sludge and jar testing in-house
O&M book build	8-30	62 → 152 plants; rescue contracts taken deliberately for the evidence

Milestone that must not slip	Why
Bid constraint before the first tender season	A firm that has taken one EPC-only job has established that it can, and the next exception is argued from the first
Monitoring live before the O&M book scales	Sixty plants retrofitted with sub-metering is a project; a hundred and fifty is a programme nobody finishes
Laboratory before the first outlet guarantee	A guarantee whose measurement is bought from the client's consultant is a guarantee somebody else decides
Guarantee provision funded from the first plant	A rectification obligation with no provision behind it is a promise that gets renegotiated the first time it is called

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
Design-build with a bundled five-year operation contract	396	528	646	34.0%	22.0%
Long-term O&M on plants we built	232	344	456	24.0%	38.0%
Third-party O&M and rescue contracts	152	208	266	14.0%	32.0%
Retrofits, upgrades and rehabilitation	132	178	228	12.0%	34.0%

Chemicals, media, membranes and spares	122	158	190	10.0%	26.0%
Continuous monitoring and compliance reporting	66	84	114	6.0%	54.0%
Total	1,100	1,500	1,900	100%	31.0%

Design-build is 34% of revenue and 24% of gross profit; the O&M and monitoring lines are 44% of revenue and 54% of gross profit. That inversion is the commercial case for the rule: bundling the operation contract is not a concession made for quality reasons, IT IS WHERE THE MONEY IS — and the fact that it also fixes the design is the part nobody in this industry has priced.

12.2 What is committed, and what it is measured on

Commitment	Yr 1	Yr 3
Design-build taken only with a five-year-plus O&M attached / EPC-only tenders declined	41% / 12	100% / 34
Bid value declined because no operation contract was on offer	₹3.90cr	₹11.80cr
Our plants past year five still meeting outlet specification	21 of 24	36 of 38
Third-party plants NOT meeting specification on the day of takeover	44 of 58	61 of 78
Continuous energy, run-hour, sludge and flow metering / monthly report to client and regulator	44% / no	100% / yes
Plants found running below 40% of design run-hours at takeover	not measured	53 of 78

Rows three and four are the argument and they should be read together. 36 of 38 of our own plants meet specification years after handover; 61 of 78 of other people's did not on the day we arrived. EVERY ONE OF THOSE 78 PASSED A PERFORMANCE GUARANTEE TEST, CONDUCTED HONESTLY, AT SOME POINT IN ITS PAST.

12.3 Profit & loss (₹ lakh)

Line	Yr 1	Yr 2	Yr 3
Revenue	1,100	1,500	1,900
Cost of goods (equipment, fabrication, site labour, power, chemicals)	(764)	(1,040)	(1,311)
Gross profit	336	460	589
Bid discipline: declining EPC-only work and its bid cost	(24)	(32)	(42)
Continuous metering, reporting to client and regulator	(30)	(42)	(56)
Outlet-specification guarantee and rectification provision	(20)	(28)	(38)
Site supervision and O&M field overhead	(46)	(60)	(74)
Design, engineering and proposals	(52)	(66)	(80)
Selling and business development	(34)	(44)	(54)
Administration and overhead	(40)	(50)	(60)
EBITDA	90	138	185
Depreciation and amortisation	(52)	(60)	(68)

Finance cost	(44)	(52)	(58)
Other income (scrap, design fees, misc)	10	14	18
PBT	4	40	77
Tax (fully taxable business income, ~25%)	(1)	(10)	(19)
PAT	3	30	58
Net margin	0.3%	2.0%	3.1%
ROCE on ₹5.00cr	7.6%	15.6%	23.4%

3.1% net margin beside 23.4% ROCE is the shape of a contracting and services business: the capital employed is small and the working capital, not the fixed assets, is what has to be financed. The O&M book is also the only annuity here — 152 contracts that renew are worth more to a buyer of this business than three years of project wins.

12.4 Project cost & funding (₹ lakh)

Use of funds	₹L	%	Source of funds	₹L
Fabrication workshop, tools and testing rig	140	28%	Promoter equity	180
Site equipment: dewatering, crantage, welding, commissioning	100	20%	Term loan	200
Continuous monitoring hardware across the O&M portfolio	80	16%	Working capital margin	70
Laboratory: outlet parameters, sludge, jar testing	60	12%	Scheme and subsidy support	50
Design software, engineering systems and office	50	10%	—	—
Outcome-guarantee provision fund	40	8%	—	—
Working capital margin and pre-operative	30	6%	—	—
Total	500	100%	Total	500

12.5 Sensitivities (₹ crore PAT, Year 3)

Scenario	What changes	PAT
Base case as planned	As above	₹0.58cr
Trade-standard practice instead	Bid EPC-only and win it (+₹3.07cr revenue, +₹0.68cr), design to the performance test rather than the service life (+₹0.45cr), staff O&M to visit rather than to operate (+₹1.10cr), buy generic consumables (+₹0.15cr), close bid discipline, metering and the guarantee (+₹1.36cr), lose the monitoring line that depends on them (–₹1.14cr revenue): revenue ₹20.93cr at 36.6% gross margin	₹2.72cr
An outcome guarantee called on a plant we built	Rectification at our cost, ₹1.06cr. This is the risk the whole structure creates, and it is the price of the structure being real	(₹0.22cr)

O&M contract churn of 25% to cheaper operators	₹0.83cr including the monitoring revenue attached to it	(₹0.04cr)
Design-build order intake down 30%	₹0.88cr including unabsorbed engineering and execution establishment	(₹0.08cr)
Power and chemical cost +15%	₹0.42cr, partly recoverable under indexed O&M contracts	₹0.26cr

The second row is the most uncomfortable in this vertical so far, because the trade-standard business is BIGGER AS WELL AS MORE PROFITABLE — ₹20.93 crore against ₹19.00 crore. IT WINS MORE TENDERS PRECISELY BECAUSE ITS PLANTS ARE CHEAPER TO BUILD, AND EARNS MORE ON OPERATION PRECISELY BECAUSE IT DOES NOT OPERATE THEM. Both advantages are invisible for about five years, which is longer than most contracting firms plan and longer than most societies remember.

12.6 Volumes and unit economics (Year 3)

Physical driver	Volume	Realisation	Revenue
Plants designed, built and commissioned	17	₹38L average	₹646L
O&M on plants we built	96 plants	₹4.75L each	₹456L
Third-party O&M and rescue	56 plants	₹4.75L each	₹266L
Retrofits and consumables	—	—	₹418L
Monitoring and compliance reporting	152 plants	—	₹114L
Capacity built / under contract	3,570 / 31,000 KLD	—	₹1,900L

Derived figure	Working	Result
Average plant built	3,570 KLD over 17 plants	210 KLD
Average plant operated	31,000 KLD over 152 plants	204 KLD
Monitoring cost per plant	₹0.56cr over 152 plants	₹36,842, or 7.8% of the fee
Commitment per KLD under contract	₹1.36cr over 31,000 KLD	₹439 per KLD per year
Forgone on declined tenders	₹11.80cr of bid value at a 26% win rate and 22% margin	₹0.68cr
O&M field staff	152 plants × 0.62 operators per plant	94

₹36,842 a year is what it costs to know whether a plant is running. Against a ₹47 lakh asset built to satisfy a legal requirement, and an operation fee of ₹4.75 lakh, it is a rounding error — AND IT IS THE DIFFERENCE BETWEEN AN OPERATION CONTRACT AND AN OPERATION.

13. Funding Requirement & Bankability

Item	Position
Requirement	₹5.00cr project cost: ₹1.80cr promoter equity, ₹2.00cr term loan, ₹0.70cr working capital margin, ₹0.50cr scheme support — plus a separate ₹5.40cr working capital and bank guarantee limit
The limit is the business, not the term loan	Retention money, performance bank guarantees and society receivables tie up far more than the fixed assets ever will. A contracting firm fails on its BG limit long before it fails on its P&L
Security	Workshop, site equipment, monitoring hardware and laboratory; hypothecation of receivables and work-in-progress; personal guarantee of the promoter
Debt service	Year 3 EBITDA ₹1.85cr against interest ₹0.58cr and scheduled repayment; DSCR above 1.7x from Year 3
Guarantee exposure	The outlet guarantee is provisioned at ₹0.40cr in the project cost and topped up from operations; a single call is ₹1.06cr, so the provision is a buffer rather than a cover
What a lender should test	Not the order book — the O&M renewal rate and the run-hour data. An order book is three years of revenue; a renewing O&M book is an annuity, and the run-hour data is the only evidence that the annuity is being earned

Year	EBITDA	Interest	Repayment	DSCR
Year 1	₹0.90cr	₹0.44cr	Moratorium	—
Year 2	₹1.38cr	₹0.52cr	₹0.34cr	1.60x
Year 3	₹1.85cr	₹0.58cr	₹0.50cr	1.71x

14. Risk Analysis & Mitigation

Risk	Impact	Mitigation
Acceptance is seven days and service life is twenty years	A plant is handed over on a performance guarantee test of three to seven days at rated flow — a genuine, demanding, honestly conducted test — after which retention is released and the designers leave. The plant then runs for fifteen to twenty-five years in the hands of a caretaker who was not present when it was designed. And almost every decision that determines whether it works in year seven is invisible in that week: standby blower, retrievable diffusers, sludge handling a caretaker can run, behaviour at 40% of design flow at 3 a.m. THE TEST PROVES THE PLANT CAN WORK AND NOTHING ABOUT WHETHER IT WILL. Nobody is cheating: the tender is fair, the test is real, the low bidder is competent, and the plant will fail in year six	PUT THE HORIZON INSIDE THE CONTRACT. No design-build without a five-year-plus operation contract attached — 41% → 100%, enforced as a BID-SYSTEM CONSTRAINT rather than a policy, so THE PEOPLE WHO CHOSE THE BLOWER ARE THE PEOPLE WHO WILL BE CALLED WHEN IT FAILS. 34 EPC-only tenders worth ₹11.80cr declined at ₹0.68cr of forgone gross profit. THE EVIDENCE IS TWO NUMBERS: 36 OF 38 OF OUR PLANTS PAST YEAR FIVE STILL MEET SPECIFICATION; 61 OF 78 THIRD-PARTY PLANTS DID NOT ON THE DAY WE ARRIVED — AND ALL 78 PASSED A PERFORMANCE TEST ONCE. GENERAL RULE: WHERE ACCEPTANCE IS A WEEK AND SERVICE LIFE IS TWENTY YEARS, THE TEST MEASURES THE BUILDER AND NOT THE BUILDING

The asset is the compliance and the operation is unobserved	A society STP is built to obtain an occupancy certificate and after that its existence IS the compliance : consent issued against an installed asset, inspection confirms it is there, and the outlet sample is taken on a day everybody knows about. NOTHING METERS WHETHER IT RAN . Running it costs power, chemicals and an operator, in a building whose committee is elected on holding maintenance charges down — so a great many plants are switched on for inspections and bypassed the rest of the year	YOU DO NOT NEED AN OUTLET SAMPLE TO KNOW AN STP IS BYPASSED — YOU NEED AN ENERGY METER. A blower that is off draws nothing, and power against the design profile is a continuous, unfakeable record of operation for the price of a sub-meter and a SIM card. Energy, run-hours, sludge and flow logged on all 152 plants with a monthly report to the client's committee and, on consent, the regulator — ₹36,842 per plant per year, 7.8% of the fee. 53 OF 78 PLANTS TAKEN OVER WERE RUNNING BELOW 40% OF DESIGN RUN-HOURS, AND NOT ONE OWNER HAD BEEN TOLD
An outcome guarantee called	Rectification at our cost on a plant we built and operate: ₹1.06cr and a ₹0.22cr loss. The structure that makes this plan work is the structure that creates this exposure, and a guarantee that could not be called would not be one	Provision fund at 8% of project cost, topped up from operations; the guarantee is scoped to outlet specification under stated influent conditions rather than open-ended; our own laboratory means a call is diagnosed rather than argued; design margins set for year seven are what make calls rare
O&M churn	Contracts are annual or three-yearly and a committee under cost pressure will take a cheaper operator; 25% churn is ₹0.83cr including the monitoring revenue attached to it	The monthly run-hour report is the retention argument — a committee that has seen its own data finds it hard to unsee; indexed contracts to avoid annual renegotiation; institutional and industrial clients churn far less than societies
Order intake	Design-build is capex and defers easily; a 30% fall is ₹0.88cr with engineering and execution unabsorbed	The O&M and monitoring book at 44% of revenue is recurring and unrelated to intake; retrofit and rescue work is countercyclical, since deferred capex becomes a failed plant
Working capital and guarantees	Retention, BGs and society receivables tie up more than the fixed assets; a contracting firm fails on its BG limit long before its P&L	Limit sized at ₹5.40cr separately from project cost; O&M billing is monthly and largely advance, which funds the project cycle
Power and chemical cost	+15% is ₹0.42cr on operation contracts	Indexation clauses in O&M contracts; own consumables supply at scale; energy data identifies the plants where cost is running ahead of the design profile

15. SWOT Analysis

Strengths	Weaknesses
Design, build, operate, monitor and test under one roof, which is the only structure in which the twenty-year horizon is inside the contract; a bid constraint in the system rather than a policy in a manual; a rescue book that supplies the evidence for the whole argument; an O&M annuity of 152 renewing contracts; run-hour data no competitor holds	3.1% net margin; the commitment costs ₹2.04cr against ₹0.58cr of PAT; the firm loses tenders because its plants are better; a single guarantee call exceeds a year's profit; working capital and bank guarantees constrain growth more than capital does
Opportunities	Threats

Rescue and retrofit is becoming a bigger market than new build, and it exists because of the acceptance criteria; consent renewals increasingly ask for operating evidence; societies that have seen their own run-hour data do not go back; the monitoring platform is saleable to other operators	Lowest-bidder tendering, which cannot read durability; committees electing on maintenance charges; a competitor offering the same bundle at a thinner O&M price; and the plain fact that the difference this business sells becomes visible in year six and the tender is decided in week one
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The honest reading is that this firm is competing on a horizon its market does not evaluate, and that the market is not being stupid — it is applying the only criterion the contract gives it. The business case rests on the O&M annuity being worth more than the tenders lost, which it is by Year 3 and is not in Year 1.

The rescue book is the proof, and it is also a market	Yr 3
Third-party plants taken over	78 cumulative
Of those, not meeting outlet specification on arrival	61
Of those, running below 40% of design run-hours	53
Of those, where the fault was a design decision rather than neglect	34
Rescue, retrofit and rehabilitation revenue	₹4.94cr, 26% of turnover

34 of the 61 failures were designed in, not operated in — which means more than half of what looks like a maintenance problem was decided years earlier by somebody who had already been paid and had already passed a test. That is uncomfortable to state in a market where the same firms bid against each other, and it is the reason this business takes rescue work deliberately rather than opportunistically: IT IS THE ONLY PLACE THE EVIDENCE EXISTS, BECAUSE NOBODY EVER GOES BACK TO LOOK AT A PLANT THEY WERE PAID FOR.

16. Recommended AiSevak Tools for This Business

- **Business plan and project report generator** — for the term loan and bank guarantee limit file.
- **Compliance calendar** — consent renewals across a portfolio of client plants, board returns, contractor registrations, EPF, ESI and Contract Labour Act.
- **Cost and pricing calculator** — cost per KLD by process, O&M fee build-up including power and chemicals, and the whole-life cost of a design option against its capital cost.
- **GST and invoicing helper** — works-contract versus service treatment, milestone billing, retention and its release, monthly O&M invoicing.
- **Labour and payroll toolkit** — site labour under the Contract Labour Act, operator rosters across a plant portfolio, EPF and ESI.
- **Loan and subsidy application helper** — bank guarantee and working capital assessment for a contracting cycle rather than a trading one.
- **Contract and terms drafting helper** — the bundled DBO agreement, the outlet-specification guarantee with its influent conditions, and the monitoring and reporting undertaking.

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 water set.

17. Key Assumptions & Notes

- **All financials are illustrative model assumptions, not forecasts, projections or guarantees.** Revenue, plant counts, fees, win rates and failure rates are editable inputs; outcomes depend on tendering conditions, order intake, churn and input costs. Figures are in Indian rupees. **This plan is the fourth in vertical 56 and inherits its ten anchor rules (a)-(j).**
- **The central finding is that acceptance is seven days and service life is twenty years.** A plant is handed over on a performance guarantee test at rated flow — genuine, demanding and honestly conducted — after which retention is released and the designers leave. **It then runs for fifteen to twenty-five years in the hands of somebody who was not there when it was designed.**
- **Almost every decision that determines year seven is invisible in that week.** Standby blower, retrievable diffusers, sludge handling a caretaker can run, behaviour at 40% of design flow at 3 a.m. — **none changes a single reading in a seven-day test at rated flow with the builder's own team on site. The test proves the plant CAN work; it proves nothing about whether it WILL.**
- **This is not a cost landing on a later owner — the owner is present, paying and paying attention. It is that the instrument of acceptance has a horizon of one week, the asset has a horizon of twenty years, and nothing in the contract spans the gap. GENERAL RULE: WHERE ACCEPTANCE IS A WEEK AND SERVICE LIFE IS TWENTY YEARS, THE TEST MEASURES THE BUILDER AND NOT THE BUILDING — SO GUARANTEE THE OUTCOME OVER THE PERIOD YOU DESIGNED FOR, OR DO NOT SELL THE PLANT.**
- **The evidence is two numbers.** Of our plants past year five, 36 of 38 still meet outlet specification. Of third-party plants taken over, 61 of 78 were not meeting it on the day we arrived — **and every one of those 78 passed a performance guarantee test once.**
- **The second thread is that the asset is the compliance and the operation is unobserved.** A consent is issued against an installed plant and renewed on documents; nothing meters whether it ran, and running it costs money a committee is elected to save. **But you do not need an outlet sample to know an STP is bypassed — you need an energy meter,** because a blower that is off draws nothing. 53 of 78 plants taken over were running below 40% of design run-hours, and not one owner had been told.
- **Volumes and unit economics.** 17 plants and 3,570 KLD commissioned at ₹38L average; 152 plants and 31,000 KLD under operation at ₹4.75L average; monitoring at ₹36,842 per plant per year, or ₹439 per KLD; the commitment total ₹2.04cr including ₹0.68cr forgone on ₹11.80cr of declined EPC-only bid value at a 26% win rate. Field headcount is derived, not assumed: $152 \times 0.62 = 94$. **Design-build is 34% of revenue and 24% of gross profit; O&M and monitoring are 44% of revenue and 54% of gross profit — bundling the operation contract is where the money is, and the fact that it also fixes the design is what nobody has priced.**
- **Compliance and professional advice.** State pollution control board Consent to Establish and Consent to Operate under the Water and Air Acts and discharge standards under the Environment (Protection) Rules — **the consent is issued against an installed asset and renewed on documents;** state building rules mandating STPs above a size threshold and the occupancy-certificate conditions that are the reason most society plants exist; **continuous effluent monitoring, which is mandated for specified larger industrial categories and connected to board servers, and is not required at all for the housing-society plants that make up most of the installed base;** tender conditions, performance guarantee tests, defect liability and retention; Contract Labour Act and confined-space entry procedures for tank work; EPF, ESI and Minimum Wages; GST on works contracts and operation services at differing treatment. Professional advice should be taken on the scope and influent conditions of an outlet guarantee, bank guarantee and retention structures, works-contract GST, and client consent for reporting operating data to a regulator.

► **Use these tools now — free on AiSevak**

Every tool referenced in this plan is available on **aisevak.in**. Open the **[Water Supply, Treatment and Solutions toolkit](#)** to browse and use them all at **<https://aisevak.in/verticals/water>** — 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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