



BUSINESS PLAN · INDIA

Dairy-Equipment & Cold-Chain Supply

Chillers and analysers - tested at your village, in your heat, before we are paid

DAIRY

AISEVAK.IN · BY ABL DIGITAL TECHNOLOGIES

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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 **Dairy-Equipment & Cold-Chain Supply Business** in India — manufacturing and supplying bulk milk coolers, milking machines, milk analysers and weighing systems, cans, cooling tanks, pasteurisers and small processing equipment to cooperatives, milk unions, private processors and organised farms, with installation, commissioning and a field service network.

The dairy vertical's conventions are set in the dairy-farm anchor and carried through the processing, products-brand, ice-cream, distribution, feed and cheese plans: **where the party bearing the cost cannot report its own condition, measure and publish on its behalf; publish the scope of what you test for; make the second number public even where the law does not require it; and where the standard test measures a proxy, publish the component it conceals. What is specific to equipment is that the failure is silent, the specification is written by the seller, and the buyer is often the least technically equipped party in the entire chain.**

□ **THE CHILLER IS SOLD ON A SPECIFICATION THE BUYER CANNOT TEST, AND SIZED BY THE PERSON EARNING THE COMMISSION. A village cooperative buying a bulk milk cooler cannot verify pull-down time, insulation thickness, compressor duty or actual usable capacity — and an undersized or under-insulated chiller quietly fails to reach 4°C on a May afternoon, spoiling milk that will be blamed on the farmer who delivered it. Nobody in the chain can trace a bacterial count back to a compressor. So this manufacturer PUBLISHES MEASURED PULL-DOWN TIME AT 43°C AMBIENT rather than at catalogue conditions, states insulation thickness and compressor make and model on the quotation, and COMMISSIONS EVERY UNIT WITH A WITNESSED PERFORMANCE TEST AT THE SITE'S OWN AMBIENT BEFORE FINAL PAYMENT IS DUE. The general rule: WHERE EQUIPMENT IS SPECIFIED BY THE SELLER AND ITS FAILURE IS SILENT, THE ACCEPTANCE TEST MUST BE WITNESSED AND CONDUCTED AT THE BUYER'S CONDITIONS, NOT THE CATALOGUE'S.**

□ **AND THE SUBSIDY IS WHERE THE COMMISSION HIDES. A large share of Indian dairy equipment is bought under government and development-programme schemes in which the dealer prepares the paperwork, nominates the specification and is the only party the buyer ever speaks to — so a cooperative frequently never sees a competing quotation and cannot distinguish the subsidy from the margin. This business STATES THE EQUIPMENT PRICE, THE SUBSIDY AND ITS OWN MARGIN AS THREE SEPARATE NUMBERS on every scheme quotation, per the library's commission-disclosure rule, because a buyer who does not know what the seller earns cannot evaluate the advice he is being given.**

□ **The third finding is what actually determines whether the equipment works: AFTER-SALES IS THE PRODUCT. A chiller in a milk shed that cannot be repaired within twenty-four hours is not equipment, it is scrap with a warranty — and every hour it is down, the milk it should have cooled is being sold spoiled or not at all. Service radius, spares stock and response time are stated as NUMBERS in the contract, and the achieved response is reported: 68% within the stated window in Year 1, rising to 96%.**

This plan models an operator requiring **₹6.40 crore** (₹2.20 crore investor + ₹1.60 crore working-capital facility + ₹1.40 crore promoter + ₹1.20 crore term loan), moving from **₹18.00 crore revenue and a ₹58 lakh loss to ₹58.00 crore revenue and ₹3.19 crore profit** by Year 3 — a 5.5% net margin, 32.6% return on capital, and service revenue per installed unit rising from ₹9,400 to ₹14,800. (Dairy equipment and cold-chain supply — figures illustrative.)

2. Business Description, Vision & Legal Structure

Concept: A dairy-equipment maker that proves the chiller works in May, at the buyer's village.

Vision: To be the supplier a cooperative secretary can defend to his members.

Mission: Publish pull-down time at real ambient; name the compressor and state the insulation; commission with a witnessed test before we take final payment; separate the price, the subsidy and our margin; publish the energy number nobody quotes; keep the spares within the radius we promised; and calibrate the analyser that decides what a farmer is paid.

Legal structure

- **Private Limited** — required in substance. Cooperative and union tenders, scheme empanelment, BIS certification, bank guarantees and outside capital all assume it.
- **Proprietorship or partnership** — common among smaller fabricators; **the consequence is that a five-year warranty on a chiller rests on an entity that may not exist in year three, which is precisely the period in which chillers fail.**
- **Employed service engineers within stated radii**, not a contractor called from the city — **because a service promise is a network commitment rather than a clause, and cannot be honoured by somebody four hours away.**

Regulatory anchor: a capital-goods manufacturer whose products decide food safety and farmer payment. **The first exposure is measurement: a milk analyser or a weighing system at a collection centre determines what every farmer in a village is paid, so it falls squarely under the Legal Metrology Act with verification, stamping and periodic re-verification obligations — and an uncalibrated analyser silently underpays hundreds of people who have no way to know. The second is product standards and safety: BIS specifications apply to bulk milk coolers and dairy equipment, food-contact surfaces must meet material requirements, and pressure vessels and refrigeration systems carry their own certification and refrigerant-handling obligations. The third is representation in a tender context: a performance specification submitted to a cooperative or a government scheme is a contractual representation, and supplying equipment that does not meet the quoted duty is a breach with consequences beyond commercial credit — it is also, in a scheme-funded purchase, a misuse of public money.** Then: state pollution-control consent for fabrication, welding and painting; factory, fire and electrical compliance; e-waste and refrigerant recovery on replaced units; GST; and EPF/ESI and POSH.

3. Promoter & Ownership

Led by a promoter with refrigeration, dairy engineering or capital-equipment background. Three competences decide outcomes. *Field service design*, because in this business the product is not the chiller but the chiller working continuously for ten years in a village three hours from a town, and that is a spares-and-people problem rather than an engineering one. *Honest sizing*, since the commercial pressure runs constantly toward quoting a smaller unit to win a tender, and an undersized chiller fails silently and profitably. And *the discipline to fail a commissioning test* — at a site where the cooperative has assembled, the cheque is ready and the fault is a genuine one. Ownership, equity & investor terms are editable inputs; **the commissioning sign-off and the sizing calculation are held by engineering and the promoter, never by sales, whose order they can delay.**

4. Market Analysis — India

Indian dairy's cold chain is being built one village at a time, largely with scheme money, and mostly by buyers with no technical capability to evaluate what they are being sold.

Demand drivers

- **Village-level cold-chain expansion**, which is the single largest structural driver and is substantially scheme-funded.
- **Cooperative and union modernisation**, replacing can-based collection with bulk chilling and automated testing.
- **Organised farm growth** — farms like the anchor plan's need parlours, chillers and analysers and can evaluate a specification.
- **Quality-linked payment systems**, which require analysers and weighing at every collection point and create an installed base needing calibration forever.
- **Replacement demand** from a first generation of chillers now reaching end of life, often poorly maintained.
- **Private processor capacity addition**, buying pasteurisers, tanks and small processing lines.

Market sizing (illustrative framing)

Layer	Definition	Indicative scale
TAM	Dairy equipment and cold-chain spend across the served states	Large; scheme-driven and lumpy
SAM	Buyers reachable by an owned service network within a stated radius	Bounded by SERVICE REACH, not by demand
SOM (Yr 1-3)	Units supplied and installed base served	₹18cr → ₹58cr; installed base 210 → 1,320

Who actually buys, and what each can verify

Buyer	Can they evaluate a specification?	Yr 3 revenue share
Village cooperative societies	No — and they are the largest buyer group	38%
District milk unions	Partially; some have engineers, most rely on the dealer	25%
Private processors	Yes — they have engineering staff and will test	19%
Organised dairy farms	Increasingly yes; they read the numbers	14%
Service & spares to installed base	Not applicable — this is the annuity	4%

The first row is the whole ethical problem of this business stated as a market fact: the largest single buyer group cannot evaluate what it is buying, is spending public scheme money, and is advised by the person selling to it. A village society secretary is a farmer with a register, not an engineer — he cannot compute a cooling load, does not know what insulation thickness matters, and has no way of establishing whether the unit he installed last summer is underperforming or whether his members' milk is simply arriving warm. Every safeguard in this plan exists because of that row, and the commercial fact worth noting is that the buyers who CAN evaluate — processors and organised farms at 30% of revenue — are the ones who verify the claims the cooperatives must take on trust.

Constraints

- **Service network reach**, which physically bounds the market and is expensive to extend.
- **Scheme timing and payment cycles**, which are lumpy, political and slow.
- **Tender price pressure**, which rewards the lowest quoted specification rather than the working one.
- **Working capital** — bank guarantees, retention money and long public-sector receivables.

5. Competition & Position

Competitor type	Strength	Weakness this plan exploits
Large national dairy-equipment makers	Scale, brand, tender track record, financing	Catalogue specifications; commissioning tests rarely witnessed
Imported European systems	Genuine engineering, efficiency, reliability	Expensive; service response measured in weeks, not hours
Local fabricators	Cheapest, flexible, close to the buyer	Sizing by rule of thumb; insulation and compressor unstated
Trading houses re-badging imports	Low overhead, wide catalogue, fast quotes	No manufacturing knowledge; no spares depth; no service
This plan	Pull-down published at real ambient, witnessed commissioning before payment, commission and subsidy separated, service radius stated as a number	Rarely the lowest tender; refuses to quote undersized units

The positioning claim is one a cooperative secretary can use in a members' meeting, which is the only place it matters: this unit was tested at your site, in your heat, in front of your committee, before we were paid. It converts an engineering assertion into an event that people witnessed — and it is the single thing a buyer with no technical capability can genuinely evaluate. Processors and organised farms buy on the published numbers; cooperatives buy on the witnessed test; and the two together are what makes the claim credible rather than merely stated.

The cost of the honest position is stated in rupees rather than implied. Refusing to quote undersized units loses an estimated ₹4.20 crore of Year-3 tender revenue, because the lowest-specification bid usually wins and the difference is invisible until the following summer. Witnessed commissioning at site ambient costs ₹64 lakh a year in engineer time and delayed payments, and produces 47 failed first tests in Year 3 that must be rectified at this business's cost. Holding spares within the stated radius costs ₹1.12 crore of working capital sitting in district depots. The offsetting return is a service annuity of ₹1.96 crore from an installed base that keeps working, a replacement preference when those units age, and processor and organised-farm business worth ₹17.40 crore that is won on published numbers rather than on price.

6. The Chiller Is Sold on a Specification the Buyer Cannot Test

Every meaningful characteristic of a bulk milk cooler is invisible to the person buying it, and its failure mode is silence.

Specification	Can the buyer verify it?	What happens if it is short
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Usable capacity	Only by filling it, which he does after paying	Overflow, or milk left uncooled
Pull-down time at real ambient	No — the catalogue states laboratory conditions	Never reaches 4°C in summer; bacteria multiply
Insulation thickness and quality	No — it is inside the wall	Temperature rises overnight; compressor runs constantly
Compressor make, model and duty	No, unless it is stated	Early failure; spares unavailable
Energy consumption	No — and nobody quotes it	Ten-year electricity cost exceeds the purchase price

Read the third column: not one failure produces an event anybody can attribute. A chiller that reaches 6°C instead of 4°C on a summer afternoon produces milk with a higher bacterial count, which shows up at the processor as a lower grade and a lower payment — and is attributed to the farmers, the collection time, the weather, or the milk itself. The society secretary does not know his chiller is the cause; the farmer whose payment is cut certainly does not; and the equipment supplier is three years and two hundred kilometres away. It is the dairy-farm anchor's structure exactly — a cost borne by a party that cannot report its own condition — with the added feature that here the specification was written by the seller. WHERE EQUIPMENT IS SPECIFIED BY THE SELLER AND ITS FAILURE IS SILENT, THE ACCEPTANCE TEST MUST BE WITNESSED AND CONDUCTED AT THE BUYER'S CONDITIONS, NOT THE CATALOGUE'S.

So the quotation and the commissioning both change. PULL-DOWN TIME IS PUBLISHED AS MEASURED AT 43°C AMBIENT with a stated milk inlet temperature and fill volume, not at the 32°C catalogue condition that flatters every unit in the market. INSULATION THICKNESS AND MATERIAL, AND COMPRESSOR MAKE AND MODEL, ARE STATED ON THE QUOTATION — so a buyer can ask another engineer, and so spares are identifiable in five years. ENERGY CONSUMPTION IS PUBLISHED AS MEASURED kWh PER 1,000 LITRES COOLED, the second number nobody in this trade quotes and the one that decides the ten-year cost of ownership. And every unit is COMMISSIONED WITH A WITNESSED PERFORMANCE TEST AT THE SITE'S OWN AMBIENT, with the committee present, before final payment falls due — 47 units failed their first test in Year 3 and were rectified at this business's cost, which is the number that proves the test is real.

7. The Subsidy, the Commission, and the Service Radius

Three further problems determine whether the equipment does what the buyer expected.

☐ **THE SUBSIDY IS WHERE THE COMMISSION HIDES.** A large share of Indian dairy equipment is bought under government and development-programme schemes, in which the dealer prepares the application, nominates the specification, arranges the sanction and is frequently the only supplier the society ever speaks to. The buyer sees a net figure after subsidy, has no competing quotation, and cannot distinguish the equipment price from the scheme benefit or from the seller's margin. So every scheme quotation from this business states **THREE SEPARATE NUMBERS:** the equipment price, the subsidy applicable, and this business's own margin on the transaction — the library's commission-disclosure rule, applied where the money is public and the buyer is a committee. It costs orders to competitors who quote a single net figure, and it is the only way a society's members can evaluate advice they are receiving from an interested party.

□ **AND AFTER-SALES IS THE PRODUCT, NOT AN ATTACHMENT TO IT.** A chiller in a milk shed that cannot be repaired within twenty-four hours is scrap with a warranty — every hour it is down, an entire village's evening collection is being sold spoiled, sold cheap, or not sold at all, and the loss falls on farmers who had no part in the purchase decision. So the **SERVICE RADIUS, THE SPARES HELD IN THAT DISTRICT AND THE RESPONSE TIME ARE STATED AS NUMBERS IN THE CONTRACT**, engineers are employed within those radii rather than dispatched from a city, and the **ACHIEVED RESPONSE IS REPORTED** — 68% within the stated window in Year 1 rising to 96% in Year 3. A supplier who will not state a radius has not planned one, and a warranty without a service network is a document.

□ **AND THE ANALYSER DECIDES WHAT EVERY FARMER IN THE VILLAGE IS PAID.** A milk analyser at a collection centre computes fat and SNF and therefore the price of every litre delivered — and an analyser that has drifted out of calibration silently underpays or overpays hundreds of people who have no means to check and no standing to argue. It is the milk-processing plan's finding about the smallholder who cannot argue, arriving in the instrument itself. So analysers are supplied with a **CALIBRATION SCHEDULE STATED IN THE CONTRACT**, calibration is performed against reference samples with **DRIFT RECORDED AND REPORTED** to the society, Legal Metrology verification is maintained, and units failing calibration are reported rather than adjusted quietly — 84 in Year 1 falling to 32 as the installed base's maintenance discipline improves.

□ **AND THE TEN-YEAR ENERGY COST EXCEEDS THE PURCHASE PRICE.** A bulk milk cooler runs every day for a decade, and its electricity consumption over that life typically costs a society more than the machine did — yet no Indian quotation states it, because the cheapest unit to buy is usually the most expensive to run and the seller has no reason to say so. Measured kWh per 1,000 litres cooled is published for every model, alongside an indicative ten-year running cost at the state's tariff. It is the second-number rule from the ice-cream plan: the purchase price is true and incomplete, and the figure that constrains it must be published beside it.

8. Operations Plan (specify, build, test, install, commission, service)

Specification and quotation

- **Cooling load calculated from the site's actual collection volumes, ambient and milk inlet temperature**, not from a tender's nominal capacity.
- **Undersized units refused rather than quoted**, with the calculation shown to the buyer so the refusal is evidenced.
- **Quotation states pull-down at 43°C, insulation thickness and material, compressor make and model, and kWh per 1,000 litres.**
- **Scheme quotations separate equipment price, subsidy and this business's margin** as three numbers.

Manufacture

- **Food-contact stainless specification verified by material test certificate**, not by supplier assurance.
- **Insulation injected and thickness verified per unit**, since it is the one component nobody can inspect after assembly.
- **Refrigeration circuit built to a documented design** with leak testing, evacuation and charge weighed rather than estimated.
- **Factory performance test on every unit before despatch**, with the result recorded against the serial number.

Installation and commissioning

- **Site survey for power quality, earthing, water and ventilation** before delivery, since most field failures originate here.
- **WITNESSED PERFORMANCE TEST AT SITE AMBIENT** with the society's committee present, results recorded and signed.
- **Final payment falls due only on a passed test**, and failures are rectified at this business's cost.
- **Operator training at handover**, including what a correctly functioning unit looks like — because a buyer who cannot recognise a fault cannot report one.

Service and the installed base

- **Engineers employed within the stated service radii**, with spares held in district depots rather than at the factory.
- **Response time measured from call to on-site** and reported against the contracted number.
- **Preventive service and analyser calibration on a scheduled cycle**, with drift records given to the society.
- **Installed-base condition reporting** — units running above target temperature flagged to the owner whether or not a complaint has been made.

The operational hinge is the commissioning test that fails with the committee assembled, the cheque prepared and the engineer four hours from home. Passing it costs nothing today, the shortfall is small, nobody present can detect it, and the alternative is a return visit, a delayed payment and an awkward conversation with a customer who does not understand the issue. So the test result is recorded against the serial number in the system by the engineer at site, final payment is released by finance only against a passed result rather than by a manager's confirmation, and the 47 first-test failures in Year 3 are a reported metric — because a supplier whose commissioning tests never fail is running a ceremony rather than a test.

9. Legal Metrology, BIS & Operating Compliance (India)

- **Company & tax** — Private Limited, PAN/TAN, GST, factory licence, product-liability insurance, bank-guarantee facilities for tenders.
- **Measurement** — Legal Metrology Act verification, stamping and periodic re-verification for milk analysers and weighing systems; **an uncalibrated analyser silently underpays hundreds of farmers who have no way to know and no standing to argue.**
- **Product standards** — BIS specifications for bulk milk coolers and dairy equipment; food-contact material requirements verified by test certificate; pressure-vessel and refrigeration certification.
- **Refrigerants** — handling, recovery and phase-down obligations, including on units replaced or scrapped.
- **Tender representation** — a performance specification submitted to a cooperative or scheme is a contractual representation; **supplying equipment that does not meet the quoted duty is a breach and, in a scheme-funded purchase, a misuse of public money.**
- **Premises** — state pollution-control consent for fabrication, welding and painting; factory, fire and electrical compliance; e-waste on replaced units.
- **Workforce** — EPF/ESI, POSH, welding and electrical safety, and travel and accident cover for field engineers.

10. Organisation & Manpower Plan

Function	Yr 1	Yr 3	Notes
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Promoter / managing director	1	1	Owens sizing policy and commissioning standard
Design & application engineering	4	9	Cooling load calculated per site; refuses undersized quotes
Fabrication, assembly & refrigeration	34	78	Insulation verification; charge weighed per unit
Quality & factory testing	5	11	Every unit tested before despatch, recorded to serial
Field service engineers (in-radius)	14	42	Employed within stated radii, not dispatched from the city
Installation & commissioning	8	20	Witnessed tests; results entered at site
Sales, tenders & scheme liaison	8	19	Cannot release payment or override a sizing calculation
Spares, depots, finance & admin	9	22	District spares stock; guarantees and receivables
Total	83	202	Service is 31% of headcount by Year 3

Forty-two field engineers at Year 3 is 31% of headcount serving 8% of revenue, which looks wrong until the installed base is read as the asset it is. A society whose chiller has never failed for more than a day buys its next one from the same supplier and tells four neighbouring societies; one whose chiller sat dead through a summer tells the same four. And the engineers are employed within their radii rather than dispatched, because a response-time promise made by a company whose nearest engineer is four hours away is a number nobody intends to meet — the difference between a service network and a service clause is where the people sleep.

11. Implementation Timeline & Milestones

Phase	Window	Milestones
Formation & build	Month 0–8	Incorporation, factory licence, pollution consent, fabrication shop and test bay
Product & certification	Month 5–12	BIS certification, food-contact material approvals, factory performance test bay validated
Published specification	Month 8–13	Pull-down measured at 43°C per model; kWh per 1,000 L measured; quotation format with separated subsidy and margin
Service network	Month 10–20	District depots and in-radius engineers ahead of sales in each new geography
Scheme & tender ramp	Month 14–26	Cooperative and union empanelment; witnessed commissioning from the first unit
Scale & annuity	Month 24–36	Installed base to 1,320 units; calibration and preventive contracts; analyser and parlour ranges

Training and competence

- **Commissioning test discipline** for every installation engineer, including how to fail a test in front of a committee and what to say.
- **Cooling-load calculation** for application engineering and for senior sales, so a sizing conversation happens before a quotation rather than after.
- **Analyser calibration and Legal Metrology procedure**, including drift interpretation and reporting to the society.

- **Refrigerant handling and recovery**, and electrical safety in rural three-phase environments with unreliable earthing.

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions, not forecasts or guarantees. They exist to show the drivers of a dairy-equipment P&L and how the specification and service controls move them. Every input is editable. **The defining feature of this model is that equipment sales are lumpy and scheme-timed while service revenue compounds — so the installed base rather than the order book is what makes the business worth owning.**

12.1 Project cost & funding

Item	₹ lakh	Notes
Land, factory shed & fabrication shop	168	Stainless fabrication, welding, assembly bays
Fabrication plant — cutting, forming, welding, polishing	142	Food-contact finish capability
Insulation injection & refrigeration assembly	84	Thickness verification per unit
Performance test bay — ambient-controlled	66	Every unit tested before despatch; measured, not claimed
Field service vehicles, tools & instruments	58	In-radius engineers with calibration kit
District spares depots — opening stock	72	What makes the response time possible
Systems — serial-linked test records, service and calibration	30	Test result tied to serial; payment gated on it
Working capital & contingency	20	Guarantees, retention and public-sector receivables
Total project cost	640	₹220L investor + ₹160L WC facility + ₹140L promoter + ₹120L term loan

12.2 Operating metrics

Metric	Yr 1	Yr 2	Yr 3
Pull-down published as measured at 43°C ambient / insulation and compressor stated on quotation / kWh per 1,000 L published	100% / 100% / 100%	100% / 100% / 100%	100% / 100% / 100%
Units commissioned with a WITNESSED test at site ambient / first tests FAILED and rectified at our cost / final payment released without a passed test	100% / 38 / NIL	100% / 44 / NIL	100% / 47 / NIL
Scheme quotations separating equipment price, subsidy and our margin / undersized units quoted	100% / NIL	100% / NIL	100% / NIL
Service response within contracted hours / spares held in-district per contract / engineers employed within stated radius	68% / 100% / 100%	87% / 100% / 100%	96% / 100% / 100%
Analysers calibrated to schedule with drift REPORTED to the society / units failing calibration / drift corrected without record	100% / 84 / NIL	100% / 51 / NIL	100% / 32 / NIL

Units supplied / installed base / service revenue per installed unit / installed units flagged above target temperature	210 / 210 / ₹9,400 / 46	380 / 590 / ₹12,100 / 71	640 / 1,320 / ₹14,800 / 108
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Row two is the row that makes the whole proposition real: 47 units failed their first witnessed test in Year 3 and were rectified before payment. A supplier whose commissioning tests never fail is running a ceremony, and the number is reported precisely because a zero here would be evidence against the claim rather than for it. Row six's last column is the one nobody else produces — 108 installed units flagged as running above target temperature and reported to their owners whether or not anybody complained, which is the anchor plan's principle applied to a machine: measure and report on behalf of a party that cannot report its own condition. And row five's falling calibration failures show an installed base whose maintenance is improving rather than a supplier who has stopped looking.

12.3 Revenue build

Stream	Yr 1 (₹L)	Yr 2 (₹L)	Yr 3 (₹L)	Driver
Bulk milk coolers — cooperative & union	880	1,620	2,640	Volume core; scheme-funded and lumpy
Milking machines & parlour equipment	320	620	1,080	Organised farms; growing fastest
Milk analysers, weighing & automation	240	460	820	Decides farmer payment; calibration annuity
Processing equipment — pasteurisers, tanks, CIP	180	380	700	Private processors; engineering-evaluated
Cans, crates, transport tanks & accessories	160	249	364	Steady, low margin, relationship-keeping
Service, spares, calibration & AMC	20	71	196	The annuity; compounds with installed base
Total revenue	1,800	3,400	5,800	Illustrative

12.4 P&L summary

Line	Yr 1 (₹L)	Yr 2 (₹L)	Yr 3 (₹L)
Revenue	1,800	3,400	5,800
Material — stainless, compressors, insulation, components	(1,206)	(2,244)	(3,712)
Gross profit	594	1,156	2,088
Factory employee cost — fabrication and assembly	(214)	(342)	(528)
Field service employee cost & depots	(118)	(228)	(392)
Commissioning — witnessed tests and rectification	(38)	(52)	(64)
Quality, factory testing & certification	(42)	(56)	(78)
Sales, tendering, guarantees & scheme liaison	(96)	(148)	(232)
Power, fuel, consumables & freight	(88)	(148)	(238)
Warranty provision & field rectification	(46)	(62)	(84)

Admin, insurance, professional & other	(78)	(118)	(182)
EBITDA	(126)	2	290
Depreciation & amortisation	(64)	(72)	(80)
Finance cost	(52)	(68)	(88)
Other income — contract fabrication, refurbishment, training, refrigerant recovery (<i>disclosed</i>)	168	224	303
PBT	(74)	86	425
Tax	16	(22)	(106)
PAT	(58)	64	319
Net margin	(3.2%)	1.9%	5.5%
ROCE	(10.4%)	12.8%	32.6%

The field service line at ₹3.92 crore against service revenue of ₹1.96 crore is the number an investor should sit with: the service network costs twice what it earns directly, and is carried entirely for what it does to the equipment business. An operator who reads it as a cost centre will cut engineers, response times will slip, and the effect will appear two years later as lost replacement orders that nobody attributes to the decision. Commissioning at ₹64 lakh is the price of the witnessed test and rises with volume, as it should. Other income at ₹3.03 crore is close to PAT and is disclosed separately per the library's rule — contract fabrication, refurbishment and training use the same shop and the same engineers, and an investor is entitled to see how much of the return depends on selling capacity rather than product.

12.5 The installed base is the business

Element	Yr 1	Yr 3	Note
Installed base (units)	210	1,320	Compounds; every unit is a decade of service
Service revenue per installed unit	₹9,400	₹14,800	Rises as AMC and calibration attach
AMC attach rate	34%	71%	Won by response performance, not by selling
Repeat and referral share of new orders	11%	48%	A society tells four neighbouring societies
Mean time to on-site response (hours)	38	17	In-radius engineers and district spares
Units retired or replaced by a competitor	4	11	Reported; the honest churn number

The repeat-and-referral row is where the whole plan's economics resolve: 48% of Year-3 orders come from societies that already own a unit or were told about one by a neighbour. Nothing in the tender process rewards this — a tender is scored on price and specification, and a supplier's actual field record is not an evaluation criterion — but the secretary preparing the tender has heard about the chiller in the next village either way. Which means the service network is a marketing investment that appears in no marketing budget, and the mean-time-to-response figure is the closest thing this business has to a brand.

12.6 Break-even & sensitivity

Scenario	Yr 3 revenue	Yr 3 PAT	Comment
Base	₹58.0cr	₹3.19cr	As modelled
Scheme disbursement delayed two quarters	₹48.6cr	₹1.24cr	Lumpy, political, and outside the operator's control
Other income down 30%	₹58.0cr	₹2.51cr	Why it is disclosed separately
Tender price pressure 8%	₹54.6cr	₹1.72cr	Structural in a lowest-bid market
Service attach 71% → 48%	₹56.1cr	₹2.16cr	And referrals fall the following year
Stainless or compressor cost up 12%	₹58.0cr	₹1.86cr	Fixed-price tenders carry the exposure

13. Funding Requirement & Bankability

Source	₹ lakh	Terms (indicative)
Investor equity	220	Growth capital; service-network and installed-base covenants
Working-capital facility	160	Bank guarantees, retention and public-sector receivables
Promoter contribution	140	Cash and land
Term loan	120	Factory, test bay and depots; 6–7 years
Total	640	Illustrative structure

The bankability case rests on the service annuity and on an order book that is scheme-timed rather than market-timed, and a lender should size the facility for the second rather than the first. Public-sector and cooperative receivables run long, retention money is held for a year or more, and bank guarantees consume limits without generating cash — so a business that looks profitable can be tight for months while a sanctioned scheme moves through its approvals. The installed base is the durable asset: 1,320 units under service contracts and calibration schedules is a recurring revenue stream that survives a slow tender year, and it is the reason this business is worth more than its factory.

- **Use of funds** — 26% land and factory, 22% fabrication plant, 13% insulation and refrigeration assembly, 11% district spares depots, 10% performance test bay, 9% service vehicles and instruments, balance systems and working capital.
- **Repayment** — term loan from Year 3 cash flow with a moratorium through commissioning; working-capital facility revolving against scheme receivables and retention.
- **Investor exit** — strategic sale to a national dairy-equipment or cold-chain group seeking an installed base and service network, or a promoter buyback once the annuity matures.

14. Risk Analysis & Mitigation

Risk	Impact	Mitigation
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Supplying a chiller that silently underperforms	A unit reaching 6°C instead of 4°C produces higher bacterial counts that appear at the processor as a lower grade — and are blamed on the farmers, the collection time or the weather, because nobody can trace a bacterial count back to a compressor and the buyer cannot evaluate any specification he was given	PULL-DOWN PUBLISHED AS MEASURED AT 43°C AMBIENT rather than at the 32°C catalogue condition that flatters every unit in the market; insulation thickness and material and compressor make and model STATED ON THE QUOTATION so another engineer can check and spares are identifiable in five years; kWh per 1,000 L published; every unit factory-tested against its serial; and a WITNESSED PERFORMANCE TEST AT THE SITE'S OWN AMBIENT with the committee present before final payment falls due
The commissioning test that fails with the committee assembled	Passing it costs nothing today, the shortfall is small, nobody present can detect it, and the alternative is a return visit and a delayed payment	The result is entered against the serial number by the engineer at site; FINAL PAYMENT IS RELEASED BY FINANCE ONLY AGAINST A PASSED RESULT rather than by a manager's confirmation; failures are rectified at this business's cost; and the 47 first-test failures in Year 3 are a REPORTED metric — because a supplier whose commissioning tests never fail is running a ceremony rather than a test, and a zero here would be evidence against the claim
Undersizing to win a tender	The lowest-specification bid usually wins, the difference is invisible until the following summer, and the cost falls on farmers who had no part in the decision	Cooling load calculated from the site's ACTUAL collection volumes, ambient and milk inlet temperature rather than from a tender's nominal capacity; undersized units REFUSED rather than quoted, with the calculation shown to the buyer so the refusal is evidenced; sizing held by engineering and the promoter and not overridable by sales; and the ₹4.20 crore of Year-3 tender revenue this costs stated rather than absorbed
The subsidy concealing the commission	A society sees a net figure after subsidy, has no competing quotation, and cannot distinguish equipment price from scheme benefit from the seller's margin — while being advised by the seller	Every scheme quotation states THREE SEPARATE NUMBERS: equipment price, subsidy applicable, and this business's own margin — the library's commission-disclosure rule applied where the money is public and the buyer is a committee; it costs orders to competitors quoting a single net figure, and it is the only way members can evaluate advice from an interested party
An analyser that has drifted out of calibration	It computes fat, SNF and therefore the price of every litre in the village — so drift silently underpays or overpays hundreds of farmers who have no means to check and no standing to argue	Calibration schedule STATED IN THE CONTRACT; calibration against reference samples with DRIFT RECORDED AND REPORTED TO THE SOCIETY rather than corrected quietly; Legal Metrology verification and re-verification maintained; units failing calibration reported (84 → 32); and NIL drift corrections made without a record, since a silent correction erases the evidence that farmers were mispaid

Service response failure in the installed base	A chiller down for three days is a village's collection sold spoiled or not at all, with the loss falling on farmers who did not buy it	Service radius, in-district spares and response time stated as NUMBERS in the contract; engineers EMPLOYED WITHIN those radii rather than dispatched from a city, since the difference between a service network and a service clause is where the people sleep; achieved response reported (68% → 96%); and installed units running above target temperature flagged to owners whether or not anybody complained
Scheme timing and public-sector receivables	A two-quarter disbursement delay removes 60% of Year-3 profit; guarantees consume limits without generating cash	Working-capital facility sized to scheme lumpiness rather than to revenue; private processor and organised-farm mix at 30% of revenue with commercial payment terms; service annuity as the revenue that does not wait for a sanction; retention tracked and pursued as a finance function; and growth throttled to guarantee headroom
Input cost on fixed-price tenders	Stainless and compressor prices move; a 12% rise removes 42% of Year-3 profit on contracts already priced	Price-variation clauses sought where tender rules permit and the exposure quantified where they do not; forward buying of stainless and compressors against the confirmed order book; standardised designs reducing part count; and a stated policy of declining tenders whose duration and price rigidity together exceed a defined exposure

15. SWOT Analysis

Strengths • Pull-down published as measured at 43°C, not catalogue conditions • Witnessed commissioning at site ambient before final payment • Equipment price, subsidy and margin stated separately • Service radius and response stated as numbers, achieved 96% • Analyser drift reported to the society, never corrected silently	Weaknesses • Rarely the lowest tender; refuses undersized quotes • Service network barely covers itself in cash • Scheme-timed order book with long receivables • Result depends materially on contract fabrication and other income
Opportunities • Village cold-chain expansion, substantially scheme-funded • Replacement demand from an ageing first generation of chillers • Quality-linked payment creating a permanent calibration annuity • Organised farms that read and verify published numbers • Refurbishment and refrigerant recovery on replaced units	Threats • Lowest-bid tendering rewarding undersized equipment • Scheme policy or disbursement changes • Stainless and compressor price movement on fixed-price contracts • Cheap fabricators winning on price and failing silently

16. Recommended AiSevak Tools for This Business

- **Sizing & quotation generator** — cooling load from site data, with pull-down at 43°C, insulation, compressor and kWh per 1,000 L printed by the document.
- **Scheme quotation builder** — equipment price, subsidy and margin as three separate stated numbers.
- **Serial-linked test register** — factory and witnessed site test results tied to serial, with payment release gated on a pass.
- **Service dispatch & response tracker** — radius, in-district spares, call-to-site hours against the contracted number.
- **Calibration & drift register** — analyser schedules, drift records reported to societies, Legal Metrology verification dates.
- **Installed-base condition monitor** — units running above target temperature flagged to owners proactively.
- **Tender, guarantee & retention tracker** — bids, guarantees outstanding, retention ageing and scheme receivables.

17. Key Assumptions & Notes

- **All financials are illustrative model assumptions, not forecasts, projections or guarantees.** Revenue, unit volumes, installed base, service attach and headcount are editable inputs; actual outcomes depend on scheme timing, tender behaviour, service geography and input costs. Figures are in Indian rupees.
- **The central integrity finding is that the chiller is sold on a specification the buyer cannot test and sized by the person earning the commission.** A village cooperative cannot verify pull-down time, insulation thickness, compressor duty or usable capacity — and every failure mode is silent. **A unit reaching 6°C instead of 4°C on a May afternoon produces higher bacterial counts that appear at the processor as a lower grade and a lower payment, and are attributed to the farmers, the collection time or the weather. The secretary does not know his chiller is the cause, the farmer whose payment was cut certainly does not, and the supplier is three years and two hundred kilometres away. It is the dairy-farm anchor's structure exactly — a cost borne by a party that cannot report its own condition — with the added feature that here the specification was written by the seller.**
- **So the general rule is: WHERE EQUIPMENT IS SPECIFIED BY THE SELLER AND ITS FAILURE IS SILENT, THE ACCEPTANCE TEST MUST BE WITNESSED AND CONDUCTED AT THE BUYER'S CONDITIONS, NOT THE CATALOGUE'S.** Pull-down published as measured at 43°C ambient with stated inlet temperature and fill volume, rather than the 32°C catalogue condition that flatters every unit in the market; insulation thickness and material and compressor make and model stated on the quotation so another engineer can check and spares remain identifiable in five years; and every unit commissioned with a witnessed performance test at the site's own ambient, with the committee present, before final payment falls due. **47 units failed their first test in Year 3 and were rectified at this business's cost — a supplier whose commissioning tests never fail is running a ceremony, and a zero would be evidence against the claim rather than for it.**
- **The subsidy is where the commission hides.** Much Indian dairy equipment is bought under schemes in which the dealer prepares the application, nominates the specification, arranges the sanction and is the only supplier the society ever speaks to — so the buyer sees a net figure, has no competing quotation, and cannot distinguish equipment price from scheme benefit from the seller's margin. **Every scheme quotation therefore states three separate numbers: equipment price, subsidy applicable, and this business's own margin. It costs orders to competitors who quote a single net figure, and it is the only way a society's members can evaluate advice they are receiving from an interested party — the library's commission-disclosure rule applied where the money is public and the buyer is a committee.**

- **After-sales is the product, not an attachment to it.** A chiller in a milk shed that cannot be repaired within twenty-four hours is scrap with a warranty, and every hour it is down an entire village's evening collection is sold spoiled, sold cheap or not at all — with the loss falling on farmers who had no part in the purchase. **Service radius, in-district spares and response time are stated as numbers in the contract, engineers are EMPLOYED WITHIN those radii rather than dispatched from a city, and achieved response is reported (68% → 96%). The difference between a service network and a service clause is where the people sleep.**
- **The analyser decides what every farmer in the village is paid.** It computes fat and SNF and therefore the price of every litre delivered, and one that has drifted out of calibration silently underpays or overpays hundreds of people who have no means to check and no standing to argue — the milk-processing plan's finding about the smallholder who cannot argue, arriving in the instrument itself. **Calibration schedules are stated in the contract, drift is RECORDED AND REPORTED TO THE SOCIETY rather than corrected quietly, Legal Metrology verification is maintained, units failing calibration are reported (84 → 32), and NIL drift corrections are made without a record — because a silent correction erases the evidence that farmers were mispaid.**
- **The ten-year energy cost exceeds the purchase price, and nobody quotes it.** A bulk milk cooler runs daily for a decade, and the cheapest unit to buy is usually the most expensive to run — so measured kWh per 1,000 litres cooled is published for every model alongside an indicative ten-year running cost at the state tariff. **It is the ice-cream plan's second-number rule: the purchase price is true and incomplete, and the figure that constrains it must be published beside it.**
- **The installed base is the business, and the service network is a marketing investment that appears in no marketing budget.** 48% of Year-3 orders come from societies that already own a unit or were told about one by a neighbour — and nothing in the tender process rewards this, since a tender is scored on price and specification and a supplier's field record is not an evaluation criterion. **But the secretary preparing the tender has heard about the chiller in the next village either way. Field service costs ₹3.92 crore against ₹4.64 crore of service revenue, so it barely covers itself in cash and is carried for what it does to the equipment business — an operator who reads it as a cost centre will cut engineers and see the effect two years later as lost orders nobody attributes to the decision.**
- **The cost of the honest position is stated in rupees, and so is its return.** Refusing to quote undersized units loses about ₹4.20 crore of Year-3 tender revenue; witnessed commissioning costs ₹64 lakh in engineer time and delayed payments and produces 47 rectifications a year at this business's expense; holding spares within the promised radius ties up ₹1.12 crore in district depots. **Against that: a ₹1.96 crore service annuity from an installed base that keeps working, 48% of orders from repeat and referral, and ₹17.40 crore of processor and organised-farm business won on published numbers rather than price. Other income of ₹3.03 crore is close to PAT and disclosed separately, since contract fabrication, refurbishment and training use the same shop and the same engineers.**
- **Compliance runs through measurement, product standards and tender representation.** Legal Metrology Act verification, stamping and periodic re-verification for milk analysers and weighing systems, since an uncalibrated analyser silently underpays hundreds of farmers; BIS specifications for bulk milk coolers and dairy equipment with food-contact material requirements verified by test certificate; pressure-vessel and refrigeration certification and refrigerant handling, recovery and phase-down obligations including on replaced units; the fact that a performance specification submitted to a cooperative or scheme is a contractual representation, so supplying equipment that does not meet the quoted duty is a breach and, in a scheme-funded purchase, a misuse of public money; state pollution-control consent for fabrication, welding and painting; factory, fire and electrical compliance; e-waste; GST; and EPF/ESI, POSH and accident cover for field engineers. Professional advice should be taken on the specific tender terms, scheme rules and metrology obligations.

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