



# The Bhagirathi Co-operative Milk Producers' Union Limited

(A Govt. of West Bengal Project)

BU/MKTG/CMS/0295

Date: 04.06.2026

## NOTICE INVITING QUOTATION

The Bhagirathi Cooperative Milk Producers' Union Limited invites Offline Quotations from individual developers, firms, companies for development, installation, testing commissioning and deployment of Web-based Crate Management System (CMS) for The Bhagirathi Co-operative Milk Producers' Union Limited as per SRS (Software Requirement Specifications) terms and conditions mentioned hereunder:

### Software Requirement Specifications

#### Introduction

The Crate Management System (CMS) is a web application for recording and reconciling **quantity-based** movement of reusable cargo units (crates, pallets, and similar SKUs) between a central operation, **vehicles**, and **distributors**. The system shall support:

- Dispatch (outbound from warehouse via vehicles to distributors)
- Return (inbound from distributors via vehicles, including damage)
- Manual balance adjustments on one book at a time (distributor **or** vehicle)
- Outstanding balances, entity ledgers, pivot and summary reports, and an operational dashboard

This SRS is intended for product owners, developers, distributors, operations and distribution team and operators.

#### Scope

1. Master data: geography (zone, state, district), distributors, vehicles, cargo unit types/SKUs, adjustment reasons, users, roles.
2. Operations: dispatch challans, return entries, adjustment entries.
3. Reports: outstanding, ledgers, pivot, daily movement, damage summary, adjustment activity, exceptions.
4. Authenticated access with role-based authorization.

#### Definitions

Term	Definition
Cargo Unit Type	Category of reusable container (e.g. crate, pallet).
Cargo Unit SKU	Specific variant under a type (capacity, dimensions).
Dispatch / Challan	Outbound document: one save groups lines sharing a dispatch date; each line has distributor, SKU, vehicle, and quantity.
Return entry	Inbound row keyed by return date, vehicle, distributor, and SKU.
Return batch	One create-form save: shared return date and vehicle, multiple distributors (panels), multiple SKU lines per distributor.



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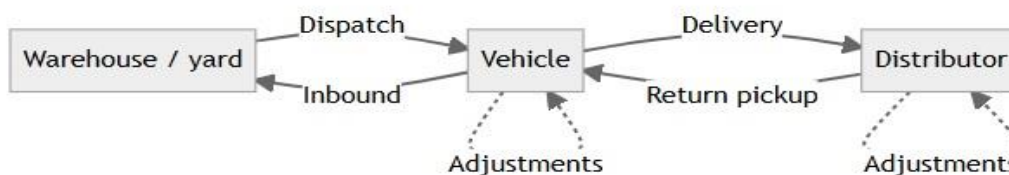
Term	Definition
Damage	Subset of return quantity flagged as damaged; counts as returned for balance.
Outstanding	Net units still “out” on a distributor or vehicle book for a given SKU.
Adjustment	Signed manual correction on one scope (DISTRIBUTOR or VEHICLE), not both.
Ledger	Chronological event stream for one distributor or one vehicle.
Pivot	Hierarchical report: net movement per date row, drill-down by vehicle or distributor.
System challan no.	Auto-generated reference (e.g. DC-20260530-0001) when no external paper number is used.

## Document conventions

- **SHALL** = mandatory; **SHOULD** = recommended; **MAY** = optional.
- Requirement IDs: FR-\* functional, DR-\* data, NFR-\* non-functional, BR-\* business rules, UI-\* interface.
- Priorities: **P0** must-have, **P1** should-have, **P2** nice-to-have.

Operators use a browser for daily entry; viewers and admins use the same application with different permissions.

## Operational context



## Typical cycle

1. Configure master data (zones through SKUs, users, roles).
2. Create dispatch challan(s) when units leave on vehicles.
3. Record returns when units come back (same day or next day); record damaged quantity when applicable.
4. Review outstanding, ledgers, and pivot reports.
5. Post adjustments when dispatch lines cannot be edited or audit policy requires a correction trail.



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## User classes

Class	Description	Primary needs
Operator	Day-to-day data entry	Create dispatch, returns, adjustments; read reports
Viewer	Read-only monitoring	Outstanding, ledgers, pivot, lists; no create buttons
Admin	Configuration and security	Full master data, operations, reports, users and roles

## Operating environment

- Modern desktop browsers (Chrome, Firefox, Safari, Edge).
- HTTPS to API in production.
- PostgreSQL 15+ as system of record.

## Design constraints

Constraint	Detail
Quantity-only tracking	No serial numbers; all movement is SKU × integer quantity.
Dispatch line immutability	Saved dispatch lines SHALL NOT be edited or deleted; corrections via adjustments.
Adjustment immutability	Adjustment entries SHALL be append-only (create + read; no PATCH/DELETE in v1).
Atomic saves	Multi-line dispatch, return batch, and related writes SHALL commit in one database transaction.

## Master data

The system SHALL provide list (paginated), create, read, update, and delete (where allowed) for:

## Entity fields

Entity	Fields	Constraints
Zone	id, name	name unique
State	id, name	name unique
District	id, stateId, name	name unique within state
Distributor	id, zone Id, district Id, code, name, address, pin code, contact Person Name, phone No, GSTIN	code unique; GST No required; state derived via district



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Entity	Fields	Constraints
Vehicle	id, license Plate No, make, model, capacity Volume, contractor Name, Contractor Contact No	License Plate No unique; contractor fields required
Cargo unit type	id, name	name unique
Cargo unit SKU	id, cargo Unit Type Id, name, capacity Volume, dimension	name unique per type
Adjustment reason	id, code, label, scope hint, active flag	catalog for adjustment create; code stable

**Create workflow**

1. Open New dispatch (/dispatches/new).
2. Enter dispatch date (default today).
3. Add distributor panel(s); per line: SKU, vehicle, quantity.
4. Submit → atomic save → redirect to challan detail.

**Return (inbound)**

ID	Requirement	Priority
FR-RET-01	Record return with header returnDate, vehicleId; multiple distributors via accordion panels.	P0
FR-RET-02	Per line: SKU, returnQty > 0, damagedQty optional, $0 \leq \text{damaged} \leq \text{return}$ .	P0
FR-RET-03	No reference to dispatch id or challan line id.	P0
FR-RET-04	Unique (returnDate, vehicleId, distributorId, cargoUnitSkuId); amend existing via PATCH.	P0
FR-RET-05	Batch save atomic: one return_entry per line.	P0
FR-RET-06	On save: decrease distributor and vehicle outstanding by returnQty; damage does not change formula (included in return).	P0
FR-RET-07	Ledger one RETURN row per entry with damagedQty visible.	P0
FR-RET-08	PATCH single entry: returnQty, damagedQty, notes, optional returnDate.	P0
FR-RET-09	DELETE single entry where permitted.	P0
FR-RET-10	PATCH SHALL NOT change vehicle or distributor (delete + new batch instead).	P0



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ID	Requirement	Priority
FR-RET-11	List filters: date range, vehicle, distributor, SKU.	P0
FR-RET-12	MAY allow return exceeding outstanding with warning (no hard block).	P2

## Create workflow

1. Open Record return (/returns/new).
2. Return date + vehicle (header).
3. Select one or more distributors → panels.
4. Per panel: SKU lines with return and damaged qty.
5. Submit → atomic save → return list (preserve filters).

## Adjustments

ID	Requirement	Priority
FR-ADJ-01	Create with adjustmentDate, scope (DISTRIBUTOR   VEHICLE), entity id, cargoUnitSkuId, signed quantity ≠ 0, reason (required).	P0
FR-ADJ-02	Exactly one of distributorId or vehicleId set, matching scope.	P0
FR-ADJ-03	Positive qty increases outstanding for scoped entity; negative decreases.	P0
FR-ADJ-04	Affects only scoped ledger; no counterparty column on adjustment rows.	P0
FR-ADJ-05	No PATCH or DELETE on adjustments in v1.	P0
FR-ADJ-06	Reason from adjustment reason catalog; label snapshotted on row for audit.	P1
FR-ADJ-07	Preview endpoint shows outstanding before/after for scoped entity + SKU.	P2
FR-ADJ-08	Optional notes on entry.	P1

## When to use adjustments vs other actions

Situation	Action
Wrong return qty on saved entry	PATCH return
Wrong return (wrong vehicle/distributor)	DELETE return + new batch, or adjustment if audit requires keeping row



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Situation	Action
Wrong dispatch qty on saved line	Adjustment (negative if over, positive if under)
Wrong distributor/SKU on dispatch	Adjustment to reverse + optional new dispatch
Lost units at distributor	Distributor-scoped negative adjustment
Vehicle yard count correction	Vehicle-scoped adjustment
Opening balance / migration	Positive adjustment per scope
Challan cancelled after dispatch	Adjustments per affected distributor and vehicle (two scopes if both books must match)
Both books must be corrected	Two adjustments (one per scope), not one row

**Adjustment reason categories (examples)**

Category	Example codes
Opening balance & migration	OPENING_BALANCE, LEGACY_MIGRATION, HISTORICAL_B ACKFILL
Dispatch qty corrections	DISPATCH_QTY_OVER, DISPATCH_QTY_UNDER, DISPATCH _DATA_ERROR
Return corrections	RETURN_QTY_OVER, RETURN_QTY_UNDER
Write-offs	DISTRIBUTOR_WRITE_OFF, VEHICLE_WRITE_OFF
Duplicates / voids	DISPATCH_DUPLICATE, DISPATCH_NOT_DELIVERED

**Reports and reconciliation**

ID	Requirement	Priority
FR-RPT-01	Outstanding — per distributor and per vehicle, by SKU: dispatched – returned + adjusted (scope-specific adjustments only).	P0
FR-RPT-02	Entity ledger — chronological DISPATCH, RETURN, ADJUSTMENT for one distributor or one vehicle; filters: date range, SKU, optional vehicle/distributor.	P0
FR-RPT-03	Ledger row delta: $\text{dispatchQty} - \text{returnQty} + \text{adjustmentQty}$ ; optional running balance per SKU.	P1
FR-RPT-04	Pivot — vehicle-wise and distributor-wise; see §8.4.	P0



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ID	Requirement	Priority
FR-RPT-05	Daily movement — dispatch/return totals by date.	P1
FR-RPT-06	Damage summary — aggregated damaged qty by dimension.	P1
FR-RPT-07	Adjustment activity — by period and reason.	P1
FR-RPT-08	Exceptions — stale outstanding (no return in N days), negative outstanding.	P1
FR-RPT-09	All report APIs read-only.	P0
FR-RPT-10	Negative outstanding MAY be highlighted (e.g. red).	P2
FR-RPT-11	Ledger row drill-through to dispatch detail or return detail.	P1
FR-RPT-12	Pivot v1: adjustments NOT in balance column; MAY show separate adjusted column in future.	P2

**Dashboard**

ID	Requirement	Priority
FR-DSH-01	Landing route / after login.	P0
FR-DSH-02	Summary cards: today dispatch qty, today return qty, total distributor outstanding, exception counts.	P0
FR-DSH-03	Quick actions: New dispatch, Record return (gated by create permissions).	P0
FR-DSH-04	Recent activity: last 5 dispatches and last 5 returns with links to detail.	P1
FR-DSH-05	Alerts: top N stale outstanding, top N negative outstanding with links to reports.	P1
FR-DSH-06	Manual refresh; auto-refresh every 5 minutes while page open.	P2
FR-DSH-07	Dashboard read-only except navigation to create flows.	P0

**Data requirements**

**General persistence rules**

ID	Requirement
DR-01	Primary keys are UUIDs.
DR-02	created_at, updated_at in UTC (TIMESTAMPTZ).



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ID	Requirement
DR-03	Movement dates stored as DATE (no time-of-day).
DR-04	Dispatch/return quantities: positive integers; adjustment: non-zero integer.

## Master tables

**zones:** id, name (unique), timestamps.

**states:** id, name (unique), timestamps.

**districts:** id, state\_id (FK), name, timestamps. Unique (state\_id, name).

**distributors:** id, zone\_id, district\_id, code (unique), name, address, contact\_person\_name, phone\_no, gst\_no (required), pincode, timestamps.

**vehicles:** id, license\_plate\_no (unique), make, model, capacity\_volume, contractor\_name, contractor\_contact\_no, timestamps.

**cargo\_unit\_types:** id, name (unique), timestamps.

**cargo\_unit\_skus:** id, cargo\_unit\_type\_id, name, capacity\_volume, dimension, timestamps. Unique (cargo\_unit\_type\_id, name).

**roles:** id, name (unique), timestamps.

**users:** id, username (unique), name, contact\_no, role\_id, hashed\_password, designation, timestamps.

**adjustment\_reasons:** id, code (unique), label, optional scope metadata, active flag, timestamps.

## Dashboard

Method	Path
GET	/api/dashboard/summary

## Hardware and communications

No special hardware. Production SHALL use HTTPS via reverse proxy.

## User interface requirements

### Navigation structure

/login (public)

/ Dashboard

Operations

/dispatches List

/dispatches/new Create

/dispatches/:id Detail



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- /returns List
- /returns/new Record return
- /returns/:id Detail / edit
- /adjustments List
- /adjustments/new Create

## Reports

- Outstanding (distributor | vehicle tabs)
- Ledgers (pick entity)
- Pivot (vehicle-wise | distributor-wise)
- Summaries (daily, damage, adjustments)
- Exceptions

## Settings / Master data

- Zones, States, Districts, Distributors, Vehicles
- Cargo unit types, Cargo unit SKUs, Adjustment reasons
- Administration (Admin)
- Roles, Users

Nav items hidden when user lacks corresponding read permission.

## Screen requirements

### Dashboard

Element	Requirement
Summary cards	Today dispatch/return qty, total distributor outstanding, exception counts
Quick actions	New dispatch, Record return (if permitted)
Recent lists	Last 5 dispatches, last 5 returns with view links
Alerts	Stale and negative outstanding with links

### Dispatch list (/dispatches)

Filters: date range, vehicle, search (challan/external, min 3 chars). Table: challan no., date, external no., line count, total qty, view. New dispatch button if permitted.

### Dispatch create (/dispatches/new)

Field	Required
Dispatch date	Yes (default today)



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Field	Required
External challan no.	Optional (unique if set)
Notes	No
Per line: distributor, SKU, vehicle, qty	Yes, qty > 0

Submit → detail view. Cancel → list.

## Dispatch detail (/dispatches/:id)

Header, lines table (distributor, SKU, vehicle, qty), ledger snippet, back to list, optional record-return shortcut.

## Return list (/returns)

Flat rows (one per SKU/date/vehicle/distributor). Filters: date, vehicle, distributor, SKU.

## Return create (/returns/new)

Header: return date, vehicle. Multi-select distributors → accordion panels. Per line: SKU, return qty, damaged qty. Submit → list with filters preserved.

## Return detail (/returns/:id)

Editable (if permitted): return qty, damaged qty, notes, optional date. Delete with confirm. Vehicle/distributor/SKU read-only.

## Adjustments

List with filters; create form: scope, entity, SKU, signed qty, reason from catalog, notes. No edit/delete in UI for v1.

## Reports

Outstanding: tabs for distributor and vehicle; table per SKU with dispatched, returned, damaged (info), adjusted, outstanding.

Ledger: entity picker, date range, SKU filter, sortable table, drill-through links.

Pivot: view toggle vehicle-wise / distributor-wise, date range, expandable hierarchy

## Forms and validation

ID	Requirement
UI-01	Client and server validate required fields and quantity rules before/at submit.
UI-02	Field-level error messages in standard error envelope.
UI-03	Domain labels: challan, outstanding, damaged, adjustment reason.

## Business rules



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**Balance and movement**

ID	Rule
BR-01	All movement tracked by SKU × quantity only; no serial numbers.
BR-02	Distributor outstanding (per SKU) = dispatched to distributor – returned from distributor + distributor-scoped adjustments.
BR-03	Vehicle outstanding (per SKU) = dispatched on vehicle – returned on vehicle + vehicle-scoped adjustments.
BR-04	Sum of distributor outstanding for distributors on a trip reconciles with vehicle outstanding when scoped consistently (per SKU).
BR-05	Damaged qty recorded only at return; subset of return; reduces outstanding as part of return.
BR-06	Pivot balance per date row = dispatch – return; damage column informational.
BR-07	Dispatch and return update both distributor and vehicle books.
BR-08	Adjustment updates one book only; correct both with two adjustments or return amend/delete as appropriate.
BR-09	Saved dispatch lines immutable; quantity corrections via adjustment.
BR-10	Ledger: one DISPATCH row per dispatch line; one RETURN row per return entry; one ADJUSTMENT row per adjustment entry.

**Pivot report layouts**

**Vehicle-wise**

Date

Vehicle	Dispatch	Return	Damage	Balance
Distributor	Dispatch	Return	Damage	Balance

**Distributor-wise**

Date

Distributor	Dispatch	Return	Damage	Balance
Vehicle	Dispatch	Return	Damage	Balance

Balance at each level = net movement for that date row only, not cumulative outstanding.

**Default seed roles**



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Permission	Admin	Operator	Viewer
dashboard.read	✓	✓	✓
dispatches.* (read/create/update)	✓	✓ / —	read only
returns.*	✓	✓ / —	read only
adjustments read/create	✓	✓ / —	read only
all reports	✓	✓	✓
master data read	✓	✓	✓
master data write/delete	✓	✓ / —	—
administration	✓	—	—
reference_data.read	✓*	✓*	—

\*Auto when operation write permissions granted.

End of SRS

**General Terms and Conditions of the NIQ**

1. Bidders are required to study the SRS above, understand the requirement and then quote their lowest and best competitive rate/offer in sealed envelope addressing to the Managing Director of the Milk Union. The rate quoted must be inclusive of all taxes and levies. No extra incidental charges shall be provided.
2. The existing SOP must be studied for reference for quoting the rates. The developed software must be as per the Standard Operating Procedures of the Milk Union.
3. As it a Govt. of West Bengal Project supplier must maintain absolute confidentiality regarding the data content of the software.
4. 100% Payment shall be made in NEFT/RTGS in the bank account of the bidder after successful delivery against submission of 2 copies of invoices. Delivery must be done within a fortnight.
5. Bug fixes are to be done during testing. If it comes to the notice of the Milk Union that there are major bugs in the system, Milk Union may withhold the payment.
6. The last date and time of bid submission shall be 11.06.2026 at 1600 hrs in The Bhagirathi Cooperative Milk Producers' Union Limited, Feeder Dairy Panchanantala, NH-34, Berhampore, Murshidabad Pin-742165.
7. Free online support must be given for 1 year. 3 months' support for minor changes against change requests without changing the architecture.



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8. Hosting of data in the Server should be done by the developing agency/company. In this case the Milk Union shall make actual payment to the developing agency/company. The company has to produce the actual bill/invoice from the principal company for release of payment.
9. The rate quoted must be valid for 3 months and not subject to any escalation.
10. The intending bidder has to submit the following documents in the offer:
  1. Details of the bidder like firm name, address etc.
  2. GST Registration Certificate.
  3. Commercial Offer as per Annexure B.
11. For any dispute between the service provider and the Milk Union the decision of the Milk Union shall be final and binding.
12. The Milk Union reserves the right to accept or reject any bids at any point of time or to cancel the entire tender without assigning any reason thereof.

Sd/-  
Managing Director  
The Bhagirathi Milk Union



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**Annexure-B**

**Commercial Offer**

**The Managing Director**  
**The Bhagirathi Cooperative Milk Producers Union Limited**  
**Feeder Dairy Panchanantala**  
**Berhampore, Mursidabad**  
**Pin-742165**

Sub: Offer for development, installation, testing commissioning and deployment of Web based Crate Management System (CMS) for The Bhagirathi Co-operative Milk Producers' Union Limited

Sir,

I have read the entire NIQ document understood the terms and conditions and thereby quote my best rate/offer as follows:

<b>SL. No.</b>	<b>Particulars</b>	<b>Basic Price</b>	<b>GST @ 18%</b>	<b>Total</b>
1	Development, installation, testing commissioning and deployment of Web-based Crate Management System (CMS) for The Bhagirathi Cooperative Milk Producers' Union Limited as per Software Requirements Specification, terms and conditions enshrined in NIQ	To be quoted by the bidder	To be quoted by the bidder	To be quoted by the bidder

**Signature of Bidder with Date**