

Software Requirements Specification (SRS)

Statistical Data Collection and Analysis System for Cooperative Societies

Version: 1.0

Prepared for: Registrar of Cooperative Societies, Kerala

Department: Department of Co-operation, Government of Kerala

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) document describes the functional and non-functional requirements for a comprehensive mobile and web-based application system designed to digitize statistical data collection from cooperative societies across Kerala. The system serves two primary user groups: cooperative inspectors who collect data from the field, and the Registrar of Cooperative Societies who analyzes data and generates reports.

1.2 Scope

The Statistical Data Collection and Analysis System will:

- Enable cooperative inspectors to collect comprehensive statistical data from cooperative societies and department offices using mobile devices
- Provide offline data collection capabilities with automatic synchronization
- Allow the Registrar Office to analyze historical data and generate predictive analytics
- Generate customizable reports for various administrative and policy-making purposes
- Maintain a centralized database of cooperative society statistics
- Support data validation and quality assurance mechanisms
- Provide role-based access control for different user types

1.3 Intended Audience

This document is intended for:

- Software developers and architects
- Project managers and stakeholders

- Quality assurance teams
- Cooperative department administrators
- System maintenance personnel

1.4 Definitions, Acronyms, and Abbreviations

Term	Definition
CIMA	Cooperative Information Management Application
RCS	Registrar of Cooperative Societies
SHG	Self Help Group
JLG	Joint Liability Group
ICDP	Integrated Cooperative Development Project
NABARD	National Bank for Agriculture and Rural Development
NCDC	National Cooperative Development Corporation
MSSGDCS	Multi-State Scheduled Cooperative Bank
FSC	Fair Price Shop/Food Security Committee
API	Application Programming Interface
GPS	Global Positioning System
UI	User Interface

Table 1: Definitions and Acronyms

2. Overall Description

2.1 Product Perspective

The Statistical Data Collection and Analysis System is a new, self-contained system that will replace the current manual Excel-based data collection process. The system consists of:

- Mobile application for Android devices (inspector field data collection)
- Web-based portal for data analysis and reporting (Registrar Office)
- Cloud-based backend server with database
- Analytics and reporting engine
- Data synchronization service

2.2 Product Functions

The system provides the following major functions:

1. **Data Collection Module**
 - Structured data entry forms for cooperative society statistics
 - GPS-based location tagging
 - Photo/document upload capabilities
 - Offline data collection with local storage
 - Real-time data validation
2. **Data Management Module**
 - Centralized database management
 - Data synchronization between mobile and server
 - Data quality assurance and validation
 - Historical data versioning
 - Data import/export functionality
3. **Analytics Module**
 - Historical trend analysis
 - Predictive analytics using machine learning
 - Comparative analysis across societies and regions
 - Performance benchmarking
 - Custom query builder
4. **Reporting Module**
 - Pre-defined report templates
 - Custom report generation
 - Data visualization (charts, graphs, maps)
 - Report scheduling and distribution
 - Export to multiple formats (PDF, Excel, CSV)
5. **Administration Module**
 - User management and authentication
 - Role-based access control
 - Audit trail and logging
 - System configuration

2.3 User Classes and Characteristics

User Type	Role	Technical Expertise	Primary Functions
Inspector	Field data collector	Basic mobile usage	Data collection, validation
Unit Inspector	Supervises inspectors	Moderate	Data review, field monitoring
Assistant Registrar	Regional oversight	Moderate to high	Report generation, analysis
Registrar	Department head	High	Strategic analysis, decision making
System Admin	IT support	Expert	User management, maintenance
Statistical Officer	Data analyst	High	Analytics, custom reporting

Table 2: User Classes

2.4 Operating Environment

- **Mobile Application:** Android 8.0 or higher
- **Web Application:** Modern web browsers (Chrome, Firefox, Edge, Safari - latest 2 versions)
- **Server:** Cloud-based infrastructure (AWS/Azure/GCP)
- **Database:** PostgreSQL or MySQL preferred for structured data, MongoDB preferred for document storage
- **Network:** Internet connectivity required for data synchronization; offline mode for data collection

2.5 Design and Implementation Constraints

1. Must comply with DPDP Act,2023, Kerala government IT policies and security standards
2. Must follow data privacy regulations and confidentiality requirements
3. Mobile app size should be optimized for low-bandwidth networks
4. System must support multiple regional languages (English, Malayalam)
5. Must integrate with existing government authentication systems if required
6. Budget constraints for cloud infrastructure and development

2.6 Assumptions and Dependencies

- Inspectors will have access to Android/iOS smartphones with GPS
- Internet connectivity is available at synchronization points (office/Wi-Fi zones)

- Cooperative societies will cooperate in providing accurate data
 - Historical data from Excel sheets will be migrated to the new system
 - Government will provide necessary infrastructure and training
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3. System Features and Requirements

3.1 Functional Requirements

3.1.1 User Registration and Authentication

FR-1.1: The system shall provide secure user registration with administrator approval.

FR-1.2: The system shall support role-based authentication (Inspector, Unit Inspector, Assistant Registrar, Registrar, Statistical Officer, Admin).

FR-1.3: The system shall implement password policies (minimum 8 characters, alphanumeric with special characters).

FR-1.4: The system shall support password reset functionality via email/SMS.

FR-1.5: The system shall maintain session management with automatic timeout after 30 minutes of inactivity.

3.1.2 Cooperative Society Profile Management

FR-2.1: The system shall maintain comprehensive profiles for each cooperative society with the following mandatory fields:

- Society name and year of registration
- CIMA code (unique identifier)
- Society type and category classification
- Contact information (phone, email)
- Geographic location (Grama Panchayat/Municipality/Corporation, Block, Assembly/Parliamentary constituency, Circle/Taluk)
- Inspector and Assistant Registrar assignments
- Operational status (working, dormant, under liquidation, liquidated)

FR-2.2: The system shall allow inspectors to update society profiles during field visits.

FR-2.3: The system shall maintain complete change history for all profile modifications.

FR-2.4: The system shall validate CIMA codes against existing records to prevent duplicates.

3.1.3 Asset Data Collection

FR-3.1: The system shall collect comprehensive asset information including:

Asset Category	Data Fields
Land	Value (Rs. in lakhs), Area (cents)
Building	Value (Rs. in lakhs), Ownership status
Other Assets	Value (Rs. in lakhs), Category
Vehicles	Number owned, Types
Infrastructure	Office, computerization, NET banking, ATM, Locker facilities

Table 3: Asset Data Requirements

FR-3.2: The system shall calculate total assets automatically (A+B+C formula).

FR-3.3: The system shall allow photo documentation of major assets.

3.1.4 Membership Data Collection

FR-4.1: The system shall collect detailed membership data with the following dimensions:

- Total membership by class (A, C, D class)
- Gender distribution (Male, Female, Transgender)
- Social category (SC, ST)
- Age groups (10-17, 18-29, 30-60, 61+ years)
- Special categories (differently abled, widows, farmers, traders)

FR-4.2: The system shall implement automatic validation checks to ensure:

- Sum of gender categories equals total membership
- Sum of class categories equals total membership
- No negative values

FR-4.3: The system shall track membership growth trends over time.

3.1.5 Financial Data Collection

FR-5.1: The system shall collect comprehensive financial data including:

1. **Share Capital:** Member contributions, government contributions (State, ICDP, NABARD, NCDC), others
2. **Deposits:** Fixed, Savings, Recurring, Current accounts (both amount and account numbers)
3. **Borrowings:** From financing banks, government, ICDP, NABARD, NCDC, others - tracking beginning balance, received, utilized, paid off, outstanding, and overdue amounts
4. **Loans:** Short-term, medium-term, long-term by purpose (agriculture, education, industrial, others) and security type (secured/unsecured)
5. **Gold Loans:** Agricultural and non-agricultural purposes

6. **Grants/Subsidies:** Received, utilized, unspent balance
7. **Working Capital:** Cash in hand, cash at bank, investments, guarantee funds, consortium funds
8. **Statutory Reserves:** Reserve fund, cooperative education fund, member relief fund, bonus, donations
9. **Profit/Loss:** Net profit, net loss, trade profit, trade loss as per audit

FR-5.2: The system shall perform automatic calculations for derived financial metrics (e.g., outstanding borrowings = beginning + received - paid off).

FR-5.3: The system shall validate financial data consistency and flag anomalies.

FR-5.4: The system shall track year-over-year financial performance.

FR-5.5: The system shall maintain audit trail for all financial data entries and modifications.

3.1.6 Employee and Governance Data

FR-6.1: The system shall collect employee statistics:

- Total employees by gender (Male, Female, Transgender)
- Social categories (Differently abled, SC, ST)
- Collection agents, paid secretary/MD status

FR-6.2: The system shall track governance structure:

- Committee type (Elected Committee/Administrative Committee/Administrator)
- Number of branches

3.1.7 Loan Portfolio Management

FR-7.1: The system shall track comprehensive loan data:

- Total loan outstanding by category
- Loan disbursement by purpose (agriculture, education, startup, industrial, SHGs, JLGs, others)
- Loan demand and collection during the year
- Loan overdue amounts and percentages
- Gold loan outstanding and disbursed

FR-7.2: The system shall calculate loan performance indicators (NPAs, recovery rates).

FR-7.3: The system shall generate alerts for high overdue percentages.

3.1.8 Services and Products Data

FR-8.1: The system shall collect information on services and facilities offered by societies including:

- Healthcare: Neethi medicals, lab facilities, blood bank, ambulance, palliative care, geriatric care, pre/post-natal care

- Retail: Neethi stores, super markets, coop marts, vegetable/fish marts
- Infrastructure: Petrol pumps, gas agencies, godowns (with capacity), auditoriums
- Agriculture: Fertilizer/manure units, agricultural nurseries
- Sports: Football/badminton/cricket turfs
- Markets: FSC, Grameen markets
- Other: Mortuary services

FR-8.2: The system shall distinguish between society-owned and Consumerfed-operated facilities.

FR-8.3: The system shall track sales from non-credit activities.

3.1.9 Agricultural Operations

FR-9.1: The system shall collect agricultural data:

- Agricultural area cultivated (lease and owned) in acres
- Number of Multi-State Scheduled Cooperative Banks operated
- Products manufactured/sold
- Agricultural trade profit/loss

3.1.10 Offline Data Collection

FR-10.1: The mobile app shall allow complete data entry in offline mode.

FR-10.2: The system shall store offline data locally on the mobile device with encryption.

FR-10.3: The system shall automatically synchronize offline data when internet connectivity is restored.

FR-10.4: The system shall handle synchronization conflicts with timestamp-based resolution and admin override capability.

FR-10.5: The system shall display synchronization status to users (pending, in-progress, completed, failed).

3.1.11 GPS Location and Geo-tagging

FR-11.1: The mobile app shall automatically capture GPS coordinates during data collection.

FR-11.2: The system shall associate geographic coordinates with each society record.

FR-11.3: The system shall display societies on interactive maps in the web portal.

FR-11.4: The system shall allow manual location correction if GPS is inaccurate.

3.1.12 Data Validation and Quality Assurance

FR-12.1: The system shall implement real-time validation rules for:

- Mandatory field completion

- Data type validation (numeric, text, date formats)
- Range validation (no negative values for counts/amounts)
- Formula-based validation (automatic calculations)
- Cross-field validation (sum of parts equals total)

FR-12.2: The system shall display clear error messages for validation failures.

FR-12.3: The system shall allow authorized users to override validation errors with justification.

FR-12.4: The system shall flag incomplete or questionable data for supervisor review.

FR-12.5: The system shall implement data quality scoring for each society record.

3.1.13 Historical Data Management

FR-13.1: The system shall maintain complete historical data for all societies across multiple years.

FR-13.2: The system shall support year-wise data entry and retrieval.

FR-13.3: The system shall prevent modification of finalized/audited data without proper authorization.

FR-13.4: The system shall maintain audit logs of all data changes with timestamp and user identification.

FR-13.5: The system shall support migration of historical Excel data into the system.

3.1.14 Data Analysis and Insights

FR-14.1: The system shall provide analytical capabilities for:

- Trend analysis over multiple years
- Comparative analysis across societies, regions, and categories
- Performance benchmarking against sector averages
- Financial health assessment
- Geographic distribution analysis
- Member demographic analysis

FR-14.2: The system shall implement predictive analytics for:

- Future membership growth forecasting
- Financial performance prediction
- Loan demand forecasting
- Risk assessment for societies
- Identifying societies requiring intervention

FR-14.3: The system shall use machine learning algorithms to:

- Detect anomalies in reported data
- Identify patterns in society performance
- Predict societies at risk of failure
- Recommend targeted interventions

FR-14.4: The system shall provide natural language query interface for ad-hoc analysis.

FR-14.5: The system shall allow custom metric creation by authorized users.

3.1.15 Report Generation

FR-15.1: The system shall provide pre-defined report templates including:

- Society profile report
- Financial performance report
- Membership statistics report
- Loan portfolio report
- Regional comparison report
- Annual consolidated report
- Performance dashboard for Registrar

FR-15.2: The system shall allow custom report design with drag-and-drop interface.

FR-15.3: The system shall support report parameterization (date ranges, regions, society types, filters).

FR-15.4: The system shall generate reports in multiple formats (PDF, Excel, CSV, Word).

FR-15.5: The system shall support scheduled report generation and email distribution.

FR-15.6: The system shall provide interactive dashboards with drill-down capabilities.

FR-15.7: Reports shall include:

- Summary statistics
- Comparative tables
- Trend charts and graphs
- Geographic heat maps
- Key performance indicators (KPIs)

3.1.16 Data Export and Integration

FR-16.1: The system shall support bulk data export in standard formats (CSV, Excel, JSON, XML).

FR-16.2: The system shall provide API endpoints for integration with other government systems.

FR-16.3: The system shall support automated data exchange with audit systems if required.

FR-16.4: The system shall implement data export with appropriate access controls and audit logging.

3.1.17 Notification and Alerts

FR-17.1: The system shall send notifications for:

- Data submission deadlines
- Pending approvals
- Data validation errors
- Synchronization failures
- System updates and maintenance

FR-17.2: The system shall support multiple notification channels (in-app, email, SMS).

FR-17.3: The system shall allow users to configure notification preferences.

FR-17.4: The system shall generate alerts for:

- Societies with high overdue percentages
- Significant changes in financial indicators
- Incomplete data submissions
- Data quality issues

3.1.18 User Management and Access Control

FR-18.1: The system shall implement role-based access control with the following roles:

Role	Permissions
Inspector	Data entry, view assigned societies, photo upload, offline collection
Unit Inspector	All inspector permissions + review and approve inspector data, assign societies
Assistant Registrar	All unit inspector permissions + regional reports, analytics for region
Statistical Officer	View all data, advanced analytics, custom reports, data export
Registrar	Full read access, executive dashboards, strategic analytics, policy reports
System Admin	User management, system configuration, audit logs, data backup/restore

Table 4: Role-Based Permissions

FR-18.2: The system shall support hierarchical data access (inspectors see only assigned societies, ARs see regional data).

FR-18.3: The system shall log all user activities for audit purposes.

FR-18.4: The system shall enforce principle of least privilege for data access.

3.1.19 Data Import and Migration

FR-19.1: The system shall provide tools to import historical data from Excel templates.

FR-19.2: The system shall validate imported data and generate error reports.

FR-19.3: The system shall support bulk society registration and profile creation.

FR-19.4: The system shall maintain mapping between legacy identifiers and new system IDs.

3.1.20 Search and Filtering

FR-20.1: The web portal shall provide advanced search capabilities for societies by:

- Name, CIMA code
- Type, category, classification
- Location (district, block, constituency)
- Inspector, Assistant Registrar
- Operational status
- Financial parameters (asset range, membership count)

FR-20.2: The system shall support saved searches and filters.

FR-20.3: The mobile app shall provide quick search for inspectors to find assigned societies.

3.2 Non-Functional Requirements

3.2.1 Performance Requirements

NFR-1.1: The mobile app shall load the data entry form within 3 seconds on standard Android devices.

NFR-1.2: The system shall support at least 500 concurrent users on the web portal without performance degradation.

NFR-1.3: Data synchronization for a typical society record shall complete within 10 seconds on 3G network.

NFR-1.4: Complex analytical queries shall return results within 15 seconds for datasets up to 10,000 societies.

NFR-1.5: Report generation shall complete within 30 seconds for standard reports.

NFR-1.6: The system shall handle up to 20,000 cooperative society records with 10+ years of historical data.

3.2.2 Security Requirements

NFR-2.1: All data transmission shall be encrypted using TLS 1.3 or higher.

NFR-2.2: Passwords shall be hashed using bcrypt or Argon2 algorithm.

NFR-2.3: The system shall implement protection against common vulnerabilities (SQL injection, XSS, CSRF).

NFR-2.4: Local data storage on mobile devices shall be encrypted using AES-256.

NFR-2.5: The system shall implement session timeout and forced re-authentication.

NFR-2.6: The system shall comply with government data security standards and regulations.

NFR-2.7: The system shall maintain detailed audit logs of all data access and modifications.

NFR-2.8: Backup data shall be encrypted both in transit and at rest.

3.2.3 Reliability and Availability

NFR-3.1: The system shall achieve 99.5% uptime during business hours (9 AM - 6 PM IST, Monday-Friday).

NFR-3.2: The system shall implement automatic failover for critical components.

NFR-3.3: Data synchronization failures shall automatically retry with exponential backoff.

NFR-3.4: The system shall implement graceful degradation if analytics services are unavailable.

NFR-3.5: Scheduled maintenance windows shall be communicated 48 hours in advance.

3.2.4 Scalability

NFR-4.1: The system architecture shall support horizontal scaling to accommodate growing user base.

NFR-4.2: The database shall support partitioning for efficient management of large datasets.

NFR-4.3: The system shall handle 100% year-over-year growth in data volume.

NFR-4.4: The system design shall allow addition of new data fields without requiring major refactoring.

3.2.5 Usability

NFR-5.1: The mobile app interface shall be intuitive and require minimal training (less than 1 hour for field inspectors).

NFR-5.2: The system shall support both English and Malayalam languages with easy language switching.

NFR-5.3: The mobile app shall work effectively on screens as small as 5 inches.

NFR-5.4: Error messages shall be clear and actionable in the user's selected language.

NFR-5.5: The web portal shall follow responsive design principles and work on tablets and desktops.

NFR-5.6: The system shall provide contextual help and tooltips for complex fields.

NFR-5.7: Form fields shall support auto-complete and smart defaults based on historical data.

3.2.6 Compatibility

NFR-6.1: The mobile app shall support Android versions 8.0 to the latest release.

NFR-6.2: The web portal shall be compatible with Chrome (v90+), Firefox (v88+), Edge (v90+), Safari (v14+).

NFR-6.3: The system shall support standard data formats for interoperability (JSON, XML, CSV).

NFR-6.4: APIs shall follow RESTful design principles for easier integration.

3.2.7 Maintainability

NFR-7.1: The codebase shall follow coding standards and best practices for respective technologies.

NFR-7.2: The system shall have comprehensive documentation for administrators and developers.

NFR-7.3: The system shall support remote diagnostics and troubleshooting.

NFR-7.4: Critical bugs shall be addressable through hotfixes without full system redeployment.

NFR-7.5: The system shall log errors with sufficient detail for debugging.

3.2.8 Data Backup and Recovery

NFR-8.1: The system shall perform automated daily backups of all data.

NFR-8.2: Backups shall be stored in geographically separate locations.

NFR-8.3: The system shall support point-in-time recovery for the last 30 days.

NFR-8.4: Backup restoration procedures shall be tested quarterly.

NFR-8.5: Recovery Time Objective (RTO) shall be less than 4 hours.

NFR-8.6: Recovery Point Objective (RPO) shall be less than 24 hours.

3.2.9 Compliance and Standards

NFR-9.1: The system shall comply with Kerala government IT policies.

NFR-9.2: The system shall follow data privacy regulations for handling personal information.

NFR-9.3: The system shall maintain data retention policies as per government guidelines.

NFR-9.4: The system shall support audit requirements for government systems.

4. System Architecture

4.1 High-Level Architecture

The system follows a three-tier architecture:

1. **Presentation Layer**

- Mobile application (Android - native or hybrid)
- Web application (React/Angular/Vue.js)
- Responsive design for multiple devices

2. **Application Layer**

- RESTful API server (Node.js/Python/Java)
- Business logic and validation
- Authentication and authorization services
- Data synchronization service
- Analytics and reporting engine
- Machine learning model serving

3. **Data Layer**

- Relational database (PostgreSQL/MySQL) for structured data
- Document store (MongoDB) for flexible schema requirements
- File storage (AWS S3/Azure Blob) for photos and documents
- Cache layer (Redis) for performance optimization
- Data warehouse for analytics (optional: Snowflake/BigQuery)

4.2 Component Diagram

Key system components include:

- User Management Service
- Society Data Service
- Financial Data Service
- Synchronization Service
- Validation Service
- Analytics Service
- Reporting Service
- Notification Service
- Audit Logging Service

4.3 Data Flow

1. Inspector collects data offline on mobile app
 2. Data stored locally with encryption
 3. When online, data syncs to cloud server via API
 4. Validation service checks data quality
 5. Data stored in central database
 6. Analytics service processes data for insights
 7. Registrar accesses analyzed data via web portal
 8. Reports generated on-demand or scheduled basis
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5. Data Model

5.1 Key Entities

The system shall maintain the following core entities:

1. **User**
 - UserID, Username, Password Hash, Email, Phone
 - Role, Department, Region
 - CreatedDate, LastLogin, IsActive
2. **Society**
 - SocietyID, CIMA Code, Name, RegistrationYear
 - Type, Category, Classification
 - ContactPhone, ContactEmail
 - Location details (GPS coordinates, administrative divisions)
 - Operational Status
 - AssignedInspector, AssignedAR
3. **SocietyData (Annual)**
 - RecordID, SocietyID, Year
 - All 121+ data fields as per specification
 - DataCollectionDate, LastModifiedDate
 - DataStatus (Draft, Submitted, Approved, Finalized)
 - CollectedBy (UserID)
4. **Asset**
 - AssetID, SocietyID, Year
 - AssetType, Value, Area, Quantity

- Documentation (photos, certificates)
5. **Membership**
 - MembershipID, SocietyID, Year
 - Class, Gender, Age Group, Social Category
 - Aggregated counts
 6. **FinancialRecord**
 - FinancialID, SocietyID, Year
 - Share capital, Deposits, Borrowings, Loans
 - Profit/Loss, Reserves, Working capital
 7. **LoanPortfolio**
 - LoanID, SocietyID, Year
 - Loan type, Purpose, Security
 - Outstanding, Disbursed, Collected, Overdue
 8. **Services**
 - ServiceID, SocietyID, Year
 - Service type, Ownership, Capacity
 - Sales/Revenue
 9. **AuditLog**
 - LogID, UserID, Action, EntityType, EntityID
 - Timestamp, IPAddress, Changes (JSON)
 10. **Report**
 - ReportID, ReportName, Template
 - Parameters, GeneratedBy, GeneratedDate
 - FileLocation

5.2 Relationships

- User (Inspector) → many Society (assigned societies)
 - Society → many SocietyData (yearly records)
 - Society → many Asset/Membership/Financial/Loan/Services (yearly breakdowns)
 - User → many AuditLog (activity trail)
 - User → many Report (generated reports)
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6. User Interface Requirements

6.1 Mobile Application UI

6.1.1 Login Screen

- Simple username/password entry
- Remember me option
- Forgot password link
- Language selection (English/Malayalam)

6.1.2 Dashboard

- List of assigned societies
- Quick search/filter
- Data collection status indicators
- Sync status indicator
- Notifications panel

6.1.3 Society Selection

- Searchable list of societies
- Filter by status, location
- Society basic info preview
- Navigation to data entry form

6.1.4 Data Entry Form

- Tabbed/sectioned interface (Profile, Assets, Members, Finance, Loans, Services)
- Auto-save functionality
- Progress indicator
- Field-level validation with error messages
- GPS location capture button
- Photo upload functionality
- Previous year data reference panel
- Submit and save as draft buttons

6.1.5 Offline Indicator

- Clear visual indicator of online/offline status
- Pending sync count
- Manual sync trigger button

6.1.6 Settings

- Profile management

- Language preference
- Sync preferences
- About and help

6.2 Web Portal UI

6.2.1 Login and Dashboard

- Secure login with two-factor authentication (optional)
- Executive dashboard with KPIs
- Recent activities panel
- Quick links to common reports
- System notifications

6.2.2 Society Management

- Searchable society directory
- Advanced filters and saved searches
- Society detail view with all historical data
- Data edit capability (with authorization)
- Document repository

6.2.3 Analytics Interface

- Interactive dashboards
- Filter panel (region, date range, society type)
- Visualization gallery (charts, maps, tables)
- Drill-down capability
- Export options

6.2.4 Report Builder

- Report template selection
- Parameter input interface
- Preview functionality
- Schedule report interface
- Report library/archive

6.2.5 Administration

- User management interface
- Role and permission configuration

- System settings
- Audit log viewer
- Data import/export tools

6.3 Accessibility Requirements

- Support for screen readers
 - Keyboard navigation support
 - Sufficient color contrast (WCAG 2.1 AA compliance)
 - Resizable text
 - Clear focus indicators
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7. External Interface Requirements

7.1 User Interfaces

As described in Section 6.

7.2 Hardware Interfaces

Mobile Device Requirements:

- Minimum 2GB RAM
- Android 8.0+
- GPS capability
- Camera (minimum 5MP)
- Storage: Minimum 500MB free space

Desktop Requirements:

- Modern processor (Intel i3 or equivalent)
- Minimum 4GB RAM
- Screen resolution: 1366x768 or higher
- Internet browser with JavaScript enabled

7.3 Software Interfaces

Database Interface:

- JDBC/ODBC for relational database connectivity
- MongoDB driver for document storage
- Support for prepared statements and connection pooling

File Storage Interface:

- AWS S3 SDK or Azure Storage SDK
- Secure file upload and retrieval
- Support for common image formats (JPEG, PNG)

Authentication Interface:

- Integration with government SSO if available
- Standard JWT token-based authentication
- OAuth 2.0 support for third-party integration

Email Interface:

- SMTP server for email notifications
- Support for HTML email templates

SMS Interface:

- SMS gateway API for notifications
- Delivery status tracking

7.4 Communications Interfaces

- HTTPS for all client-server communication
 - RESTful APIs using JSON format
 - WebSocket for real-time notifications (optional)
 - Standard HTTP status codes and error responses
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8. Quality Assurance and Testing

8.1 Testing Requirements

8.1.1 Unit Testing

- All business logic functions shall have unit tests
- Minimum 80% code coverage
- Automated test execution in CI/CD pipeline

8.1.2 Integration Testing

- API endpoint testing
- Database integration testing
- Third-party service integration testing

- Data synchronization testing

8.1.3 System Testing

- End-to-end workflow testing
- Performance testing under load
- Security testing (penetration testing)
- Compatibility testing across devices and browsers

8.1.4 User Acceptance Testing

- Field testing with actual inspectors
- Usability testing with Registrar office staff
- Feedback collection and iterative improvement

8.1.5 Regression Testing

- Automated regression test suite
- Execution before each release

8.2 Acceptance Criteria

The system will be considered acceptable when:

- All functional requirements are implemented and tested
 - Non-functional requirements are met (performance, security, usability)
 - User acceptance testing is completed with 90%+ satisfaction
 - Critical and high-priority bugs are resolved
 - System documentation is complete
 - User training is conducted successfully
 - Data migration from legacy system is verified
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9. Project Planning and Implementation

9.1 Training Requirements

1. **Inspector Training (Field Staff)**
 - Mobile app usage
 - Data collection procedures
 - Offline mode and synchronization
 - Data quality guidelines

- Duration: 1 day per batch
 - 2. **Administrative Staff Training**
 - Web portal navigation
 - Report generation
 - Basic analytics
 - Duration: 2 days
 - 3. **Registrar and Senior Officers Training**
 - Advanced analytics features
 - Custom report building
 - Predictive insights interpretation
 - Strategic decision support
 - Duration: 1 day
 - 4. **System Administrator Training**
 - User management
 - System configuration
 - Troubleshooting
 - Backup and recovery
 - Duration: 3 days
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10. Maintenance and Support

10.1 Ongoing Maintenance

- Regular security patches and updates
- Bug fixes and issue resolution
- Performance monitoring and optimization
- Database maintenance and cleanup
- Backup verification and disaster recovery testing

10.2 Support Structure

1. **Level 1 Support (Helpdesk)**
 - User queries and basic troubleshooting
 - Password resets
 - Training refreshers
 - Response time: Within 4 hours
2. **Level 2 Support (Technical Team)**

- Technical issues
 - Data synchronization problems
 - Configuration issues
 - Response time: Within 24 hours
3. **Level 3 Support (Development Team)**
- Critical bugs
 - System failures
 - Complex technical problems
 - Response time: Within 2 hours for critical issues

10.3 Enhancement Process

- Quarterly review of enhancement requests
- Prioritization based on user feedback and strategic value
- Planned release cycles (quarterly minor updates, annual major updates)
- User communication for upcoming features

11. Risks and Mitigation

11.1 Technical Risks

Risk	Impact	Mitigation Strategy
Data loss during sync	High	Implement robust offline storage, conflict resolution, regular backups
Security breach	Critical	Multi-layer security, encryption, regular audits, penetration testing
Performance degradation	Medium	Load testing, optimization, scalable architecture
Integration failures	Medium	Comprehensive integration testing, fallback mechanisms

Table 7: Technical Risks

11.2 Operational Risks

Risk	Impact	Mitigation Strategy
User resistance to change	Medium	Comprehensive training, change management, phased rollout

Inadequate training	Medium	Detailed training program, user manuals, video tutorials
Data quality issues	Medium	Validation rules, quality scoring, supervisor review
Insufficient network coverage	High	Offline mode, sync at WiFi points, data compression

Table 8: Operational Risks

11.3 Project Risks

Risk	Impact	Mitigation Strategy
Timeline delays	Medium	Realistic planning, agile methodology, regular reviews
Budget overruns	Medium	Detailed cost estimation, contingency planning
Scope creep	Medium	Clear requirements, change control process
Key personnel turnover	Medium	Knowledge documentation, cross-training

Table 9: Project Risks

12. Assumptions and Dependencies

12.1 Assumptions

- Inspectors will have access to Android /iOS smartphones (provided by department or personal)
- Internet connectivity is available at district/taluk offices for synchronization
- Cooperative societies will cooperate in providing accurate information
- Historical data in Excel format is available and reasonably clean
- Department will provide necessary infrastructure (servers, cloud hosting)
- Adequate budget is allocated for development and ongoing operations
- Users have basic digital literacy

12.2 Dependencies

- Government approval and funding allocation
- Procurement of mobile devices if required
- Cloud infrastructure availability

- Third-party service availability (SMS gateway, email server)
- Availability of key stakeholders for requirements and testing
- Network connectivity infrastructure in field areas
- Completion of data migration from legacy systems

13. Glossary

Term	Definition
Cooperative Society	A voluntary association of persons who work together to promote their economic interests
Inspector	Field officer responsible for visiting societies and collecting data
Unit Inspector	Supervisor overseeing multiple inspectors in a geographic unit
Assistant Registrar	Regional administrative officer overseeing cooperative operations
Registrar	Head of the Department of Cooperation, responsible for policy and oversight
CIMA Code	Unique identification code for each cooperative society
Audit Classification	Category assigned to society based on last audit (A, B, C, D grades)
Dormant Society	Society that is registered but not actively operating
Liquidation	Legal process of closing down a society and distributing assets
Share Capital	Capital contributed by members and government to the society
Paid-up Share Capital	Actual amount paid by members (not just pledged)
Deposits	Money placed by members in various accounts (savings, fixed, recurring)
Borrowings	Loans taken by society from banks, government, or other institutions
Working Capital	Capital available for day-to-day operations
Statutory Reserves	Mandatory reserves set aside as per cooperative laws
Overdue	Loan amount not repaid by due date
NPA	Non-Performing Asset - loan with payment default beyond specified period
Gold Loan	Loan provided against gold ornament collateral
SHG	Self Help Group - small voluntary association for mutual financial support
JLG	Joint Liability Group - group of farmers for collective borrowing

Neethi Medical	Medical shop operated as part of consumer cooperative
FSC	Fair Price Shop for distributing subsidized food grains

Table 10: Glossary of Terms



RCS/15869/2025-STA(2)

സഹകരണ സംഘം രജിസ്ട്രാർ ഓഫീസ്
തീയതി 05-03-2026:

അർദ്ധ അനുദ്യോഗിക കറിപ്പ

വിഷയം: സഹകരണ വകുപ്പ്-സ്റ്റാറ്റിസ്റ്റിക് വിഭാഗത്തിനായി മൊബൈൽ/ വെബ്സൈറ്റ് ആപ്ലിക്കേഷൻ വികസിപ്പിക്കുന്നതു- സംബന്ധിച്ച്.

സൂചന: ബഹു. രജിസ്ട്രാറുടെ നിർദ്ദേശം.

സ്റ്റാറ്റിസ്റ്റിക് വിഭാഗത്തിന്റെ പരിധിയിൽ നടപ്പിലാക്കി വരുന്ന വിവിധ ഡാറ്റാ ശേഖരണം, പരിശോധന, സംഗ്രഹണം, വിശകലനം, റിപ്പോർട്ട് തയ്യാറാക്കൽ തുടങ്ങിയ പ്രവർത്തനങ്ങൾ നിലവിൽ excel ഷീറ്റിലൂടെയാണ് ചെയ്യുന്നത്. പ്രവർത്തനക്ഷമത വർദ്ധിപ്പിക്കുന്നതിനും ഡാറ്റയുടെ കൃത്യതയും സമയബന്ധിതതയും ഉറപ്പുവരുത്തുന്നതിനും സമഗ്രമായ ഒരു mobile/ web application വികസിപ്പിക്കുന്നത് അനിവാര്യമാണ്.

പ്രസ്തുത ആപ്ലിക്കേഷനിൽ ഉൾപ്പെടുത്തേണ്ട പ്രധാന indicators ചുവടെ പറയുന്നു.

Sl No	Particulars	Unit	
1	Name of the Society		
2	Year of Registration		
3	CIMA Code		
4	Type		
5	Mobile Phone Number of Secretary		
6	Email ID of the Society		
7	Category as per last Audit Classification	Drop down menu	
8	General Classification	Drop down menu	
9	Area of operation		
10	Name of Grama Panchayath\Municipality\Corporation Where the society is situated		
11	Name Block Panchayat		
12	Name of Assembly Constituency		
13	Name of Parliamentary Constituency		
14	Name of Circle/ Taluk		
15	Total Assets (A+B+C)		
A	Value of own land (Rs.) in lakhs		
B	Value of own building (Rs.in lakhs)		
C	Value of all other assets (Rs. in lakhs)		

16	Land area owned (in cents)		
17	Number of vehicles owned		
18	Name of Unit Inspector		
19	Mobile number of Unit Inspector		
20	Name of Assistant Registrar		
21	Mobile number of Assistant Registrar		
22	Whether the Society is in profit or loss (Y/N)		
23	Whether working (Y/N)		
24	Whether dormant (Y/N)		
25	Whether under liquidation (Y/N)		
26	Whether liquidated (Y/N)		
27	Whether having own office (Y/N)		
28	Whether computerised (Y/N)		
29	Whether NET banking is available (Y/N)		
30	Whether ATM facility is available (Y/N)		
31	Whether locker facility is available (Y/N)		
32	Paid Secretary/ MD (Y/N)		
33	Whether Elected Committee/ ADM. Committee/ Administrator (Y/N)	Drop down menu	
34	Whether gold loan facility is available (Y/N)		
35	Whether profit distributed (Y/N)		
36	Whether dividend paid to government (Y/N)		
37	Whether dividend paid to members (Y/N)		
38	Whether Fluid Resource Maintained (Y/N)		
39	Number of branches	Number	
40	Members (40A+40B+40C)	Number	40=41+42+43(Validation check)
40A	Total A class membership (41A+42A+43A)	Number	
40B	Total C class membership (41AA+42AA+43AA)	Number	
40C	Total D class membership (41AAA+42AAA+43AAA)	Number	
41	Male (41A+41AA+41AAA)	Number	
41A	A class	Number	
41AA	C class	Number	
41AAA	D class	Number	
42	Female (42A+42AA+42AAA)	Number	
42A	A class	Number	
42AA	C class	Number	
42AAA	D class	Number	

AA			
A			
43	Transgender (43A+43AA+43AAA)	Number	
43	A class	Number	
A			
43	C class	Number	
AA			
43	D class	Number	
AA			
A			
44	SC (44A+44AA+44AAA)	Number	
44	A class	Number	
A			
44	C class	Number	
AA			
44	D class	Number	
AA			
A			
45	ST (45A+45AA+45AAA)	Number	
45	A class	Number	
A			
45	C class	Number	
AA			
45	D class	Number	
AA			
A			
46	Members aged between 10 to 17 Years	Number	
47	Members aged between 18 to 29 years	Number	
48	Members aged between 30 to 60 years	Number	
49	Members aged between 61 years and above	Number	
50	Members who are differently abled	Number	
51	Members who are widows	Number	
52	Members who are farmers	Number	
53	Members who are traders	Number	
54	Total Number of employees (55A+55B+55C)	Number	
55	Male	Number	
A			
55B	Female	Number	
55C	Transgender	Number	
56	Differently abled	Number	
57	SC	Number	
58	ST	Number	
59	Number of collection agents	Number	
60	Number of SHG's under the society	Number	
61	Number of JLG's under the society	Number	
62	Total paid up share capital (62A+62B+62C)	Rs. in La khs	

62 A	Members	Rs. in La khs	
62 Aa	Individual Members	Rs. in La khs	
62 Ab	Societies	Rs. in La khs	
62B	Government	Rs. in La khs	
62B a	State	Rs. in La khs	
62B b	ICDP	Rs. in La khs	
62B c	NABARD	Rs. in La khs	
62B d	NCDC	Rs. in La khs	
62B e	Others	Rs. in La khs	
62C	Others (specify)	Rs. in La khs	
63	Total Business Turn Over During The Year	Rs. in La khs	
64	Total Business Turn Over During Last Year	Rs. in La khs	
65	Deposit Outstanding during the last audited year (65A+65B+65D+65E+65G)	Rs. in La khs	
65 A	Fixed deposit	Rs. in La khs	
65B	Savings bank deposit	Rs. in La khs	
65C	Savings bank account	Number	
65 D	Recurring Deposit	Rs. in La khs	
65E	Current account	Rs. in La khs	
65F	Current bank account	Number	
65 G	Others (specify)	Rs. in La khs	
66	Deposit during the last audited year (66A+66B+66D+66E+66G)	Rs. in La khs	
66 A	Fixed Deposit	Rs. in La khs	
66B	Savings bank deposit	Rs. in La khs	
66C	Savings bank account	Number	
66 D	Recurring Deposit	Rs. in La khs	

66E	Current account	Rs. in La khs	
66F	Current bank account	Number	
66 G	Others (specify)	Rs. in La khs	
67	Maximum borrowing power of the society	Rs. in La khs	
68	Total borrowings	Rs. in La khs	
68 A	Financing bank	Rs. in La khs	
68 Aa	Beginning of the year	Rs. in La khs	
68 Ab	Received during the year	Rs. in La khs	
68 Ac	Utilization during the year	Rs. in La khs	
68 Ad	Paid off during the year	Rs. in La khs	
68 Ae	Outstanding borrowings at the end of the year	Rs. in La khs	(68Aa+68Ab-68Ad)
68 Af	Overdue	Rs. in La khs	
68B	Government	Rs. in La khs	
68B a	Beginning of the year	Rs. in La khs	
68B b	Received during the year	Rs. in La khs	
68B c	Utilization during the year	Rs. in La khs	
68B d	Paid off during the year	Rs. in La khs	
68B e	Outstanding borrowings at the end of the year	Rs. in La khs	(68Ba+68Bb-68Bd)
68B f	Overdue	Rs. in La khs	
68C	ICDP		
68C a	Beginning of the year	Rs. in La khs	
68C b	Received during the year	Rs. in La khs	
68C c	Utilization during the year	Rs. in La khs	
68C d	Paid off during the year	Rs. in La khs	
68C	Outstanding borrowings at the end of the year	Rs. in La	(68Ca+68Cb-68Cd)

68C	Overdue f	Rs. in La khs	
68	NCDC	Rs. in La khs	
68	Beginning of the year Da	Rs. in La khs	
68	Received during the year Db	Rs. in La khs	
68	Utilization during the year Dc	Rs. in La khs	
68	Paid off during the year Dd	Rs. in La khs	
68	Outstanding borrowings at the end of the year De	Rs. in La khs	(68Da+68Db-68Dd)
68	Overdue Df	Rs. in La khs	
68E	NABARD	Rs. in La khs	
68E	Beginning of the year a	Rs. in La khs	
68E	Received during the year b	Rs. in La khs	
68E	Utilization during the year c	Rs. in La khs	
68E	Paid off during the year d	Rs. in La khs	
68E	Outstanding borrowings at the end of the year e	Rs. in La khs	(68Ea+68Eb-68Ed)
68E	Overdue f	Rs. in La khs	
68F	Others	Rs. in La khs	
68F	Beginning of the year a	Rs. in La khs	
68F	Received during the year b	Rs. in La khs	
68F	Utilization during the year c	Rs. in La khs	
68F	Paid off during the year d	Rs. in La khs	
68F	Outstanding borrowings at the end of the year e	Rs. in La khs	(68Fa+68Fb-68Fd)
68F	Overdue f	Rs. in La khs	
69	Total borrowings at the beginning of the year	Rs. in La khs	(68Aa+68Ba+68Ca+68Da +68Ea++68Fa)
70	Total borrowings received during the year	Rs. in La	(68Ab+68Bb+68Cb+68Db)

		khs	+68Eb+68Fb)
71	Total borrowings utilized during the year	Rs. in La khs	(68Ac+68Bc+68Cc+68Dc +68Ec+68Fc)
72	Total borrowings paid off during the year	Rs. in La khs	(68Ad+68Bd+68Cd+68Dd +68Ed+68Fd)
73	Total outstanding borrowings during the year	Rs. in La khs	(68Ae+68Be+68Ce+68De +68Ee+68Fe)
74	Total borrowings overdue during the year	Rs. in La khs	(68Af+68Bf+68Cf+68Df+ 68Ef+68Ff)
75	Grant/Subsidy	Rs. in La khs	
75 A	Received during the year	Rs. in La khs	
75B	Utilization during the year	Rs. in La khs	
75C	Unspent balance at the end of the year	Rs. in La khs	
76	Cash in Hand	Rs. in La khs	
77	Cash at Bank	Rs. in La khs	
78	Working Capital	Rs. in La khs	(78A+78B+78C+78D+78 E)
78 A	Investments	Rs. in La khs	
78B	Guarantee Fund	Rs. in La khs	
78C	KSRTC Pension Consortium	Rs. in La khs	
78 D	Social Security Pension Fund Consortium	Rs. in La khs	
78E	Others	Rs. in La khs	
79	Statutory Reserve Funds Remitted	Rs. in La khs	(79A+79B+79C+79D+79E +79F+79G+79H+79I)
79 A	Reserve fund from profit	Rs. in La khs	
79B	Cooperative Education Fund	Rs. in La khs	
79C	Member Relief Fund	Rs. in La khs	
79 D	Bonus to members	Rs. in La khs	
79E	Professional Education Fund	Rs. in La khs	
79F	Donations to charitable institutions	Rs. in La khs	

79	Agricultural Credit Stabilization Fund	Rs. in La khs	
G 79 H	Shares in other societies	Rs. in La khs	
79I	Others	Rs. in La khs	
80	Loans/ Deposit in Consortium	Rs. in La khs	
81	Increase in Deposit During the year	Rs. in La khs	
82	Decrease in Deposit During the year	Rs. in La khs	
83	Total loan outstanding	Rs. in La khs	(83A+83B+83C)
83 A	Short Term Loan	Rs. in La khs	(83Aa+83Ab)
83 Aa	On the basis of security	Rs. in La khs	(83Aa1+83Aa2)
83 Aa1	Secured loan	Rs. in La khs	
83 Aa2	Unsecured loan	Rs. in La khs	
83 Ab	On the basis of purpose	Rs. in La khs	(83Ab1+83Ab2+83Ab3+83Ab4)
83 Ab 1	Agri Purpose	Rs. in La khs	
83 Ab 2	Educational Purpose	Rs. in La khs	
83 Ab 3	Industrial Purpose	Rs. in La khs	
83 Ab 4	Others	Rs. in La khs	
83B	Medium Term Loan	Rs. in La khs	(83Ba+83Bb)
83B a	On the basis of security	Rs. in La khs	(83Ba1+83Ba2)
83B a1	Secured loan	Rs. in La khs	
83B a2	Unsecured loan	Rs. in La khs	
83B b	On the basis of purpose	Rs. in La khs	(83Bb1+83Bb2+83Bb3+83Bb4)
83B b1	Agri Purpose	Rs. in La khs	

83B b2	Educational Purpose	Rs. in La khs	
83B b3	Industrial Purpose	Rs. in La khs	
83B b4	Others	Rs. in La khs	
83C	Long Term Loan	Rs. in La khs	
83C 1	Agri Purpose	Rs. in La khs	(83C1+83C2+83C3+83C4)
83C 2	Educational Purpose	Rs. in La khs	
83C 3	Industrial Purpose	Rs. in La khs	
83C 4	Others	Rs. in La khs	
84	Total gold loan outstanding	Rs. in La khs	(84A+84B)
84 A	Agri purpose	Rs. in La khs	
84B	Non Agri purpose	Rs. in La khs	
85	Total gold loan During the year	Rs. in La khs	(85A+85B)
85 A	Agri purpose	Rs. in La khs	
85B	Non Agri purpose	Rs. in La khs	
86	Total Loan Disbursed during the year	Rs. in La khs	(86A+86B+86C+86D+86E +86F+86G)
86 A	Agri	Rs. in La khs	
86B	Education	Rs. in La khs	
86C	Start Up	Rs. in La khs	
86 D	Industrial Purpose	Rs. in La khs	
86E	SHG's	Rs. in La khs	
86F	JLG'S	Rs. in La khs	
86 G	Others	Rs. in La khs	
87	Total loan demand during the year	Rs. in La khs	
88	Total loan collection during the year	Rs. in La	

89	Total loan overdue during the year	Rs. in Lakhs	
90	Percentage of overdue on demand as per last audit	Rs. in Lakhs	
91	Net Profit as per Last Audit Report (Rs.)	Rs. in Lakhs	
92	Net Loss as per Last Audit Report (Rs.)	Rs. in Lakhs	
93	Total Number of MSS/GDCS operated	Number	
94	Products of the society	Drop down menu	
95	Services offered by the society	Drop down menu	
96	Neethi medicals	Number	(96A+96B)
96A	Consumerfed	Number	
96B	Own	Number	
97	Neethi store	Number	(97A+97B)
97A	Consumerfed	Number	
97B	Own	Number	
98	Lab facilities	Number	
99	Super market	Number	
100	Petrol pump	Number	
101	Gas agency	Number	
102	Ambulance service	Number	
103	Blood bank	Number	
104	Football,badminton,cricket turf	Number	
105	Fsc	Number	
106	Grameen market	Number	
107	Paliative care unit	Number	
108	Mortuary	Number	
109	Number of Godown	Number	
109A	If yes , capacity	Square feet	
110	Fertilizer/manure sales unit	Number	
111	Auditorium	Number	
112	Coop mart	Number	
113	Vegetable mart	Number	
114	Fish mart	Number	
115	Agricultural nursery	Number	
116	Geriatric Care Units	Number	
117	Pre/Post natal Care Units	Number	
118	Total Sales from all Non credit activities	Rs. in Lakhs	
119	Agricultural area cultivated under the society	(In Acre)	(119A+119B)

119	A Lease	(In Acre)	
119	B Own	(In Acre)	
120	Trade profit as per last audit	Rs. in Lakhs	
121	Trade loss as per last audit	Rs. in Lakhs	

ആയതിനാൽ പ്രസ്തുത mobile/web ആപ്ലിക്കേഷൻ വികസിപ്പിക്കുന്നതിനാവശ്യമായ നടപടികൾ ഐ. ടി. സെക്ഷൻ സ്വീകരിക്കണമെന്ന് അഭ്യർത്ഥിക്കുന്നു.

Digitally signed by
Anjana S
Date: 05-03-2026
12:46:36
ANJANA
ADDITIONAL REGISTRAR/PLANNING

AND ICDP)

ഐ.ടി. സെക്ഷൻ