Request for Proposal

SELECTION OF SERVICE PROVIDER FOR DEVELOPMENT AND IMPLEMENTATION OF E-CAD INFRASTRUCTURE AND INFORMATION MANAGEMENT SYSTEM (INFRA & IMS), DOWR, ODISHA

RFP No. OCAC-SEGP-SPD-0016-2022-22066dated 01.10.2022

Volume II

Terms of Reference

Table of Contents

Abbreviations

AA	Administrative Approval
AE	Assistant Engineer
ALF	Area Level Federation
ANSI	American National Standards Institute
BOQ	Bill of quantity
CA	Certified Authority
CERT-In	Indian Computer Emergency Response Team
CLF	Community Level Federation
CO	Community Organizer
DAP	Directory Access Protocol
DDD	Detailed Design Document
DNS	Domain name system
DUDA	DISTRICT URBAN DEVELOPMENT AGENCY
E&IT	Electronics and Information Technology
eMB	E-Measurement Book
EO	Executive Officer
EOI	Expression of Interest
ESI	Employees' State Insurance Scheme
FAQ	Frequently Asked Question
FRS	Functional requirement specification
GIGW	Guidelines for Indian Government Websites
GuDApps	Guidelines for Development of eGovernance Applications
IA	Implementing Agency
IEEE	Institute of Electrical and Electronics Engineers
iFIX	Financial Information Exchange Bus
iFMS	Integrated Finance Management System

IT	Information Technology
IP	Implementing Partner
JE	Joint Engineer
L1	Least cost
MIS	Management Information System
MPR	Monthly Progress Report
OCAC	Odisha Computer Application Centre
OPWD	Odisha Public Works Department
ORSAC	Odisha Space Applications Centre
OSDC	Odisha State data Centre
PO	Purchase Order
QA	Quality Assurance
RDBMS	Relational Database Management System
RFP	Request For Proposal
RWD	Responsive Web Design
SeMT	State e-Governance Mission Team
SFTP	Secure File Transfer Protocol
SMS	Short Message Services
SP	Service Provider
SRS	Software requirement Specification Document
SSL	Secure Socket Layer
SSO	Single Sign-on
TCP	Transmission Control Protocol
TS	Technical Specification
UAT	User Acceptance Testing
UDID	Unique Disability ID
ULB	Urban Local Body
URS	User Requirement Specification
WCR	Work Completion Report
WLC	Ward Level Committee

1 Background

1.1 About the Project

The Department of Water Resources, Odisha is aiming to build a massive irrigational infrastructure throughout the state of Odisha to help the farmers for better cultivation, and agricultural output. This infrastructure is being managed at the ground level by forming committees such as Chaka which is a form within a specific village or multiple villages, and then these chaks are managed by Pani Panchayat. To effectively manage, and overlook the construction phase the e-cad Infrastructure module is being developed.

Organizing the massive amount of data generated out of this process an Information Management System module is simultaneously being developed to store the data over the internet which in turn can be accessible by anyone with valid credentials through the internet.

There are the various process involved to effectively carry out the above functionalities of the department, which are being listed below:-

- Creation of Annual Action Plan
- Generation of Work Order
- Approval of Work Order
- Submission of UC
- Tracking of Infrastructure Work.

For the benefit of transparency, eliminating the cumbersome paperwork thereby ushering in an era of efficiency, and seamless business operations, the Department of Water Resources plans to implement an inter-departmental system primarily for managing the following information:-

- Project Related Information
- Acts, and Orders
- Monthly Progress Report, Annual Progress Report, Quarterly Progress Report and Daily Progress Report.

e-CAD Infrastructure and IMS will have a mobile application which will help the department to monitor the present condition of the projects through photographs which

will help the department in the decision-making process. The Department official will be presented with an interactive dashboard and reports to monitor the various process of e-CAD Infrastructure and IMS.

1.2 About the Department:

In the State of Odisha, which is essentially an agricultural state depending on an efficient, and equitable supply, and distribution of water, which is a National Wealth, ensuring optimum utilization of water by farmers for improvement of agricultural production is the utmost need,, and whereas, scientific, and systematic development and maintenance of irrigation infrastructure are considered best possible through farmers' participation; and whereas, such Farmers' Organization has to be given an effective role in the management, and maintenance of the irrigation system for equitable, and dependable supply, and distribution of water; and whereas, the State of Odisha must enact a law for farmers' participation in the management of irrigation systems by way of forming Pani Panchayat. “Pani Panchayat” at the primary level consisting of all the water users, as constituted within a specified hydraulic boundary of a major, medium, minor (flow, and lift-both surface, and groundwater, and creek irrigation projects funded by the government as constituted under section 4. Distributary Committee at the secondary level, as constituted under section 5, and section 6, and Project Committee at the project level, as constituted under section 7.

1.3 Objective

The primary objective of the ‘e-CAD Infrastructure module’ is to provide an End-to-End process flow-based automated system for all stakeholders. It would be a complete web-based application package to ease the existing manual procedure of different level user on-boarding with demography mapping. Also, to provide transparency, the solution would holistically facilitate the view of data enabling an escalation matrix to track real-time updates with data security.

2 Scope of work

Scope of work of this project includes software development, testing and QA, training of master trainers, managing database & application services for non-interrupted operation and providing

change management & maintenance support service during pilot & rollout of e-CAD Infra and IMS system. This term of reference contains an indicative top-level requirement of envisaged E-CAD Infra and IMS System for reference. The software vendor is desired to deliver a comprehensive bespoke system as per the signed requirement specification for implementation. Accordingly, the scope of services will encompass the following:

a) Preparation of SRS, Detailed Design and other Technical Artifacts
b) Application Development
c) Third party tools and licenses
d) Software Testing
e) Support during User Acceptance Testing
f) Support during Security Audit and Quality Assurance
g) Data Porting
h) Training of Master Trainers
i) Operation & Maintenance Services
j) Change Request Management
k) Project Closure

2.1 Preparation of SRS, Detailed Design and other Technical Artifacts

The Service Provider shall perform a detailed assessment of the service and solution requirements as per the User Requirement Specification (URS) and Functional Requirement Specification (FRS) provided by the department. Based on the assessment, service provider shall develop & finalize the Detailed Design Document (DDD) and the System Requirement Specifications (SRS). While doing so, it is suggested that the SP should:

a) Consult with Water resource department and OCAC officials
b) Engage some domain experts during the study
c) Follow standardized template for requirements capturing
d) Maintain traceability matrix from SRS stage for the entire implementation

Besides SRS and DDD, the service provider shall prepare other necessary technical artifacts at each phase of software development life cycle. Version management with release note of all technical artifacts is mandatory. IEEE standard must be followed while preparing these technical documentations.

2.2 Application Development

The service provider shall identify, design and develop components / functionalities that are required to address the application requirements according to approved SRS and DDD. The service provider shall consider following activities:

2.2.1 Development of E-CAD Infra and IMS System.

The service provider will be responsible for development of E-CAD Infra and IMS System as per top level requirement given in these terms of reference. The software development team should operate from their office premises.

2.2.2 Development of Mobile Apps

The E-CAD Infra and IMS System for Water Resources Department, Odisha will have a mobile application for field officers where they can update the work process on daily basis which the geo-tagged photos will be uploaded through Mobile Application. Once updated, information will be sync to web application and that will be reflected to their concern higher authorities as well.

The mobile application will have the following features:

- Work Process Section
- Monitoring
- Photo Upload (Pre-Work, In-Progress, Close Work)
- Real-Time Update Notification

2.2.3 Integration

The service provider is responsible to integrate E-CAD Infra and IMS System with external systems.

- Water ERP
- Pani Panchayat MIS
- Payment Gateways

2.2.4 Web Design Considerations

The application should be able to support all common browsers (like Internet explorer, Mozilla, Chrome, Safari etc). The Service Provider shall strictly follow Responsive Web Design (RWD) approach for developing user interfaces. At least labels used in the forms, reports etc. in the application shall be bilingual and be available in English and Odia following UNICODE standard.

2.2.5 Notification Facility

Proposed application should issue SMS alerts to the respective users for time bound actions and escalation mechanisms for non-attended activities. The service provider will integrate the relevant modules with messaging gateway provided by OCAC for inbound or outbound SMS for different functionalities. Application should support e-mail and popular messaging app integration.

2.3 Software Testing

Testing activities for application will be carried out in iterative manner for each of the module as the service provider keep on developing. Testing activities must be carried out on the testing environment of the server provided by the service provider.

The service provider shall submit the test plan to department/OCAC earlier for testing the developed application (module) along with traceability matrix. The test plan should be in line with the functional requirement specifications. The service provider shall prepare test cases based on duly approved test plan the testing procedures should be carried out for each unit, module and for the system as well. Test reports with defect list should be submitted to department for reference. The service provider shall deliver the tested and fault rectified application to department and deploy the same on the staging server. Staging server shall be provided by the OCAC.

2.4 Support during User Acceptance Testing

User Acceptance Testing will be carried out on the staging server. The service provider shall be responsible to deploy the application on staging server and facilitate Project Management Committee in department to conduct User Acceptance Testing. Selected users from department will carry out the UAT of the developed modules. The service provider will provide necessary training to the selected users for carrying out the UAT. All feedback with respect to functionalities, performance, user experience and reported bugs must be addressed by the service provider concurrently. The department will issue user acceptance certificate to the service provider for further actions.

2.5 Support during Security Audit and Quality Assurance

The service provider shall carry out following activities relating to Security Audit of application.

a) The service provider needs to ensure that the solution is in compliance with the CERT-In Security Policy and Guidelines.
b) The service provider shall appoint CERT-In empaneled auditor who shall be responsible for performing the Security Audit of the solution.
c) The third-party agency shall conduct audit on minimum below mentioned parameters.

d) The cost of audit & rectification of non-compliances shall be borne by the service provider. As per the quantity mentioned in the commercial bid
e) Coordination with the CERT-In empaneled firm for security audit and obtain the compliance certificate.
f) Carryout security audit before Go-live of application and obtain the safe-to-host certification
g) Carryout the periodic audit & certification as and when it is required as per the OSDC policy.

2.6 Training to Master Trainer

Train the Trainer model is adopted for imparting training for application. The Service provider shall be responsible for imparting training to the master trainers on developed modules. The resource person of the service provider responsible for training, shall work under the supervision of Water resource department officials.

2.6.1 Training Content

a) The Service provider shall ensure that the training content is relevant to the target trainees depending upon the role played by them in the system. There should be separate training materials for different level of users. The training material should be illustrative enough for easy understanding of the user and smooth adaptability of the software.

b) The Service provider shall submit the training content to department for approval. It shall be submitted at least 15 days in advance before the conduction of the training. The department will review and provide comments to the service provider on the training content within 7 days of the submission of draft training content. The Service provider shall incorporate and implement changes suggested by department in training delivery and content.

c) The service provider should prepare pre-training content separately. These pre-training content should be circulated among the trainees 7 days prior to the training program. The purpose of such pre-training content is to make the trainees prepared for receiving the training.

d) Providing hard copies of training material to participants shall not be responsibility of the software vendor.

2.6.2 Training Calendar

Objective of the training is to ensure proper adaptation and use of the software by the end users. To meet this objective, the service provider shall prepare training calendar for each phase of software development in consultation with the department. The software vendor shall set up training environment for hands on practice on the modules of the application.

2.6.3 Training Venue

Training of the master trainers shall take place virtually through MS Teams/ Zoom/Google Meet. In case of physical training requirement, the training shall be conducted centrally at Bhubaneswar and Cost of travelling of trainees for attending the training will be borne by the department. The department shall provide the venue including furniture, Internet, projector, work station essential for the training.

2.6.4 Training Participants

a) Indicative number of master trainers to be trained is 100 (One hundred).

b) Department shall identify the participants (master trainers) for the training.

c) Each batch should not have more than 20 (twenty) participants.

2.6.5 Post-Training Assessment

a) The service provider needs to submit training completion report at end of training of each phase separately.

2.6.6 Language for Delivery of Training

The language of training delivery shall be in English and Odia.

2.7 Online Help/Reference with Search Option

a) It is also proposed that the training contents / user manuals be made available to users in downloadable (PDF) format so that the users may refer / download it for their own personal reference as and when needed.

b) It is envisaged that any user will be able to search and read the directions / information for the right content. On entering the key words for search criteria, the system should pull out and display the links to the content as mapped.

c) The system should support dynamic search facility i.e. as soon as the key words are changed; a new set of content links with page shall be displayed to the user.

2.8 Deployment and Configuration

It is also the responsibility of the service provider to deploy the developed modules on the staging server for testing by the state level and division level users. The service provider should comply with all the feedback reported by the selected users of department. Once the module gets cleared and accepted by selected user groups it should be deployed on training and production environment.

a) The Service Provider's team should submit deployment plan in advance and get it approved by the department/ocac.

b) Each deployment should carry a release note for the users.

2.9 Application Roll out

On successful UAT the application will be rolled out across the state.

2.10 Operation and Maintenance:

Currently the Operation and Maintenance is for 1 year from the date of go live and this can be further extended for another 2 years upon mutual decision of department and OCAC.

2.10.1 Application Support

Application support includes, but not limited to, production monitoring, troubleshooting and addressing the functionality, availability and performance issues, implementing the system change requests etc. The Service provider shall keep the application software in good working order; perform changes and upgrades to applications as requested by department. Key activities to be performed by the service provider in the application support phase are as follows:

a) Enhancement of Analytical MIS report as per the requirement

b) Database query report management on emergency

c) Optimization of the already developed reports

d) Tuning of transactions

e) User & access management

f) The service provider shall ensure compliance to SLAs as indicated in this RFP and any upgrades / major changes to the software shall be accordingly planned by the service provider ensuring the SLA requirements are met at no additional cost to the department.

2.10.2 Software Maintenance

a) The service provider shall provide support through Telephone / Email as required as per the service window defined in the RFP

b) The service provider shall address all the errors / bugs / gaps in the functionality in the solution implemented by the service provider (vis-à-vis the FRS and SRS signed off) at no additional cost during the support phase.

c) Any changes/upgrades to the software performed during the support phase shall subject to the comprehensive and integrated testing by the service provider to ensure that the changes implemented in the system meets the specified requirements and doesn't impact any other function of the system.

d) Tuning of products / applications, databases, third party software's and any other components provided as part of the solution software including reconfiguration of the system in the event of any hardware/ network failures/ if any hardware/ network components have to be replaced, shall be the responsibility of the service provider.

e) Issue log for the errors and bugs identified in the solution and any change done in the solution shall be maintained by the service provider and periodically submitted to the department.

2.10.3 System/Infra Support

2.10.3.1 Database Administration

a) Regular monitoring & management of all the applications installed / re-installed and databases hosted as and when it required for the project

b) Installation & configurations the RDBMS software

c) Database administration, optimization and trouble Shooting

d) Database & file back-up as per the policy of OSDC

e) Application Load balancing and Database Clustering

f) Perform Database, event & system log analysis

2.10.3.2 Security Administration

a) Regular analysis of events and logs generated

b) User ID and group management services

2.10.3.3 Backup and Restore Management

a) Preparation of backup plan

b) Backup of operating system, database and application as per OSDC policy

c) Monitoring and enhancement of the performance of scheduled backups

2.10.3.4 System/Network Administration

a) Network configuration

b) Patch update

c) System Administration and Trouble Shooting

d) Application & System Software Administration (including performance tuning)

e) Application and database level performance tuning

2.10.4 Change Request Management

It may be so required to customize the application to accommodate revise guidelines and betterment of the application evolving time and again. Any such customization will be considered as change request.

a) Major enhancement to the existing modules which may affect the application process & database (To be agreed by technical committee)

b) Development of new Module/Form/Report

c) Any changes in the Workflow/data flow or Core application framework

d) Any new integration with other system

e) System Administration

Change requests from the stakeholders of e-CAD Infra and IMS shall be collected on regular basis. Change requests collected shall be discussed in the PMC, considered for implementation on priority basis and assigned to the service provider to work upon. The service provider should adapt following procedure to implement assigned change requests into application.

a) To understand change requests and to analyze impact of desired change on existing modules.

b) To prepare effort estimate on the basis of overall-person-days to bring desired changes in the application. The estimate of effort to implement the change requests must be approved by PMC before the vendor takes it up for implementation.

c) To revise requirement specifications, design document prepared earlier including traceability matrices, test plan, test cases and other related technical artifacts to incorporate desired change.

d) To revise the existing source code in related modules according to the revised design document, conduct test with test cases and recording of test results.

e) To revise all related manuals and preparing release notes.

f) To redeploy upgraded version of application onto the staging, training and production environment.

g) To close change-request-ticket after receiving note of satisfaction from the PMC

2.10.5 Project Management

The envisioned project is a multi-disciplinary initiative. An effective Project Management Plan and commitment to adhere to it is a mandatory requirement. The project plan should also include the resource, task and time plan for the entire duration of the project.
The service provider shall employ best practices in project management methodology to ensure that the envisioned project components are developed and implemented within the defined time period. A copy of the project management Plan (both soft and hard copy) shall be handed over to water resource department to keep track of the progress of the project.

2.11 Hand holding support:

One Technical resource to be deployed on the client premises for a period of one year to provide hand holding technical support to the concerned officials or end users. The department will provide MPR (Monthly progress report) of the resource to OCAC on end of each month.
The resource must be well convergent with the aforesaid application.
In case of replacement of resource during the deployment period the SI must inform department as well as OCAC one month prior to the replacement.

2.12 Project Closure

The last month of the project is considered as Project Closure period. Department will not assign any new tasks or change request during the project closure period. During the project closure, the service provider shall clear all pending work as follows.

a) To ensure that all the feedback, issues, complaints, change requests received from the users are resolved to the satisfaction of department.
b) To ensure that all technical artifacts delivered meets the quality standard and comply with the feedback of the third-party quality auditor.
c) To ensure that the final version of all the artifacts including source code of the application is handed over to water resource department technical team.
d) To ensure proper transfer of knowledge to the department technical team.

2.13 Project Documentation

The service provider shall share below list of documents to OCAC during the project contract period.

Milestone	Documentation
Preparation of SRS, Detailed Design and other technical artifacts	– System Requirement Specifications (SRS) – Detailed Design Document (DDD)
Testing	– Test Plan, – Test Cases, – Test Results, – Defect List, – Traceability Matrices
Training	– Training calendar – Training Manual – Operation Manual, – User Manual
Exit Management	– Programme Source Code, – Programmers Manual, – Installation Manual,

2.14 Project Timeline:

Sl#	*Activity*	*Tentative Deliverables*	*Timeline*
a)	System Study & Prototype Design	– Detailed Team Structure with team members – Point of Contact – FSR/SRS Document – Screen prototypes	T+4 Weeks
b)	Design, Development & Implementation	– Source Code – Test Plans & Test Cases – Operation Manual – FAQs – Load Testing report – Hosting in staging environment	T+ 20 Weeks
c) `	UAT, Training & Go live	– Preparation Test Cases – UAT certificate – Training to users and provide training completion report.	T+ 24 Weeks

Sl#	*Activity*	*Tentative Deliverables*	*Timeline*
		– Movement of application from Staging to Production environment – Safe to host certificate issued by Cert-in empaneled firm	
d)	Operation & Maintenance	– Issue Logs – Quarterly Activities report	One year from the date of Go live
e)	Hand holding support	– Monthly Attendance Sheet	One year from the date of Go live

2.15 Service Level & Penalty

Sl#	**Major Area**	**Parameter**	**Requirements**	**Penalty**
a)	Customization & Implementation	Major milestone during development and implementation as per project timeline.	As per project timeline	Rs. 500/- per day delay
b)	Response time for bug fixing	Time taken (after the request has been informed) to acknowledge problem	Within 24 hours from the time the bug is reported.	Rs. 100/- per hour delay
c)	Resolution Time (Only for Bug fixing)	Time taken by the service provider to fix the problem	Problems with severity within 48 hours from the time of reporting.	Rs. 500/- per hour delay
e)	Hand holding support Executive	Start of service	As per project timeline	Rs. 2,000/- per day delay

2.16 Bill of Material & Quantity

Sl#	**Category**	**Items**	**Qty**
a)	Study, Design, Development / Customization, Testing, Deployment / Implementation	Application development as per requirement mentioned under clause no. 3 of this document.	5 months
b)	Operation & Maintenance of the application	Application Support, Software Maintenance, System Support, etc mentioned in this document.	1 Years

Sl#	Category	Items	Qty
c)	Handholding support executive Deployment	Deployment of Manpower as specified	1 Year
d)	SSl certificate	As per the scope	2 years
e)	Cyber Security Audit	As per the scope	2 Nos

2.17 Payment Terms

Sl#	Category	Payment Terms	
a)	Design, Development and Implementation	– 20% payment of Application development on SRS Approval – 30% payment of Application development on completion of UAT. – 30% payment of Application development on receipt of security audit certificate and Go-Live Certificate. – Balance 20% of application development will be paid after 6 months of successful Go-Live of the application.	
b)	Operation & Maintenance	Application Support	100% cost of this item equally divided into 4 quarters
		Software Maintenance	
		System/Infra Support	
c)	Security Audit cost	100% payment on submission of Safe-To-Host Certificate	
d)	SSl certificate	100% payment on submission of configuration report	
e)	Integration with Other application	100 % payment after successfully integration and go live of each Integration, the payment will be made as per actual number of integrations.	
f)	Hand holding support cost	Monthly after receiving MPR	
g)	Additional Modules / Change Request	100% payment on Go-Live of the additional modules / change request upon approval	

3 Functional Requirements of the e-CAD INFRA and IMS, DOWR, Odisha

The primary objective of the 'e-CAD Infrastructure module' is to provide an End-to-End process flow based automated system for all stakeholders. It would be a complete web-based application package to ease the existing manual procedure of different level user on-boarding with demography mapping, also, in order to provide transparency, the solution would facilitate view of data in a holistic manner enabling escalation matrix to track real time updates with data security.

The idea behind implementing this module using a Web based application- Single window portal would be to enable on-boarding the whole Pani Panchayat database / report details and provide the end user a seamless experience of portability and accessibility.

Whereas, the IMS module will primarily deal in documents sharing, organizing, managing and retrieving of all the important documents pertaining to the Department for accessing the data and documents remotely.

A list of salient features and functionalities has been cited below giving a brief about the concept and traits of the workflow focusing on the value adds of the system.

3.1. Application Stakeholders

Sl #	Role	Actor details	Responsibilities
1	System Admin	Client Admin	• Provision to add users and controls users' access • Privilege for updating user details • Provision to manage Roles and configuration of the application • Provision to control menu access throughout the application • Maintain the master data • User can view data and statistics of the application for monitoring purposes • System admin will be responsible for mapping the Districts and Blocks with the respective roles or department users.

2	Chairman CADA	Department Field Office	• Responsible for approval of Project List
3	Department User	Department User	• Add Annual Action Plan • View Dashboard and Reports • View All activities
3	PD CADA	Department Field Office	• Responsible for Approval of Project List • Responsible for Administrative Approval of Plan Estimate
4	Division Office	Division Office User	• Responsible for Verifying of Annual Action Plan sent by Sub-Division User. • Responsible for Verifying the Project list sent by Sub-Division User. • Responsible for Technical Sanction of Plan Estimate. • Responsible for Work Order/Agreement with the Pani Panchayat. • Responsible for viewing MIS Reports and Dashboard • Responsible for Viewing Work Progress • Responsible for Approving Completion Order. • Responsible for sending the finance bill to the finance department.
5.	Sub-Division Office/Section	Sub-Division office and Section office user	• Responsible for creating of Creating Project List. • Responsible for creating Plan Estimate • Responsible for verifying Project List and Plan Estimate in case it has been created by Section User.

			• Responsible for uploading images into the Mobile Application. • Responsible for submitting Completion Report. • Responsible for uploading Measurement Book • Responsible for Entry of data into Asset Register

3.2. User Management

There is State Level, PD CADA, Division Level, Sub-Division Level and Section Level stakeholders/users exist in the e-CAD Infra and IMS MIS. The application enables the system administrator to create users with the login credentials.
Role based access authorization of the users can also be defined in e-CAD Infra and IMS MIS. This modules shall include the following:

- Admin would have the privilege to manage user access, privileges to the roles, and user management.
- Admin can add a new user, update details of a user, and provide them with access rights.
- Adding new users by capturing basic details
- Edit/update the user details
- Assign role to the user with application access rights
- Admin would be responsible for the configurations of the application and maintaining master data.
- Admin can view the data and statistics of the application for monitoring purposes.
- Options for the Admin to manage dynamic menu configuration.
- Admin can initiate the mapping of user roles and their corresponding menu rights.
- The added users would be able to manage their profile details, update passwords using OTP authentication.
- Configure master data like district, block, GP, village, municipality.
- Configure administrative boundaries like Section→Sub-Division→Division→Project.
- Admin can Edit/update the master data.

- Admin can activate/deactivate the master details.
- Project master configured with Divisions with required details
- Add Designation master for members on-boarding.

3.3. Infrastructure Management

The primary objective of this module will be to create, track, monitor the progress and mark the completion of all the project undertaken by the CAD-PIM for a particular Pani Panchayat.
The Department will create an Annual Action Plan which will be distributed to Lower Level officials such as Division, Sub-Division and Section.
The lower level officials will then create a project plan against the Annual Action Plan which will be approved by the PD CADA. After the approval from the PD CADA, the Lower Level Officials will create a Plan Estimate against the Project List which will be again sent for approval by the PD CADA after which the Technical Sanction will be permitted and the commencement of Project will happen.
A mobile application will be able to gather data on the progress of the project via GIS based image upload and tagging. A user also can register his/her grievance through the mobile application.
Asset Register will help to track and manage all the data related to projects.

This module has been sub-divided into further sub-Modules which has been mentioned below along with the functionalities:

3.3.1. Annual Action Plan

- Provision for the state level users to allocate target to Divisions that would comprise of Physical & Financial parameters.
- Drill down feature of target allocation from Division to Sub-Division, Sub-Division to Section levels.
- System would allow validations to calculate cumulative and progressive target allocation.
- Feature to map the allocated targets to financial year with options to modify having appropriate approval process.

3.3.2. Project Management

- There would be scope to submit Project List against the target set by the Junior Engineer.
- Provision to map the project with a specific Pani Panchayat.
- There would be provision for Asst. Executive to edit the Project List submitted by the Junior Engineer

- Provision for the Executive Engineer to review, revert and edit the Project List submitted by the Assistant Executive engineer.
- Feature of enabling approvals at various levels of the submitted projects with options to edit, deactivate and approve as per user rights.

3.3.3. Project Estimate and Approvals

- Provision for the Division users to allow estimation of work plan post approval of Annual Action Plan.
- Estimate formats should be system generated and exportable.
- Users will have option to bulk upload the estimate in standard formats with options to edit in the module.
- Options to attach supporting documents compatible to all file formats.
- Users in the approval process will have feature to river or reject the project and work plan estimate.

3.3.4. Work

- The System will have the provision to validate Pani Panchayat before handing over the work order.
- The system will have the provision to enter the details of the work in line with the plan estimate.
- System must allow to upload the supporting documents of the work order into the system.
- System will have the provision to record the work progress of a particular project.
- System will have the provision to view the pictures taken during the inspection of the project.
- There would be provision for the Section in the presence of a Sub-Division official to submit a completion report containing all the details of the work.
- System must allow the user to capture the financial expenditure during the project as well.
- There would be provision for the Division, and Sub-Division official to Approve or Reject the Completion Report.
- There would be provision for the signing of a Handing over Document by the Sub-Division officer to upload the maintenance document with the Pani Panchayat.
- System must allow the user to mark a project as complete after the submission of completion report.

3.3.5. Asset Register

- There would be provision for the Junior Engineer to maintain an asset register after the Project has been completed.
- There would be a provision for the Sub-Division official to edit the information filled up by the Junior Engineer.
- There would be a provision for the Division level official to edit the information filled up by the Junior Engineer.

3.3.6. Mobile Application (GIS Based)

- Provision of the Mobile Application to facilitate the tracking, and monitoring of the progress of the approved project mentioned in the plan estimate.
- System must allow the user to use the mobile application to feed data after the work order for that particular project has been obtained.
- System must have the provision to track the physical progress of the project.
- System must have the provision to capture multiple images with geo-tagging functionality.
- The system should have the provision to capture the details of the project in the format of measurement book.
- Provision to enter the project related information specific to the project being inspected
- Provision to upload the field verification report or inspection report through a mobile application or web application
- There must be a provision to sync the data or images captured from the mobile app with the web application.
- The system must have the provision to upload the data without internet and whenever the user comes to an area with better network connectivity then the data should get synced or uploaded to the application.
- System should have the provision to assign a specific location with specific boundaries for a project.
- System should have the provision to validate the user captured images against the corresponding assigned location/project to maintain data authenticity.
- Approval of the submitted inspection report online through a web application
- System must allow the office/authority will have the following options to address the grievance which are:-
    - Close
    - Revert
    - Forward
    - Reject
- For each action, the system must have the provision for the user has to give remarks, and if needed an attachment must be uploaded to be uploaded along with the comments.

3.4. Information Management System

This module will help the Department to keep a track of the all information like letter, documents, file, UC, bill etc. generated from various sources to be organized, managed and tracked remotely. This cloud based storage module will enable to officials of the Department to store, retrieve, and view and share all the documents from one official to another official with a click of few buttons. The HRMS system will allow the official to track and monitor various officials along with designation at a particular office. It will also create a digital incumbency chart for a particular designation of interest.

The detail functionalities of various sub-modules has been elicited below:

3.4.1. Organization Operation Management

- There would be a provision for the Departmental official to update the vacancy position for various posts in the Department.
- Provision to enter and maintain the employee details of various offices under the Department.
- System must automatically ascertain the vacancy position in an office and update it accordingly against various offices after the employee update their details.
- Provision to maintain the incumbency chart of various offices.
- There will be a provision to generate the report based on the data input.
- There will be a provision to generate Office Wise Report.
- There will be provision to generate sanctioned to men in position report

3.4.2. Document Management System

- Each office shall have different login to access the data specific to their office.
- There will be provision to share the folders across with specific groups of that particular office user under the department.
- There would be a provision for users to have the functionality of download, and view.
- There would be a provision for users to have only the functionality of View documents.
- The user will be able to view the files and folders of a particular office.
- The user can only edit while they are entering the data after that no data manipulation can take place.
- There would be provision to track the following things by the Head Quarter Organization:-
    - Date
    - No of Files Received
    - No of Files Completed or Disposed
    - No of Files Pending.
- There would be provision to store the data according to various heading such as:-
    - Reports
    - Office Order
    - Annexures, and Acts
- The system will have the provision to generate some MPR, QPR, and APR of particular offices.

3.5. Reporting and Analytics

Department of Water Resources has decided to implement e-CAD Infra and IMS, a comprehensive digital solution that incorporate tracking of progress of reports to organising the data methodically to get optimum benefits out of the system. This application involves stakeholders like PD CADA, Department Officials, and State level User, Division, Sub-Division and Section level user covering all Basin and Circles of Odisha. Introduction of Analytical tool shall help the departmental authorities to take necessary decision at right point of time. The major

usage of analytical tool is to generate various customized reports by churning the data available in the databases and representing the data in form of interactive dashboard.

Few of the sample reports are elicited below:

3.5.1. Analytics Dashboard

- Provision to represent info graphical data of:
  - Total project details
  - Total no of Ongoing Project
- There would be provided to display the status for each project with the stages they are in.
- Status for District wise Project details
- Info graphical status for Project summary
- Status for Work status in terms of Target Work, and achievement of Target work.
- Status to showcase delay matrix for Project Completion
- Provision to display Physical, and financial target vs achievement status month-wise, and district-wise.
- Dashboard would be user-specific.
- Provision to have filters to view the data accordingly.

3.5.2. Reports

- There would be provision for Project reports under different demography.
- There would be reports for Project target, and Project Achieved under every financial year
- Provision for Construction data Monthly Progress Report of CAD Scheme
- Provision to view the data of Re-Construction Monthly Progress report
- Provision to view the data of Survey Planning in Monthly Progress Report
- There would be a provision to view the report of Field Channel
- There would be a provision to view the report of Field Drain.
- There would be a default report with the current financial year.
- Provision to download the report in excel/pdf format.
- Provision to download Human Resource report.

3.6. Integration:

Integration with following applications can be done, the list and number of integrations can be change as per requirement of department.

- Pani Panchayat MIS
- Water ERP
- Payment Gateways

3.6.1. Integration with Pani Panchayat MIS Database: -

Integration

- The purpose of Pani Panchayat MIS application integration is to synchronize all required information from e-CAD Infra and IMS application to Pani Panchayat related database application through API. Similarly, if any information needed from Pani Panchayat database, that will also be fetched from Pani Panchayat database application through API.

3.6.2. Integration with Water ERP Database: -

Integration

- The purpose of Water ERP application integration is to synchronize all required information from e-CAD Infra and IMS application to Water ERP related database application through API. Similarly, if any information needed from Water ERP database, that will also be fetched from Water ERP database application through API.

3.6.3. Integration with Payment Gateways: -

Integration

- The functionalities of integrating with payment gateways are as follows:
  - ✓ There would be provision for API integration for Payment solution.
  - ✓ Bulk payment record approval.
  - ✓ There will be a feature to send the approved FTOs to Payment server of Bank in bulk.
  - ✓ Each transaction would be of unique transaction ID and throughout the transaction process the ID remain same.
  - ✓ Once the payment file is processed by the bank, a reverse MIS is generated.
  - ✓ After successful processing of payment files, Payment would be auto released to A/c holders.
  - ✓ As per the Bank end action, application interface would be able to display the success and Failed transactions with remarks.
  - ✓ There would be a functionality to reprocess the failed or rejected transaction for payment process.
  - ✓ Exporting individual or bulk transaction report through the application.
  - ✓ There would be a feature to transfer payment via DSC integration.

3.7. GIS Based Mobile Application:

- Provision of the Mobile Application to facilitate the tracking, and monitoring of the progress of the approved project mentioned in the plan estimate.
- System must allow the user to use the mobile application to feed data after the work order for that particular project has been obtained.
- System must have the provision to track the physical progress of the project.
- System must have the provision to capture multiple images with geo-tagging functionality.
- The system should have the provision to capture the details of the project in the format of measurement book.
- Provision to enter the project related information specific to the project being inspected
- Provision to upload the field verification report or inspection report through a mobile application or web application
- There must be a provision to sync the data or images captured from the mobile app with the web application.
- The system must have the provision to upload the data without internet and whenever the user comes to an area with better network connectivity then the data should get synced or uploaded to the application.
- System should have the provision to assign a specific location with specific boundaries for a project.
- System should have the provision to validate the user captured images against the corresponding assigned location/project to maintain data authenticity.
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4. Role and Responsibility of different stakeholders:

4.1. Responsibility of the Directorate of Water Resource:

Department of Water Resources shall play an important role in the fruition of the envisioned system. The following are the roles and responsibilities.

- Provide information on Business Process / Domain related issues to the SI.
- Provide data /documents that need to be digitized and brought to the system.
- Provide and validate all users' requirement documents.
- Review the deliverable (interim and final) submitted by the SI.
- Identify Officers for different training needs.
- Approve the SRS, FRS in accordance with OCAC.

4.2. Responsibilities of OCAC:

- OCAC will supervise and monitor project implementation, and coordinate with to facilitate smooth implementation of the project, and, for meeting the administrative requirements pertaining to the project.
- Co-ordinate with E-CAD Infra and IMS for Department of Water Resources, other departments and SI for all the activities needed for successful rollout of the project
- Approving Project Management Plan and Project Inception Report submitted by the SI to implement the project within a defined timeline.
- Approving the project reporting formats submitted by the SI to monitor and analyze the progress of the project.
- Monitor the Project Implementation in terms of managing the project timelines, quality of deliverables by close coordination with SI.
- Conducting Weekly / Monthly project review with the SI in regards to the progress of the project
- Monitoring key metrics and SLA compliance by SI as per RFP terms
- Reviewing and approving/organizing approvals for all the deliverables such as SRS, SDD, Design Documents etc. submitted by the SI within a defined timeline throughout the implementation phase in consultation with Department.
- Project tracking and monitoring for ensuring to timeline.
- Establishing appropriate processes for notifying the SI of any deviations from the norms, standards or guidelines at the earliest instance after noticing the same to enable them to take corrective action
- Reviewing the UAT readiness & overseeing the UAT and the results thereof
- Overseeing the progress of user training and coordinate signoff activities
- Review and monitor the completeness of the solution with respect to requirements and performance/acceptance expectations from the solution.
- Direct and supervise the activities needed for stabilizing the system and tuning the system for meeting the performance expectations during the early phase of O&M post-

go live.

- Coordinating and overseeing procedures for undertaking quality audits of the system on a periodic basis
- Timely risk analyses.
- Review and provide recommendations on the change requests identified by the SI and assist Department in approving/modifying/rejecting such requests

4.3. System Integrator

- Prepare and submit the Integrated Project Management Plan (IPMP) for implementation of the project. The IPMP shall comprise of the all the components of deliverables prepared for Inception
- Prepare the project reporting formats to report the progress of the project to OCAC for approval
- Participate in Weekly / Monthly project review in regards to the progress of the project
- Identify and escalate issues/risks OCAC and provide the mitigation plan
- Adhere to the directions of OCAC as and when provided.
- Prepare and deliver for approval all the deliverables such as SRS, SDD, and Design Documents etc. within a defined timeline, as agreed in the IPMP and to the satisfaction of OCAC / Department, throughout the implementation phase.
- Install/configure/deploy all the components of system and get approval from OCAC.
- Provide detailed training plan to OCAC and Department and train the personnel identified by the l & ESI department and report the results.
- Ensure UAT readiness & conduct the UAT and report the results thereof to OCAC and obtain acceptance thereof. The UAT report should also include the feedback of the UAT participants.
- Ensure completeness of the solution with respect to requirements and performance, acceptance expectations from the solution and get signoff from appropriate authority through OCAC.
- Coordinate with System Integrators of other relevant system for ensuring that system seamlessly exchanges data with them.
- Deploy and manage hand holding support for addressing the issues and incidents raised by users; resolve such issues and report the status OCAC on a periodic basis
- Prepare SLA report based in the SLA parameters given in RFP on a continuous basis and deliver it to OCAC for review and necessary action.