

## Originality Statement

I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at IUB or any other educational institution, except where due acknowledgement is made in the report. Any contribution made to the research by others, with whom I have worked at IUB or elsewhere, is explicitly acknowledged in the report. I also declare that the intellectual content of this report is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

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## **1. INTRODUCTION**

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### **1.1 BACKGROUND OF THE PROJECT:**

In the course CSE303 we have been instructed to construct an automated system for the Energy Efficiency & Conservation (EE&C) Promotion Financing Project .The idea of the project is to getting familiar with the information system where the knowledge of the course can be implemented to solve real world problems which is a basic requirement for this course. The project was introduced to us by our course instructor.

The purpose of the project is to save energy and natural resources as much as possible making the best use of it at the same time. Being a densely populated country Bangladesh cannot effort to waste natural resources and energy as they are limited. So making sure that this project a success is very important and to do so an automation system is needed.

The manual process of granting loans and keeping track of everything is a very long term process and costly too. In the automated system the proponent can view all the details of the process before applying for loan. The respective authorities; SREDA and IFI will have access to the documents and information given by the proponent to make the process smooth. The system will be secured with a backup of all the information so that there is no data loss. This system will also ensure the authenticity of the proponents and transparency of the loan granting process.

This automation system will make the whole process easier for both the proponent and respective authorities making it time and cost efficient while maintaining international standards.

### **1.2 BACKGROUND OF THE ORGANIZATION:**

The Energy Efficiency & Conservation (EE&C) Promotion Financing Project encourages to penetrate EE&C equipment in order to contribute to the development of the sustainable society and the reduction of greenhouse effect gas emission. This project is introduced in response to Bangladesh's Seventh Five Year Plan (December 2015). Sustainable and

Renewable Energy Development Authority (SREDA) mandates to contribute to demand side energy management through the provision of low interest loan.

The Government of Japan who is represented by JICA extended the loan to the Government of Bangladesh that is represented by the Finance Division, Ministry of Finance. With JICA providing the original Funding for the loan there are three other executing agencies for the project, which are:

- i. Sustainable and Renewable Energy Development Authority (SREDA) as the administrative authority
- ii. Infrastructure Development Company Limited (IDCOL) as an implementing financial institution (IFI)
- iii. Bangladesh Infrastructure Finance Fund Limited (BIFFL) also as an IFI

The loan fund will be equally allocated between the IFIs. For the sake of using the fund efficiently there will be a mechanism to revise and adjust the fund allocation and re-allocation by the Steering Committee decided through a meeting.



### **Mission and Vision:**

The Japan International Cooperation Agency is an agency of the government of Japan. The governmental agency assists economic and social growth in developing countries and promotes international cooperation. The mission of JICA is to work on human security and quality growth. JICA's vision is to lead the world with trust and create opportunity for the people to explore their diverse potentials through international bonding.

### **Actions:**

- JICA commits to achieve their mission and vision
- Working together with the people on field
- Thinking and acting strategically
- Making best use of resources with diverse wisdom
- Innovating impacts that are groundbreaking



Sustainable and Renewable Energy Development Authority (SREDA) implements the policies, laws and regulations relating to sustainable energy in order to respect and protect the environment. The company aims to meet its goals and objectives in an environmentally and socially responsive manner.

### **Mission and Vision:**

SREDA visions to promote sustainable energy and build a nation who is energy conscious in order to ensure energy security and reduce carbon emission. By coordination and facilitating the development of renewable energy and energy efficiency SREDA missions to increase the share of renewable energy in the energy mix in order to reduce dependency on fossil fuel, to take appropriate measures for energy saving, to assess continuously for new potential sustainable energy solutions.

### **Goals and Objectives:**

SREDA goals for increasing renewable energy generation and increasing the proportion or amount of energy saving. These goals are set so that they can by the year 2020 the

renewable energy power generation will be 10% of the total power generation and by the year 2021 the energy saving will be 15% and 20% by 2030 of total energy consumption.

## Organogram:

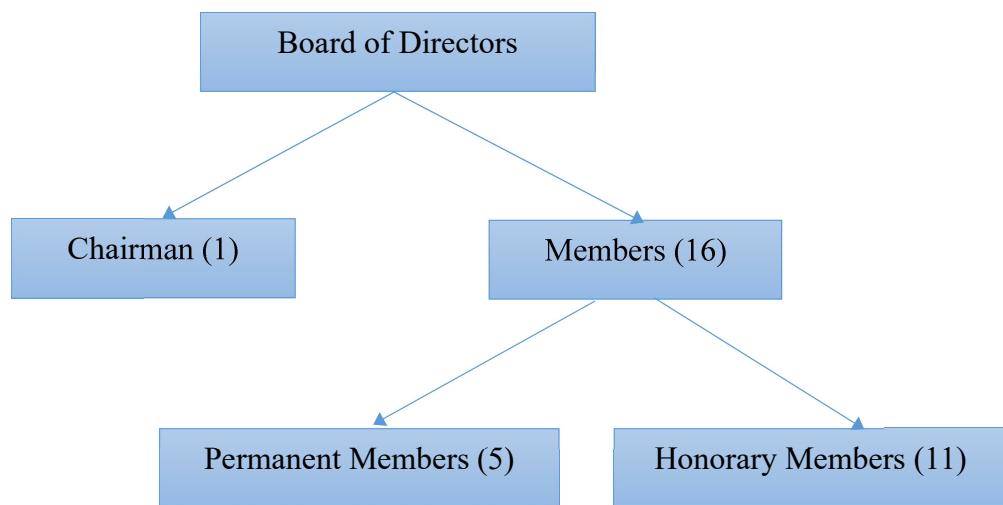


Diagram 1: Organogram of SREDA



Infrastructure Development Company Limited (IDCOL) plays a vital role in bridging the financing gap for developing medium to large-scale infrastructure and renewable energy projects in Bangladesh. Established on May 14, 1997 by the Government of Bangladesh and licensed by the Bangladesh Bank on January 5, 1998 as a non-bank financial

institution (NBFI) the company now stands as the market leader in private sector energy and infrastructure financing in Bangladesh.

### **Mission and Vision:**

The company's mission is to create opportunity and encourage private sector to participate in promotion, development and financing of infrastructures, renewable energy and energy efficient projects in a sustainable manner through public-private-partnership initiatives. IDCOL visions to help ensuring and achieving economic development and improving the standard of living of people of the country by investing sustainable and environment-friendly projects.

IDCOL commits to deliver financial services to the clients who maintain global standards and competence. The company believes in maintaining transparency and integrity in all activities and is dedicated to perform as a developed financial institution articulating social responsibility.

### **Organogram:**

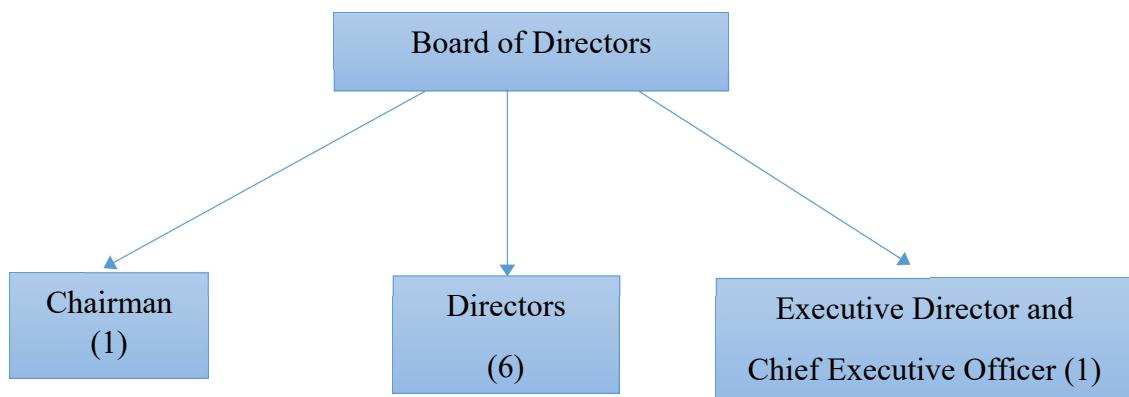


Diagram 2: Organogram of IDCOL



Bangladesh Infrastructure Finance Fund Limited (BIFFL) is a Non-Banking Financial Institution that works under the Ministry of Finance, Government of the peoples, Republic of Bangladesh. BIFFL, the largest NBFI operating in the country, has an ordinance to invest in the large infrastructure project in Bangladesh. The institution invests in sustainable development projects, emphasizing on renewable energy, energy efficiency and eco-friendly project in order to develop a greener Bangladesh.

### **Mission and Vision:**

BIFFL missions to perform as a professional Financial Institution by maintaining the international standards both in moral and ethical practice. The company aims to encourage Private Sector Investment in all infrastructure projects in order to promote country's economic development. It's another mission is to support sustainable economic growth of Bangladesh by facilitating Infrastructure development. BIFFL's vision is to increase the economic growth by influencing the relative strengths of Public and Private Sector through financing Infrastructure Projects.

### **Goals and Objectives:**

BIFFL's major goal is to provide long-term finance to critically important infrastructure projects. The company also goals for assembling co-financing from private financial sources and to provide a unique vehicle for capital market development.

BIFFL's objective is promoting, encouraging and financing Private Sector Investment in all infrastructure sector, extending financing facilities, attracting private investment,

creating funds, sub-funds and any other appropriate kind of fund for the infrastructure projects.

The company's one of the strategic priority is to develop, finance and monitor and implement infrastructure projects and ensure transparency, accountability and fairness in the activities done by BIFFL.

### **1.3 OBJECTIVES OF THE PROJECT:**

The main objectives of the project are:

- Promoting EE&C measures
- Facilitating installation of EE&C equipment in Bangladesh
- Recording and managing the progress of the Project in Online Automated Loan Management System (OALMS) in order to reduce paper work.
- Making the loan process more efficient by reducing the time consuming process of manual data entry and avoiding errors.
- Avoiding processing applications that are not eligible for loan
- Maintaining the standards and control the process by the authority so that the applicants are not mislead
- Maintaining security issues by not storing any sensitive and confidential information
- Avoiding the risk of data loss by storing them in OALMS with security and backup
- Extending loans at low interest and other support in order to alleviate climate change

The basic objective of the project is to develop a system with an improved data sharing and maintenance process which will also be time and cost efficient.

### **1.4 SCOPE OF THE PROJECT:**

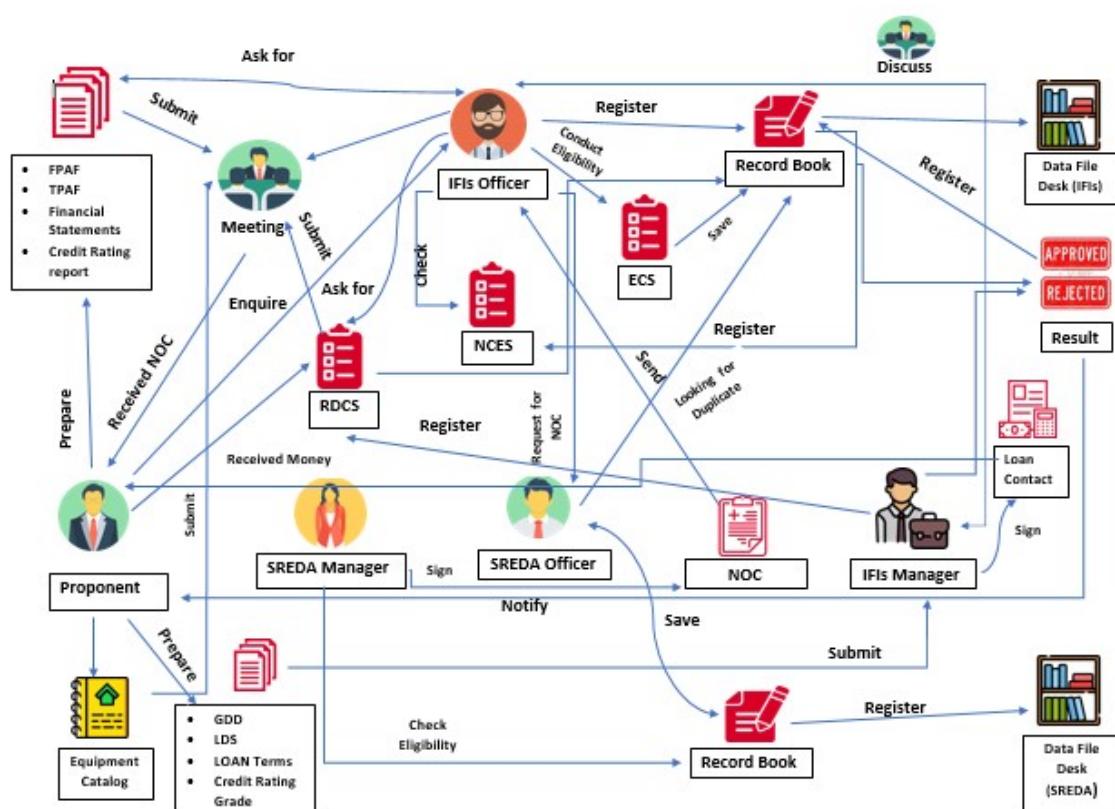
There are three components that are covered by the EE&C promotion financing project as subjects of loan. These components are chosen as a priority for low interest loan depending on their scope to utilize it effectively. The components are:

- a) Component I : Industry or commercial sector component
- b) Component II: Building sector component
- c) Component III: Home appliances components

The scopes offered by the project are:

- The automation of the process will lead to view and submit the form online so that the applicants or the sub-project proponents and the respective authority can check the application form for necessary consultation. This will also make the process easier for the applicants as they can apply online which will save time and cost that might lead to increase the rate of interested applicants.
- The interested applicants will be able to view the list for eligible Energy Efficient Equipment list along with details and benefits before processing the application for loan
- SREDA and IFI both will track the process of primary eligibility checking and name clearance in order to ensure better evaluation and decision making. The result will be stored in the system for further consultation if necessary
- The authority related to the application process will have access to the system depending on their respective positions. So the system will have separate encrypted modules for the authorities of IFI and SREDA. IFI will evaluate, save results and notify the decision to the sub-project proponents. SREDA will keep track of the whole process by checking the progress of the applications. It will also track the progress of the projects that for which the loan has been granted
- Decisions in every step of the process will be stored in the system along with reasoning and will be notified to the sub-project proponents so that there are no misunderstandings among the authorities and applicants. It will make the whole process transparent.

## **EXISTING RICH PICTURE A TYPE**

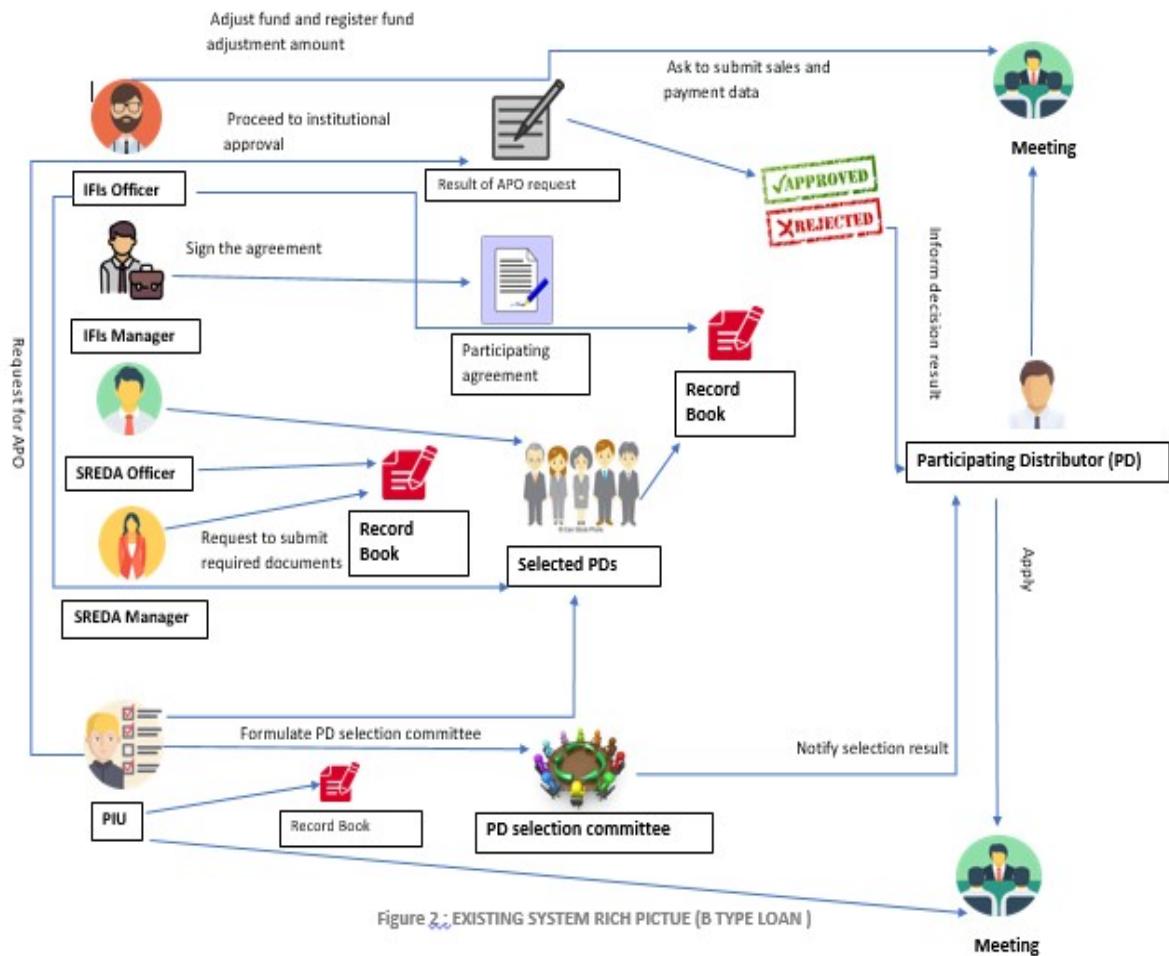


**Figure 1 : EXISTING SYSTEM RICH PICTURE (A TYPE LOAN )**

## **EXISTING RICH PICTURE A TYPE DESCRIPTION**

By observing existing system rich picture for A type loan we can see that Sub-project proponent prepare the financial pre-screen Application Form, Technical Pre-screening Form, Financial Statement, Credit Rating Report and submit these documents to IFI's office manually by meeting by IFS's office. IFI's officer in charge register the application and necessary documents. IFI's officer conduct preliminary eligibility checking using Preliminary Eligibility Check Sheet and record the information. Officer will check Name Clearance Evaluation Sheet using related documents. Going through the NCES office in charge will submit application1 case to manager for approval. If declined, the officer will communicate with the proponent explaining the reason and close the application case. Proponent can renew the application. If approved by the manager will follow the intuitional criteria. After intuitional decision the IFI's submit NOC request to SREDA. SREDA may enquire and request the IFI for additional technical information equipment catalog. After processing the application by SREDA the IFI's officer will record and forward the NOC or rejection letter manually. Application case with NOC will proceed to Due Diligence. IFI's will ask the proponent to prepare the documents for due diligence and additional documents. After carrying out due diligence IFI's officer will prepare a credit report. Manager will approve or decline case based on the documents submitted. After the decision has been made, register the decision result, date of decision and approving body. IFI's Officer in charge will make sure all the preconditions for loan contact are met. Manager will signed the loan contact. Secretariat will register the loan contract date, loan amount, equipment code. Officer will check preconditions for disbursement of IFI are met. Transfer the money from bank account of the IFI to L/C account of the sub-project owner. IFI's officer will draft the repayment schedule. Register the repayment transaction records.

## **EXISTING RICH PICTURE B TYPE**



## EXISTING RICH PICTURE B TYPE DESCRIPTION

By observing existing system rich picture for B type loan we can see that IFI's PIU Secretariat formulate PD selection committee and inform to SREDA and JICA in writing. Start PD selection by publishing PD invitation notice. After receiving application by meeting and check against eligibility criteria. PD selection committee select PD's and PIU Secretariat record PD's name, type of organization and address on record book manually. Sign the participating agreement by meeting. PD's report sales using Sales, Installation and Inspection Record through meeting. After install EE&C home appliances submit fund transfer request to IFI's office using request form. PIU Secretariat check transfer request. Manager approve or reject fund transfer and record fund transfer on record book. PD's request for APO. Request proceed for intuitional approval. After intuitional approval IFI's inform decision result and record on record book. Officer in charge will ask PD's for submit required documents for advance payment procedure. PIU Secretariat check transfer request. Manager approve or reject fund transfer and record fund transfer on record book. PD's will check EE&C home appliances sales status and record the sales details and install the home appliances. PD's request for adjustment. Manager approve or reject the request and record on record book.

### 3. Requirement Analysis

**Table 01:** EXISTING BUSSINEESS SYSTEM ALONG WITH SIX ELEMENTS (A-TYPE LOAN)

Sl	Process Name	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communication and
1.	Preparation	PIU Secretariat (IFIIs): Provide the project's overview, application forms and contact details	Pen, Paper (Application form)	N/A	N/ A	N/A	N/A
2.	Receiving loan applications	Proponent: Submit the application form  Officer In Charge (IFIIs) : Ask the proponent to prepare Financial Pre-screening Application Form, Technical Pre-screening Application Form, Financial Statements and Credit Rating Report and fixing a meeting date	Pen, Papers include:  ■ Financial statements ■ Credit Rating Report ■ Technical pre-screening form	N/A	N/ A	N/A	N/A

Sl	Process Name	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Communication and
3.	Preliminary eligibility checking	<p>Officer In Charge (IFIs): Conduct preliminary eligibility checking</p> <p>Manager(IFIs) : Approve or Decline the checking result, consult SREDA employee and provide preliminary comments if required</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>▪ Eligibility Check Sheet</li> <li>▪ Eligibility Technology and Equipment List</li> </ul>	N/A	N/A	N/A	N/A
4.	Name Clearance	<p>Officer In Charge (IFIs) : Check the items in the Name Clearance Evaluation Sheet, consult With proponent for the reason of decline</p> <p>Conduct the Name Clearance Evaluation and register the evaluation result using Name Clearance Evaluation Sheet</p> <p>Manager(IFIs) : Approve or Decline the case</p> <p>PIU Secretariat(IFIs) : Define decision body and proceed to institutional clearance, Approve or Decline the case institutionally Register the decision result and consult IFIs for any delay</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>▪ CIB Report</li> <li>▪ Credit Rating report</li> <li>▪ Financial Statement</li> <li>▪ Name Clearance Evaluation Sheet</li> </ul>	N/A	N/A	N/A	N/A

Sl	Process Name	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communication and
5.	Submit Request to SREDA for NOC	<p>Officer In Charge (IFIs): Check for new cases that has completed Institutional Clearance, if any change has been made update the data</p> <p>Manager (IFIs): Input necessary Information from Technical Pre-screening Application Form, reflect revisions and updates, approve or decline Technical Pre-screening Application Form</p> <p>Sub-project proponent: Submit two sets of equipment catalogues</p> <p>SREDA: Check NOC request from IFIs, Receive documents, Physically forward and register the date</p> <p>SREDA: Ensure that there is no duplicate application, Check for Precedent cases, Inquire about additional information of equipment, Register the result of evaluation with reasoning, Receive official signature on NOC draft or rejection letter,</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ Two sets of equipment catalogues</li> <li>■ Original Copy of Technical Pre-screening Application Form</li> <li>■ Record the decision</li> <li>■ Draft of NOC or Rejection letter</li> </ul>	N/A	N/A	N/A	N/A

Dispatch the original letter to IFIs.							
Sl	Process Name	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communication and
6.	Forwarding NOC or Rejection letter to proponent	<p>Officer In Charge (IFIs): Forward the NOC or rejection letter to the Sub Project Proponent, Close the rejected case</p> <p>Sub Project Proponent: Receive the NOC or rejection letter</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>▪ Original copy of NOC or rejection letter</li> </ul>	N/A	N/A	N/A	N/A
7.	Due Diligence	<p>Officer In Charge (IFIs): Choose the type of due diligence on Due Diligence Type check sheet, Ask Sub Project Proponent to prepare the documents indicated in Required Document Check Sheet, Register the received date of documents, Conduct off site and on-site due diligence, Register the completion of Due</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>▪ Due Diligence Type check sheet</li> <li>▪ Required documents check sheet</li> <li>▪ Credit report elements sheet</li> </ul>	N/A	N/A	N/A	N/A

		Diligence					
		Sub Project Proponent: Prepare and send documents indicated in required document check sheet					
		SREDA Employee: Check Due Diligence Status and consult with IFIs for any delay					
		Manager (IFIs): Register the completion of Due diligence					

Sl	Process Name	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Communication and
8.	Loan Decision	<p>Manager (IFIs) : Prepare documents (General Due Diligence, Simple Due Diligence, Loan Terms), Update and revise application data</p> <p>Officer In Charge (IFIs): Report to the approving body of completion of loan decision, Notify rejection to Sub Project Proponent and close the case</p> <p>PIU Secretariat(IFIs) : Proceed to Approve or Decline the application institutionally, Register the date and decision</p> <p>Officer In Charge (SREDA) : Check loan decision status and consult with IFIs for any delay</p> <p>PDs: Get notified about rejection, renew or review the application starting from name clearance or due diligence</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ Credit report</li> <li>■ Loan decision sheet</li> <li>■ Loan term sheet</li> <li>■ Credit rating rate by Bangladesh bank</li> <li>■ Rejection/Approval Letter</li> <li>■ Record the decision</li> </ul>	N/A	N/A	N/A	N/A

<b>Sl</b>	<b>Process Name</b>	<b>Human</b>	<b>Non- Computing Hardware</b>	<b>Computing Hardware</b>	<b>Software</b>	<b>Database</b>	<b>Communication and</b>
9.	Documentation for loan	Officer In Charge (IFIs): Draft loan documents, Negotiate with sub project proponent, sign the contract and register the date of contract, Revise the equipment category and loan amount if necessary	Pen, Papers include: ■ Loan documents ■ Contract Paper	N/A	N/A	N/A	N/A
		Sub Project Proponent: Sign the Contract					
		Manager (IFIs) Check the contact papers					
10	Disbursement	Officer In Charge (IFIs): Ask the sub-project owner to open L/C account, Negotiate on disbursement details, Check if the pre-conditions of disbursement are fulfilled, Transfer money	Pen, Papers include: ■ Documents of L/C account ■ Documents of negotiation	N/A	N/A	N/A	N/A
		Sub Project Proponent: Open L/C account, Agree on disbursement details, Receive money					
		Manager (IFIs) : Get notified about the whole process					

Sl	Process Name	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Communication and
11.	Checking Repayment Status	<p>Sub Project Proponent: Open repayment account within IFI, Remit the repayment money</p> <p>Officer In Charge (IFIs): Check if the repayment account is open, Direct the sub-project owner's bank and IFIs bank, Check the remittance status monthly and follow up with any delay Monitor the repayment status and submit to JICA on quarterly basis, Report to the manager about the repayment status on monthly basis</p> <p>Manager (IFIs):Check the reports of repayment status for all sub-projects on monthly basis</p>	<ul style="list-style-type: none"> <li>■ Pen, Papers include:</li> <li>■ Financial Report Form (Ongoing Sub-Project Summary and Financial Report Form)</li> </ul>	N/A	N/A	N/A	N/A
12.	Registration of Sub-Project proponent (approved)	<p>Officer In Charge (IFIs):Registering the Proponent</p> <p>Sub Project Proponent: Complete all the process of registration</p> <p>Manager (IFIs) : Approve the registration</p>	<p>Pen, Papers include:</p> <p>Registration Record Keeping Book</p>				
13.	Verify Document and Evidence	Officer In Charge (IFIs) : Ask proponent to submit 'EE&C Equipment Purchasing and Installation Status	<ul style="list-style-type: none"> <li>■ Pen, Papers include:</li> <li>■ EE&amp;C equipment Purchasing and Installation</li> </ul>				

	ces on Purchasing and Installation	Form' Document and evidence for purchasing and installing equipment(within three months of initial payment)  Sub Project Proponent:Send necessary documents  Manager (IFIs) : Checking data and submitted documents	Status Form Document & evidence regarding purchase and installation of equipment			
14.	On-site Inspection	Officer In Charge (IFIs) : Select 25% of the A-type sub-projects for on-site inspection, Go through on-site inspection, Registering “On site Physical Inspection Report Form” Notify SREDA about on-site inspection  Manager(IFIs) : Check the selected sub-projects for on-site inspection and approve it  Officer In Charge (SREDA) : Conduct on-site inspection	Pen, Papers include:  ■ On-site Physical Inspection Report Form			
15	Request sub-project Owner to submit required	Officer In Charge (IFIs): Request sub-project owner to submit required energy related data  Sub Project Proponent:Submit	Pen, Papers include:  ■ Energy conservation data analysis sheet  ■ Technical Pre-			

	<table border="1" data-bbox="325 206 770 761"> <tr> <td data-bbox="325 206 436 348">data and to cooper- ate for inspec- tion</td><td data-bbox="436 206 770 348"> <b>necessary documents</b>            Manager(IFIs) : Check if the submitted data are sufficient         </td></tr> <tr> <td data-bbox="325 348 436 761"></td><td data-bbox="436 348 770 761">           Officer In Charge (SREDA) Collect Energy and production related Raw data and transfer the raw data into energy conservation data, prepare energy conservation draft report disclose to public         </td></tr> </table>	data and to cooper- ate for inspec- tion	<b>necessary documents</b> Manager(IFIs) : Check if the submitted data are sufficient		Officer In Charge (SREDA) Collect Energy and production related Raw data and transfer the raw data into energy conservation data, prepare energy conservation draft report disclose to public	screening Application Forms <ul style="list-style-type: none"> <li>■ Energy Efficiency Related Data Form</li> </ul>			
data and to cooper- ate for inspec- tion	<b>necessary documents</b> Manager(IFIs) : Check if the submitted data are sufficient								
	Officer In Charge (SREDA) Collect Energy and production related Raw data and transfer the raw data into energy conservation data, prepare energy conservation draft report disclose to public								

**Table 02:** EXISTING BUSSINEESS SYSTEM ALONG WITH SIX ELEMENTS (B-TYPE LOAN)

Sl	Process Name	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communi- cation and
16.	Participating Distributor (PD) Selection and Appointment	<p>PIU Secretariat (IFIs): Formulate PD selection committee and agree on the selection and appointment rules by discussing, Send Published invitation letter to PDs and receive the application, Check the eligibility on Eligibility Criteria for PDs and inform result to PDs and SREDA, register the PD's on a PD List Form</p> <p>PDs: Send the application to IFIs, Sign the Participating Agreement and get registered</p> <p>Manager (IFIs): Sign the participation agreement.</p> <p>SREDA: Get Informed and notified about the PD selection</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ Application form</li> <li>■ Eligibility Criteria for PDs</li> <li>■ PDs List Form</li> </ul>	N/A	N/A	N/A	N/A

		committee and selection result					
17 .	Loan Payments to PDs (Reimbursement Option)	<p>PDs: Agreement with EE&amp;C of home appliance purchase who meets the required report sales,</p> <p>Inspect the record on monthly basis,</p> <p>Install of EE&amp;C home appliances,</p> <p>Request for fund transfer</p>	<p>Pen, Record Book, Papers include:</p> <ul style="list-style-type: none"> <li>■ Sales, Installation and Inspection Record Form (Common to both APO and RO)</li> <li>■ Request Form</li> <li>■ Other doc??</li> </ul>	N/ A	N/ A	N/ A	N/ A
		Officer in Charge (IFIs):  Periodically observer sales, installation and inspection record, Check fund transfer request and record the fund transfer					
		Manager: Approve or reject fund transfer					
	Loan Payments to PDs Advance Payment Option(APO)						
18 .	Approving a PD for APO	PDs: Request for APO is send to IFIs, Acknowledge	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ APO Application</li> </ul>	N/ A	N/ A	N/ A	N/ A

		decision result				
		PIU Secretariat: Proceed for institutional approval., Inform decision to PD and record				
		Officer In Charge(IFIs): Consult with manager and PIU secretariat				
		Manager: Approve or decline APO request				
19 .	Advance Payment Procedure	<p>PDs: Procurement document of EE&amp;C</p> <p>Home appliances along with shipping documents, letter of PD's bank attn. IFIs and advance payment of Application Form for Advance Payment Option is submitted on monthly basis. Receive approved Fund transfer</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ Application Form for Advance Payment Option</li> <li>■ Procurement document form</li> <li>■ Invoice</li> </ul>			
		Officer In Charge(IFIs):				

		<p>Check for fund transfer request, Transfer approved fund and record amount and date, discuss with the Manager</p> <p>Manager(IFIS): Approve or reject fund transfer request</p>				
20 .	Sales Record Keeping	<p>PDs: Check EE&amp;C home appliance sales status, Record sales details and install EE&amp;C home appliances according to the down- payment.</p> <p>Officer in Charge (IFIIs): check the recorded details</p>	<ul style="list-style-type: none"> <li>▪ Sales, Installation and Inspection Record Form (Common to both APO and RO)</li> </ul>			
21 .	Adjustment against APO	<p>PDs: Regular update of Installation Reporting Form on Sales, Installation and Inspection Record Form (Common to both</p>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>▪ Sales, Installation and Inspection Record Form (Common to both APO and RO)</li> <li>▪ Advance Payment Adjustment Form</li> </ul>			

		APO and RO) and Submit adjustment request on Advance Payment Adjustment Form					
		Officer In Charge (IFIs): Check for adjustment request, Adjust fund and record date and time					
		Manager(IFIs): Approve or decline the APO Adjustment request					
22 .	Registration of participating distributors (approved)	PDs: Complete all the process of registration	Pen, Papers include: <ul style="list-style-type: none"><li>■ Registration Record Keeping Book</li></ul>				
23	Installation Inspection	Manager (IFIs): Select cases and conduct on-site inspection. Record the on-site inspection	Pen, Papers include: <ul style="list-style-type: none"><li>■ Physical Inspection Report Format (B-type)</li></ul>				
24 .	Additional Information from PDs	PDs: Submit required data and information	Pen and Papers(Required additional documents)				

		Officer In Charge(IFIs): Request PDs to submit additional data and information upon request from SREDA					

**Table 03:** EXISTING BUSSINEESS SYSTEM PROBLEM ANALYSIS (A-TYPE LOAN)

Sl	Process Name	Problem	Quantify the cost	Problem Analysis
1.	Preparation and receiving loan applications	i.Printing the application form	10 tk per page 10 pages for 500 forms $=500*10*10=50000$	i.Printing the form is expensive process thus we need to find mechanism to get rid of this printing process.
		ii. Time consuming	About 50min (minimum) needs to reach Gulshan from Bashundhara Residential Area. Cost : Charge for meeting room: 1000tk per hour Electricity bill per unit 8.3tk Staff :300tk per hour work Refreshment: 50tk per person	ii.Visiting IFI and waiting for procedure for loan is lengthy process. It's difficult and time consuming for the proponents to manage time for double meeting
		iii.Problem of Transportation	Average transport cost(1person) from Bashundhara to Gulashan , BUS:30tk	iii.Transports are not Available always; moreover there

			CNG:300tk Uber:450tk	is traffic jam which makes it difficult for the proponent to reach destination.
2.	Preliminary eligibility checking	i.Time consuming	Almost 7 days;which is 56 hours  One Employee works 8 hours per day  Payment 1000tk per day ,per hours payment  $1000/8=125 \text{ tk}$	i.Lengthy process impacts on emergency
		ii.Data loss	Record book 250tk	ii. Multiple papers are needed for keeping records which might get lost
3.	Conducting Preliminary Eligibility Checking and Name Clearance Evaluation	i.Costly	1 book=250tk  Per page cost 10 taka, for 250 member,  Cost will be $250*10=2500\text{tk}$	i.Printing the form is expensive process thus we need to find mechanism to get rid of this printing process.

		ii .Time consuming and hectic	It takes about 4/5 hours to go through all the papers Per hours payment for Employee 125tk,so for 5 hours $125*5=625$ tk	ii .Manually conducting this step might cause the loss of data.  The workload will be time consuming and hectic too
4.	Submission of request for NOC	i.Time consuming	Almost 3days Per day payment for Employee 1000tk,so for 3 days $1000*3=3000$ tk	i.Lengthy process makes the whole system slow
		ii.Loss of records	Record book 250tk 10 record books= $250*10=2500$ tk.	ii .papers might be lost
5.	Eligibility checking	i.Loss of recorded data	1 book=250tk (for record data )	i.Extra cost for collecting data
		ii .Time consuming	Almost 7days Per day payment for Employee 1000tk,so for 7days $1000*7=7000$ tk	ii .Lengthy process
		iii.Check duplicate	For duplicate application ,cost of	iii.Need extra paper and time

		application	paper becomes double	
6.	Forwarding NOC or Rejection Letter	i.Time consuming	Delay for 3 days Per day payment for Employee 1000tk,so for 3 days $1000*3=3000$ tk	i. The forwarding process might take longer time than expected
		ii. Document can get lost	Printing cost per page 10tk	ii. the document might get lost in the way
7.	Due Diligence	i.Time consuming and costly	250tk=1book	i.Files saved manually can be lost and takes time to search and also costs money
		ii .Data loss	Delay for 2 days Per day payment for Employee 1000tk,so for 2 days $1000*2=2000$ tk Printing cost per page 10tk	ii .Tracking the due diligence information and date might be hard and information might get lost
8.	Institutional Clearance and documentation for loan	i.Miss out information	3 hours delay Per hour payment for Employee 125tk,so for 3 hours $125*3=375$ tk	i.By ,mistake might skip some necessary information

		ii .Extra cost	Transport cost almost 450tk  Officer's Salary 20000-25000 tk Per hour 25000- 3000  We can save 1/3 of working hour  So we can save 6000-8000 tk  Manager's Salary 35000-53000 tk Per hour 4000- 8000 tk  We can save 1/3 of working hour  So we can save 8000-14000 tk	ii .Cost of paper,extra charge of workers
9	Loan Decision and documentation	i.Time consuming	More than 4 days  Per day payment for Employee 1000tk,so for 5 days  $1000*5=5000$ tk (minimum)	i.Time consuming for revise and updating the application date
		ii .Lose record	Record book 250tk 10 record books= $250*10$	ii .papers might be lost

			=2500tk.	
10	Registration of Sub-Project proponent (approved)	i. Time consuming	Per hour payment for an Employee is 125tk	i.Every proponents details needs to be manually saved which is tie consuming
		ii.Costly	Record book 250tk 10 record books=250*10 =2500tk.	ii. Record book or files needs to be bought
		iii.Data loss	Delay for 2 days Per day payment for Employee 1000tk,so for 2 days $1000*2=2000$ tk Printing cost per page 10tk	iii.The record book or file might get lost
11.	Verification of documents and Evidences on Purchasing and Installation	i. Time Consuming	Per day payment for Employee 1000tk	i.Manual submission of form will cost time
		ii. Expensive	Average transport cost(1person) from Bashundhara to Gulashan , BUS:30tk CNG:300tk	ii. Requires transport cost to submit documents manually
12	On-site Inspection	i. Data loss	Printing cost per page 10tk	i.The inspection form might get lost

13	Request subproject Owner to submit required data and cooperate for inspection	i.Time	Per day payment for Employee 1000tk	i.the documents need to be submitted manually by going to the office and it takes more time to check data manually
		ii.Costly	Average transport cost(1person) from Bashundhara to Gulashan , BUS:30tk CNG:300tk	ii. Submitting documents manually will require transportation cost

Table 04 : EXISTING BUSSINEESS SYSTEM PROBLEM ANALYSIS (B-TYPE LOAN)

	<b>Process</b>	<b>Problem</b>	<b>Quantify the cost</b>	<b>Analysis</b>
1.	Submitting application form and Checking eligibility of the applicants	i.Expensive	Average transport cost(1person) from Bashundhara to Gulashan , BUS:30tk CNG:300tk Uber:450tk  REMOVE LINE	i.Procedure of filling up manual from , which is lengthy process and costly
			Per day payment for Employee 1000tk Electricity bill per unit 8.3  Refreshment: 50tk per person	ii.Cost of transportation, electric bill charge of office room, percentage of salary of officer in charge, refreshment are also involved.
		ii.Time Consuming	Almost 7 days Cost of proponent per day 500tk	i.Proponents may have to go through a long process
2.	Registration of Participating Distributor(PD)	i.Expensive	1 Record book =250tk 10 tk per page 10 pages for 500 registration forms = $500*10*10=50000$ tk	i.Printing is expensive so need to make a system where we can save the expense.
		ii.Time consuming	Employee cost per hours 125tk	ii.Manual input is not suitable for every PD which is lengthy process
		iii.Data Loss	Delay for 2 days Per day payment for Employee 1000tk,so for 2 days $1000*2=2000$ tk	iii.The data will be stored in a file that might not have any sequence  The file or book which the proponent is registered might get lost

			Printing cost per page 10tk	
3.	Reporting and checking sales record	i.Lack of Communication ii.Costly	1 Record book =250tk  10 record books=250*10=2500tk.	i.It will be difficult to keep IFIs up to date  ii.record books are needed to record the so many data which costs money and space
4.	Fund transfer request	i.Expensive	Average transport cost(1person) from Bashundhara to Gulashan BUS:30tk CNG:300tk Uber:450tk	i.Printing the form costs money and also the transportation cost adds up to the expense
		ii.Time Consuming	2 hours delay  Per hours payment for Employee 125tk,so for 2 hours  125*2=250tk	ii.PD needs to go to IFIs office for submitting application which is time consuming .-Apart from location ,transportation matters for communication
5.	Request for Advance Payment Option(APO)	i.Time Consuming ii.Expensive iii. safety of record book or file	2 hours delay  Per hours payment for Employee 125tk,so for 2 hours  125*2=250tk  Average transport cost(1person) from Bashundhara to Gulashan BUS:30tk CNG:300tk Uber:450tk	i.PD needs to go to IFIs office for submitting application which is time consuming and costly
6.	Update Installation reporting form	i.Expensive	1 Record book =250tk	i. The record book or forms are need to be

			10 record books=250*10=2 500tk.	bought
		ii.Communi-cation problem	Delay for 2 days Per day payment for Employee 1000tk,so for 2 days	ii. Hard to keep track of the updates which might delay the process
7.	Submit Additional Information	i. Time Consuming	Per day payment for Employee 1000tk	i.Going to the office requires time
		ii.Costly	Average transport cost(1person) from Bashundhara to Gulshan BUS:30tk CNG:300tk Uber:450tk  1 Record book =250tk 10 record books=250*10=2 500tk.	ii.Manual submission requires transportation cost and record keeping file or book

## PROPOSED SYSTEM RICH PICTURE A TYPE

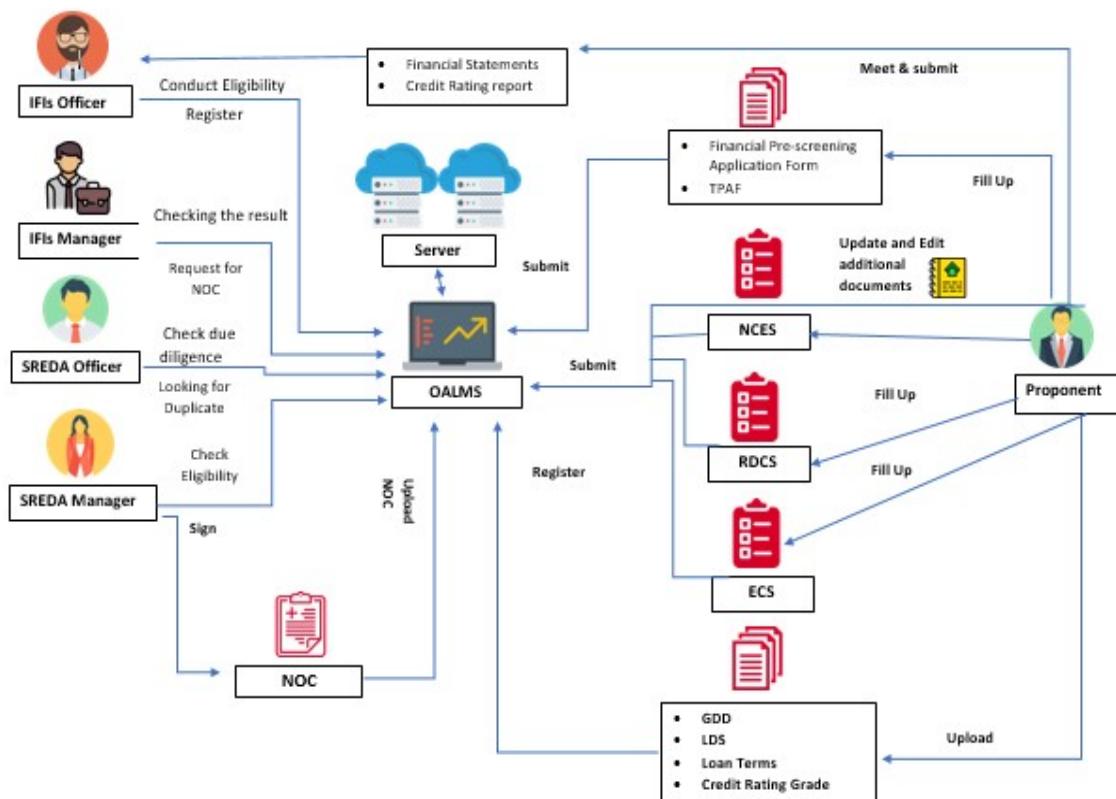


Figure 3: PROPOSED SYSTEM RICH PICTUE (A TYPE LOAN )

## **PROPOSED SYSTEM RICH PICTURE DESCRIPTION A TYPE**

By observing the proposed system rich picture above, we can see that Proponent will sign up for application and fill up the financial pre-screening form, technical pre-screening form, financial statements, credit rating report to the IFI's website. A registration number and proponent ID will auto generate. IFI's Officer in charge will register application date, business code number of proponent to the IFI's server. PD's will submit rest of necessary documents. IFI's officer will register additional information such as input date, code number of equipment's, requested loan amount. Then IFI's officer will conduct preliminary eligibility checking and register the information to the server. Proponent will fill up the name clearance evaluation sheet on the website. IFI's officer will check the name clearance evaluation sheet using CIB report, Credit rating report, and financial statement. This information will be register to the IFI's server. Manager will approve or reject the case. If rejected, notify the proponent through proponents ID. If approved then proceed further process and register the information to the server. IFI's officer will submit NOC request to SREDA. SREDA will receive necessary documents through server and check there is any duplicate application. After eligibility checking the information to the server with the reason. SREDA manager will issue NOC or reject the case. If rejected, proponent will be notified. Proponent will send documents for due diligence. IFI's officer will completion of due diligence and SREDA officer will check Due diligence. After taking loan decision by the decision body, register the decision, date and notify the proponent if rejected. SREDA check the loan decision. IFI manager Sign the loan contact with proponent and register the date of contact. Conduct disbursement, IFI transfer money to proponent. Then IFI's officer will check repayment status and report to Manager monthly basis.

## PROPOSED SYSTEM RICH PICTURE B TYPE

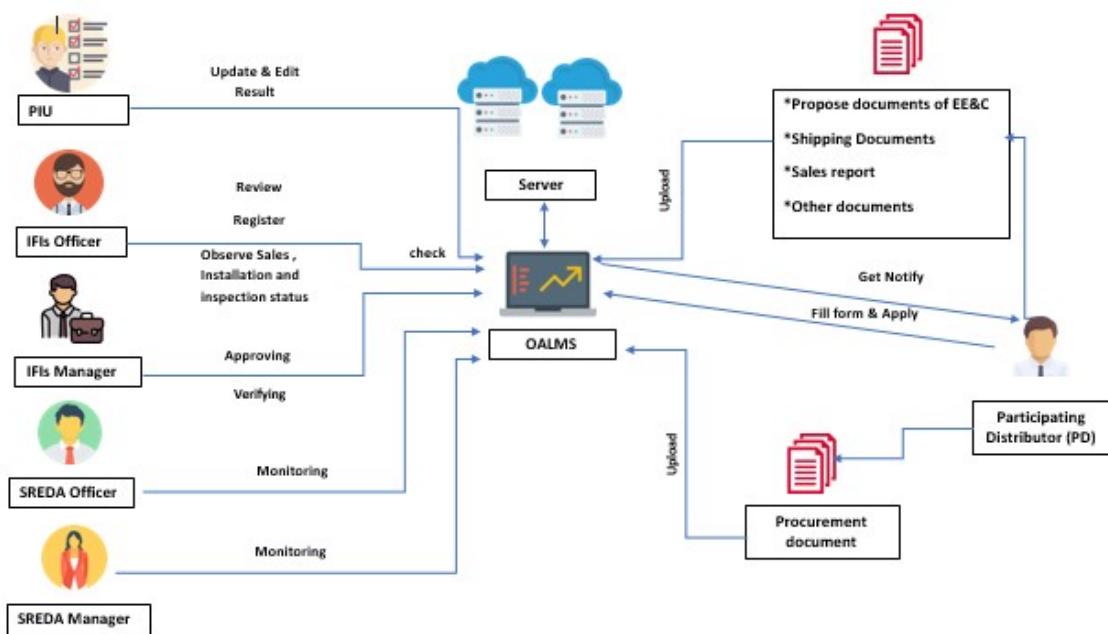


Figure 4: PROPOSED SYSTEM RICH PICTUE (B TYPE LOAN )

## PROPOSED SYSTEM RICH PICTURE DESCRIPTION B TYPE

By observing the rich picture above, we can see that Participating Distributor (PD) fill up form and apply on the IFI's website. A registration number and PD's ID auto generate and register in server. After application received, PIU Secretariat check eligibility criteria. Selection committee select PDs. SREDA and PDs notify about selection through online. PDs upload propose documents of EE&C, shipping documents, sales report, other documents on the OALM's server. IFI's officer observe sales, installation and inspection record. PDs submit fund transfer request. Manager approve or reject request and record the information. PDs upload the Procurement document on the server. IFI Manager approve or reject fund transfer request and record the fund transfer amount and date. SREDA monitor the processes and server records.

**TABLE 5: SOLUTION**

Sl	Process Name	Problem	Solution	Quantify the saving
1.	Preparation and Receiving loan Applications	i.Printing the application form	Form will be available in the OALMS.	i.40000tk
		Time consuming	As form will Be available in the OALMA the times it takes to visit IFIs will be saved ADD MEETTING	About 40 minutes
		Problem of Transportation	As form will Be available in the OALMA the cost of transportation	Average transport cost(1person) from Bashundhara to Gulashan ,

			will be saved.	BUS:30tk CNG:300tk Uber:450tk
2.	Preliminary Eligibility Checking	Time consuming	The eligibility checking will be done with the OALMA which will save the time	Almost 7 days
		Data loss	No files or papers will be needed as everything will be saved on OALMS. This will save the cost of papers and also environment	250tk per Record book
3.	Conducting Preliminary Eligibility Checking and Name Clearance Evaluation	Data loss	Everything will be saved in the system which will save the cost of printing all the documents	Saves about 2500tk
		Time consuming and hectic	All the papers will be checked in the OALMS	Saves about 4/5 hours
4.	Submission of request for NOC	Time consuming	Submit the request for NOC via OALMS	Saves almost 3days of the process
		Loss of records	The decision will be recorded on the OALMS with backup so there is no chance of	Saves the money of the papers needed for documenting which is about 2500tk

			misunderstandings and lost in formation	
5.	Eligibility checking	Loss of recorded data	The OALMS will mark the eligibility and record everything on the system	Cost for documenting data which is about 2500tk will be saved
		Time consuming	OALMS will take the least amount of time needed to check eligibility	Saves almost 7 days.
		Check duplicate application	The OALMS will check for duplicate applications which will ensure that there is no mistake	The extra pare needed to documenting and the time of going through all the documents manually will be saved
6.	Forwarding NOC or Rejection Letter	Time consuming and costly	The NOC or rejection letter will be notified in OALMS	It will save time and transport cost
		Data loss	The documents will be saved in OALMS	The documents will not get lost and becomes easy to keep track
7.	Due Diligence	Time consuming and costly	The forms will be available in OALMS	Files saved manually can be lost and takes time to search and also

				costs money
		Data loss	Received documents will be saved in the system	Tracking the due diligence information and will be easy and error free
8.	Institutional Clearance and documentation for loan	Loss of information	Information will be saves in OALMS with backup	The time of re-checking in case of missing information which is about 2/3 hours
		Extra cost	Information will be saves in OALMS with backup, the Proponent will be notified by the system  As the system does most of the work ,it will need less Employee working hour	Saves transport cost which is about 450 tk.  The system will be able to save 1/3 of the working hour which will save 8000 tk to 15000tk depending on the employee
9.	Loan Decision and documentation	Time consuming	Revise and update the application date and all the information in OALMS	Saves about 4 days
		Lose record	Record the decision with backup	Cost of papers for documenting and

				time will be saved. 250 tk per record book.
10	Registration of Sub-Project proponent (approved)	Time consuming and costly,data loss.	Sub-Project proponents will register in OALMS	Cost of papers for documenting and time will be saved. 10 tk per page printing.
11.	Verification of documents and Evidences on Purchasing and Installation	Time consuming and expensive	The documents that are received will be marked in the OALMS	Transportation cost and manually submitting time will be saved
12	Request subproject Owner to submit required data and cooperate for inspection	Time consuming and expensive	The requires data will be submitted through the OALMS	Transportation cost and manually submitting time will be saved
13	Submitting application form and Checking eligibility of the applicants	Expensive	Submit the form on OALMS	Saves the time and cost of going to the office to submit form. Transport cost:450 tk Time:1/2 hour; depending on the distance
		Time Consuming	Submit the form on OALMS	The automated system speeds up the whole process and helps to avoid

				traffic jam.
14.	Registration of Participating Distributor(PD)	Expensive	Register online via OALMS	Saves the money for printing the registration forms which is about 45000 tk
		Time consuming	Register online via OALMS	Saves the time and cost of going to the office to submit form. Transport cost:450 tk Time:1/2 hour; depending on the distance
		Data Loss	Save the required data in the system with backup	Easy to find any information and ensure everything is fine
15.	Reporting and checking sales record	Lack of Communication	Report and check sales record on OALMS	IFIs will be up to date
		Costly	Checking everything online will reduce paperwork	Saves around 2500tk per case Which was needed for manual documentation
16.	Fund transfer request	Expensive	Fill up the request form on OALMS	Saves the printing cost of the form (10 tk per form) and transport cost (450tk) too.

		Time Consuming	PD and IFI both will be able to access the documents on OALMS	The time (1/2 hour/s) and cost (450tk) of going one from office to another.
17.	Request for Advance Payment Option(APO)	Expensive	Fill up the request form on OALMS	Saves the printing cost of the form (10 tk per form) and transport cost (450tk) too
		Safety of record book or file	Save the required data in the system with backup with security and not storing any sensitive data on OALMS	Documents will be safely recorded saving the time of redoing all the process in case of data loss
		Time Consuming	PD and IFI both will be able to access the documents on OALMS	The time (1/2 hour/s) and cost (450tk) of going one from office to another.
18	Update Installation reporting form	Time consuming and lack of communication	The installation form will be updated in OALMS	The authority will have access to the updates so it becomes easy to keep track of records and updates
19	Submit Additional Information	Time consuming and costly	The required additional information will be submitted through OALMS	The time (1/2 hour/s) and transportation cost (450tk) of going one from office to

				another.
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**TABLE 06: EXISTING AND PROPOSED SYSTEM ANALYSIS**

SL	Process	Existing						Proposed					
		Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communication and	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Communication and
1	Preparation	PIU Secretariat (IFIIs): Provide The project's overview, application forms and contact details	Pen, Paper	N/A	N/A	N/A	N/A	PIU (IFIIs): Upload Project Overview and Contact Information	N/A	Desk-top/Laptop	Brower, OA LM S	Server MySQL Oracle	Internet
2	Receiving loan applications	<ul style="list-style-type: none"> <li>• Proponent: Submit the application form</li> <li>• Officer In Charge (IFIIs) : Ask the proponent to</li> </ul>	Pen, Papers include: <ul style="list-style-type: none"> <li>▪ Financial statements</li> <li>▪ Cred-</li> </ul>	N/A	N/A	N/A	N/A	Proponent: Fill up and Submit Application form and other documents, Register for	N/A	Desk-top/Laptop	Brower, OA LM S	Server MySQL Oracle	Internet

		prepare Financial Pre-screening Application Form, Technical Pre-screening Application Form, Financial Statements and Credit Rating Report and fixing a meeting date	it Rating Report					Technology Equipment and loan amount.					
3	Preliminary eligibility checking	<ul style="list-style-type: none"> <li>• Officer In Charge (IFIs) : Conduct preliminary eligibility checking</li> </ul>	Pen, Papers include: ■ Eligib	N/A	N/A	N/A	N/A	Officer In Charge(IFIs) : Clarify equipment code (category)	N/A	Desk-top/Laptop	Browser, OA LM S	Serv-er	Internet

		<ul style="list-style-type: none"> <li>Manager(IFIs): Approve or Decline the checking result, consult SREDA employee and provide preliminary comments if required</li> </ul>	ility Check Sheet					for eligibility checking					
4	Name Clearance	<ul style="list-style-type: none"> <li>Officer In Charge (IFIs) : Check the items in the Name Clearance Evaluation Sheet</li> <li>Conduct the</li> </ul>	Pen, Papers include: ▪ CIB Re- port ▪ Cred- it Rat-	N/A	N/A	N/A	N/A	Officer In Charge (IFIs): justify Name Clearance Evaluation sheet in System, Register	N/A	Desk- top/Lap- top	Brow- ser, OA LM S	Serv- er	Inter- net

		<p>Name</p> <p>Clearance</p> <p>Evaluation and register the evaluation result using</p> <ul style="list-style-type: none"> <li>• Manager(IFIs) : Approve or Decline the case</li> <li>• PIU Secretariat(IFIs) : Define decision body and proceed to institutional clearance, Approve or</li> </ul>	<p>ing report</p> <p>▪ Fi-nan-cial State-ment</p> <p>Name</p> <p>Clear-ance</p> <p>Evalu-a-tion Sheet</p>					Evaluation result and Submit it on OALMS	Manager (IFIs): Check and analyze result. Giving Approval for further process in OALMS.	PIU: Classify Application for Institutional Decision in			
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		Decline the case institutionally  Register the decision result and consult IFIs for any delay						the system					
5	Submit Request to SREDA for NOC	<ul style="list-style-type: none"> <li>• Officer In Charge (IFIs): Check for new cases that has completed Institutional Clearance</li> <li>• Manager (IFIs): Input necessary Information from Technical Pre-screening Application</li> </ul>	Pen, Papers include: ■ Two sets of equip ment cata- lo- gues ■ Orig- inal Copy of	N/A	N/A	N/A	N/ A	Officer In Charge (IFIs): Verify new cases and update Revised Information and documents on OALMS, Notify Proponent about result.	N/A	Desk- top/Lap top	Bro wse r, OA LM S	Serv- er	In- ter- net

		<p>Form, reflect revisions and updates</p> <ul style="list-style-type: none"> <li>• Sub-project proponent: Submit two sets of equipment catalogues</li> <li>• SREDA: Check NOC request from IFIs, Receive documents, Physically forward and register the date</li> </ul> <p>SREDA: Ensure that there is no duplicate</p>	<p>Tech-nical Pre-scree ning Ap-plica-tion Form</p> <ul style="list-style-type: none"> <li>▪ Re-cord the deci-sion</li> </ul> <p>Draft of NOC or Rejection letter</p>					Manager (IFIIs): Verify Documents and Send Request for NOC to SREDA on OALMS.	Proponent: Upload Two sets of Equipment Catalog.	SREDA: Check notification and verify documents there is no duplicate			
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		application, Check for Precedent cases, Inquire about additional information of equipment, Register the result of evaluation with reasoning, Receive official signature on NOC draft or rejection letter, Dispatch the						application on OALMS, check eligibility and Register Result on OALMS and Generate NOC or send rejection notification.					
6	Forwarding NOC or Rejection letter to proponent	<ul style="list-style-type: none"> <li>• Officer In Charge (IFIs): Forward the NOC or rejection letter to the Sub Project Proponent, Close the rejected</li> </ul>	Pen, Papers include: Original copy of NOC or rejection letter	N/A	N/A	N/A	N/A	Officer In Charge (IFIs): Check notification and confirmation result from SREDA on	N/A	Desk-top/Laptop	Browsing, OA LM S	Server	Internet

		case						OALMS, Bypass NOC or send rejection message to proponent.  Proponent : Download NOC From OALMS					
7	Due Diligence	<ul style="list-style-type: none"> <li>• Officer In Charge (IFIs): Choose the type of due diligence on Due Diligence Type check sheet</li> </ul>	Pen, Papers include: ■ Due Diligence Type check sheet	N/A	N/A	N/A	N/A	Officer In Charge (IFIs) : Create Due diligence Check sheet on OALMS and Give access to	N/A	Desk-top/Laptop, Scanner Machine	Bro wse r, OA LM S	Serv- er	In- ter- net

		<ul style="list-style-type: none"> <li>• Ask Sub Project Proponent to prepare the documents indicated in Required Document Check Sheet, Register the received date of documents, Conduct off site and on-site due diligence, Register the completion of Due Diligence</li> <li>• Sub Project Proponent: Prepare and send</li> </ul>	Required documents check sheet					proponent another form to upload require documents for registration.	Proponent : Fill up the due diligence form and Submit it, Upload asking Documents on OALMS for registration	Manager :				
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		documents indicated in required document check sheet SREDA Employee: Check Due Diligence Status and consult with IFIs for any delay						Confirm Registration for after Reviewing Documents on OALMS					
8	Loan Decision	<ul style="list-style-type: none"> <li>■ Manager (IFIs) : Prepare documents (General Due Diligence, Simple Due Diligence, Loan Terms), Update and revise application</li> </ul>	<ul style="list-style-type: none"> <li>■ Pen, Papers include:</li> </ul> <ul style="list-style-type: none"> <li>■ Credit report</li> <li>■ Loan decision sheet</li> <li>■ Loan term sheet</li> </ul>	N/A	N/A	N/A	N/A	Officer In Charge(IFIs) : Generate Credit Report, Loan Decision sheet, Loan Term Sheet, Upload Credit	N/A	Desk-top/Laptop	Browsing, OA LM S	Server	Internet

		<ul style="list-style-type: none"> <li>■ data</li> <li>■ Officer In Charge (IFIs): Report to the approving body of completion of loan decision, Notify rejection to Sub Project Proponent</li> <li>■ PIU Secretariat(IFIs) : Proceed to Approve or Decline the application institutionally, Register the date and decision</li> </ul>	<ul style="list-style-type: none"> <li>■ Credit rating rate by Bangladesh bank</li> <li>■ Rejection/ Approval Letter Record the decision</li> </ul>					Rating Grade By Bangladesh Bank and CIB Report	PIU secretariat : Review the necessary documents on OALMS and After approval Proceed with the institutional decision	Manager: After Reviewing			
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		Officer In Charge (SREDA) : Check loan decision status and consult with IFIs for any delay						Clarify all documents and Give Approval or Suspend Confirmation on OALMS.					
9	Documentation for loan	<ul style="list-style-type: none"> <li>• Officer In Charge (IFIs): Draft loan documents, Negotiate with sub project proponent, sign the contract and register the date of contract, Revise the equipment</li> </ul>	Pen, Papers include: ■ Loan documents Contract Paper	N/A	N/A	N/A	N/A	Officer in Charger (IFI): Send Precondition terms and Condition form to Proponent for confirmation on OALMS and fix a meeting date.	N/A	Desk-top/Laptop	Browsing, OA LM S	Server	Internet

		category and loan amount if necessary  Sub Project  Proponent: Sign the Contract						Manager :  Review and Sign Loan  Contact and give Confirmation on OALMS  PIU  Secretariat:  Register and Revised necessary documents  loan amount and contact date on OALMS.					
10	Disburse- ment	■ Officer In Charge (IFIs):	Pen,	N/A	N/A	N/A	N/ A	Officer In Charge :	N/A	Desk- top/Lap	Bro wse	Serv- er	In- ter-

		<p>Ask the sub-project owner to open L/C account, Negotiate on disbursement details, Check if the pre- conditions of disbursement are fulfilled, Transfer money</p> <ul style="list-style-type: none"> <li>▪ Sub Project Proponent: Open L/C account,</li> <li>▪ Agree on disbursement details,</li> </ul> <p>Receive money</p>	<p>Papers include:</p> <ul style="list-style-type: none"> <li>▪ Document of L/C account</li> </ul> <p>Documents of negotiation</p>					<p>Send Message to Proponent to Open L/C account on OALMS, Suggest Certain Bank list, Report Proponent after Debited money on L/C Account</p> <p>Proponent: Open L/C account and Update Bank Account Information on OALMS.</p>	top	r, OA LM S	net
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									Manager: Review all disbursement Successfully checked and Approved date Registration.				
11	Checking Repayment Status	<ul style="list-style-type: none"> <li>▪ Sub Project Proponent: Open repayment account within IFI, Remit the repayment money</li> <li>▪ Officer In Charge (IFIs): Check if the</li> </ul>	Pen, Papers include: Financial Report Form (Ongoing Sub- Project Summary and Financial	N/A	N/A	N/A	N/ A	Proponent: Open Repayment Account, Update repayment account information and Upload Repayment status on OALMS	N/A	Desk- top/Lap- top, Scan- ner Ma- chine	Bro- wse r, OA LM S	Serv- er	In- ter- net

		<p>repayment account is open, Direct the sub-project owner's bank and IFIs bank, Check the remittance status monthly and follow up with any delay Monitor the repayment status and submit to JICA on quarterly basis, Report to the manager about the repayment status on monthly basis</p>	Report Form)					Officer In Charge: Generate Remittance Report Monthly and monitor repayment status.					
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12	Registration of Sub-Project proponent (approved)	<ul style="list-style-type: none"> <li>■ Officer In Charge (IFIIs): Registering the Proponent Sub Project Proponent: Complete all the process of registration</li> <li>■ Manager (IFIIs) : Approve the registration</li> </ul>	Pen, Papers include: Registration Record Keeping Book	N/A	N/A	N/A	N/A	Officer in charge, Proponent, Manager	N/A	Desk-top/Laptop	Browser, email	Server	Internet
13	Verify Document and Evidences on Purchasing and Installation	<p>Officer In Charge (IFIIs) : Ask proponent to submit 'EE&amp;C Equipment Purchasing and Installation Status Form' Document and evidence for purchasing and installing equipment(within three months of initial payment)</p> <ul style="list-style-type: none"> <li>■ Sub Project Proponent:Sen</li> </ul>	<p>Pen, Papers include:</p> <ul style="list-style-type: none"> <li>■ EE&amp; C equipment Purchasing and Installation Status Form</li> </ul>										

		<p>d necessary documents</p> <p>Manager (IFIs) : Checking data and submitted documents</p>	Docu- ment & evidence regarding purchase and installa- tion of equip- ment										
14	On-site Inspection	<ul style="list-style-type: none"> <li>■ Officer In Charge (IFIs) : Select 25% of the A-type sub-projects for on-site inspection, Go through on-site inspection, Registering “On site Physical Inspection Report Form” Notify SREDA about on-site inspection</li> <li>■ Manager(IFIs) : Check the selected sub-projects for on-site inspection</li> </ul>	<p>N/A</p> <p>Pen, Papers include:  On-site Physical Inspec- tion Report Form</p>	N/A	N/A	N/A	N/ A	<ul style="list-style-type: none"> <li>■ Officer In Charge (IFIs) : Select 25% of the A-type sub-projects for on-site inspection, Go through on-site inspection, Registering “On site Physical Inspection Report Form”</li> </ul>	N/A	Laptop	<p>Bro wse r,O AL MS</p>	Serv- er	Inter- net

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		<ul style="list-style-type: none"> <li>▪ and approve it</li> <li>▪ Officer In Charge (SREDA) : Conduct on-site inspection</li> </ul>						<p>Form” Notify SREDA about on-site inspection</p> <ul style="list-style-type: none"> <li>▪ Manager(IFIs ) : Check the selected sub-projects for on-site inspection and approve it</li> </ul> <p>Officer In Charge (SREDA) : Conduct on-site inspection</p>					
15	Request sub-project Owner to submit	<ul style="list-style-type: none"> <li>▪ Officer In Charge (IFIs): Request sub-project owner to submit</li> </ul>	Pen, Papers include: On-site	N/A	N/A	N/A	Phone, letter	Officer In Charge (IFIs): Request sub-project	N/A	Desk-top/Laptop	Browsing OA	Serv-er	Internet

	<p>required data and to cooperate for inspection</p> <ul style="list-style-type: none"> <li>▪ required energy related data                     <ul style="list-style-type: none"> <li>▪ Sub Project Proponent:Submit necessary documents</li> <li>▪ Manager(IFIs) : Check if the submitted data are sufficient</li> <li>▪ Officer In Charge (SREDA) Collect Energy and production related Raw data and transfer the raw data into energy conservation data, prepare energy conservation draft report disclose to public</li> </ul> </li> </ul>	<p>Physical Inspection Report Form</p>					<p>owner to submit required energy related data through email</p> <p>Sub Project Proponent: Submit necessary documents on Server</p> <p>Manager(IFIs) : Check if the submitted data are sufficient</p> <p>Officer In Charge (SREDA) Collect Energy and production</p>		<p>LM S</p>	
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									related Raw data and transfer the raw data into energy conservation data, prepare energy conservation draft report disclose to public				
16	Participat-ing Distributor (PD) Selection and Appoint-ment	■ PIU Secretariat (IFIs): Formulate PD selection committee and agree on the selection and appointment rules by discussing,	Paper, Pen	N/A	N/A	N/A	N/ A	PIU Secretariat: -Formulate PD selection committee for B-type loan and give updates to SREDA about	N/A	Desk-top/Lap-top	Bro-wse r, Em ail	Serv-er	In-ter-net

		<p>Send Published invitation letter to PDs and receive the application,</p> <p>Check the eligibility on Eligibility Criteria for PDs and inform result to PDs and SREDA,</p> <p>register the PD's on a PD List Form</p> <p>PDs: Send the application to IFIs, Notified about the selection</p>						appointment -Receive applications and check for appropriate Eligibility Criteria for PDs -Give outcomes to PDs and SREDA					
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		<p>result, Sign the Participating Agreement and get registered</p> <ul style="list-style-type: none"> <li>▪ Manager (IFIs): Sign the participation agreement.</li> </ul> <p>SREDA: Informed and notified about the PD selection committee and selection result</p>										
17	Loan Payments to PDs (Reimbursement Option)	<ul style="list-style-type: none"> <li>• PDs: Agreement with EE&amp;C of home appliance purchase who meets the required report sales, Inspect</li> </ul>	N/A	N/A	N/A	N/A	Officer in Charge for Component (PD): Covenant with EE&C of home appliance purchase and	N/A	Desktop/Laptop	Browsing, Email	Server	Internet

		<p>the record on monthly basis, Install of EE&amp;C home appliances, Request for fund transfer</p> <ul style="list-style-type: none"> <li>• Officer in Charge (IFIs): Periodically observe sales, installation and inspection record, Check fund transfer request and record the fund transfer</li> </ul> <p>Manager: Approve or reject fund transfer</p>						<p>required report sales, installation and inspection record based on monthly basis.</p> <p>Officer in Charge for Component (IFI): Overlook recent installation and inspection record.</p> <p>Manager: Justify for further fund</p>					
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18	Approving a PD for APO	<ul style="list-style-type: none"> <li>• PDs: Request for APO is send to IFIs,</li> <li>• Acknowledge decision result PIU Secretariat: Proceed for institutional approval., Inform decision to PD and record</li> </ul>	Pen, Papers include: Energy conservation data analysis sheet Technical Pre-screening Application Forms Energy Efficiency Related Data Form	N/A	N/A	N/A	N/A	Officer in Charge for Component :Appeal for APO that send to IFIs PIU Secretariat: update decision result to PD and submit record on OALMS	N/A	Desk-top/Laptop	Brower, OA LM S	Serv-er	In-ter-net
19	Advance Payment Procedure	<ul style="list-style-type: none"> <li>• PDs: Procurement document of EE&amp;C</li> <li>• Home</li> </ul>	EE&C Procurement status form	N/A	N/A	N/A	N/A	Office in Charge for component (PD): -Propose	N/A	Desk-top/Laptop	Brower, Email,	Serv-er	In-ter-net

		<p>appliances along with shipping documents, letter of PD's bank attn. IFIs and advance payment of Application Form for Advance Payment Option is submitted on monthly basis.</p> <ul style="list-style-type: none"> <li>• Officer In Charge(IFIs): Check for fund transfer</li> </ul>	Advance payment Option form					document of EE&C along with shipping documents, letter of PDS bank attn. IFIs and advance payment of Application Form for Advance Payment Option (based on monthly basis) -Accept Funds by IFIs(depends on approval											
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		<p>request,          Transfer          approved fund          and record          amount and          date          Manage (IFIS):          Approve or reject          fund transfer          request</p>						<p>or rejection )          Manager:          Justify for          further fund</p>					
20	Sales Record Keeping	<ul style="list-style-type: none"> <li>• PDs:</li> <li>Check</li> <li>EE&amp;C home appliance status form</li> </ul>	N/A	N/A	N/A	N/ A	<p>Officer In Charge (IFIs): Verify EE&amp;C home appliance sales status and fix EE&amp;C according to down- payment.</p>	N/A	Desk- top/Lap- top	Bro- wse r, OA LM S	Serv- er	In- ter- net	

		home appliances according to the down-payment.											
21	Adjustment against APO	<ul style="list-style-type: none"> <li>• PDs: Regular update of Installation Reporting Form on Sales, Installation and Inspection Record Form (Common to both APO and RO) and Submit adjustment request on Advance Payment</li> </ul>	Sales, Installation and Inspection Record Form	N/A	N/A	N/A	N/A	Officer in Charge for Component : update current reporting form of Sales, Installation and Inspection Record Form And verify adjustment to Advance Payment	N/A	Desk-top/Laptop	Browsing, OA LM S	Server	Internet

		Adjustment Form Officer In Charge (IFI): Check for adjustment request, Adjust fund and record date and time						Adjustment Form					
22	Registration of participating distributors (approved)	PDs: Complete all the process of registration	Pen, Papers include: Registration Record Keeping Book	N/A	N/A	N/A	N/A	PDs: Complete all the process of registration on website	N/A	Desk-top/Laptop	Browsing, OA LM S	Server	Internet
23	Installation Inspection	Manager (IFIs): Select cases and conduct on-site inspection. Record	Pen, Papers include: Physical Inspection	N/A	N/A	N/A	N/A	Manager (IFIs): Select cases and conduct on-	N/A	Desk-top/Laptop	Browsing, OA	Server	Internet

		the on-site inspection Officer In Charge(IFIs): Request PDs to submit additional data and information upon request from SREDA Manager(SREDA) : Receive required additional data	Report Format (B-type)					site inspection. Record the on-site inspection Officer In Charge(IFIs) : Request PDs to submit additional data and information upon request from SREDA Manager(SR EDA): Receive			LM S		
24		PDs: Submit required data and	Pen and Papers(Re	N/A	N/A	N/A	N/ A	PDs: Submit required data	N/A	Desk-top/Lap	Brow wse	Serv- er	In- ter-

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		information	quired additional						and information online		top	r, OA LM S		net
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## BUSINESS RULE

### LOAN TYPE-A

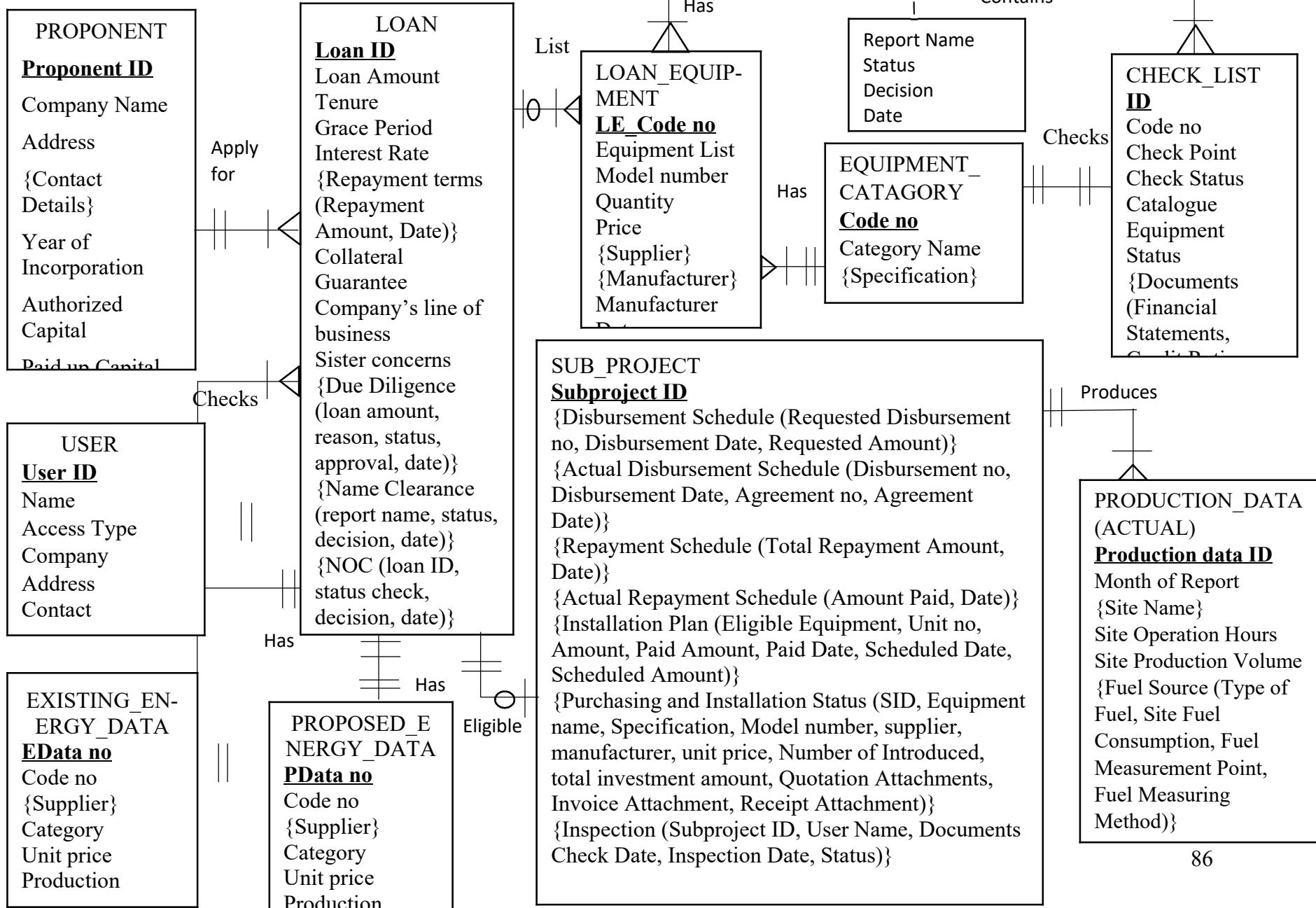
Company gives loan to proponents who are eligible and fits the criteria. The company needs to keep track of the proponents and loan procedure. Proponent submits documents to the company along with loan application. Proponent has a unique id, name, office address, contact details, business related information and details of business line.

The loan application has a unique id, amount, equipment, interest rate and other necessary information. A proponent can apply for multiple loan. A loan application can have multiple equipment. The company has employees who check the eligibility of the equipment and also gives name clearance to the loan applications. The system need to keep track of the name clearance report, status, decision and the date on which the decision was made.

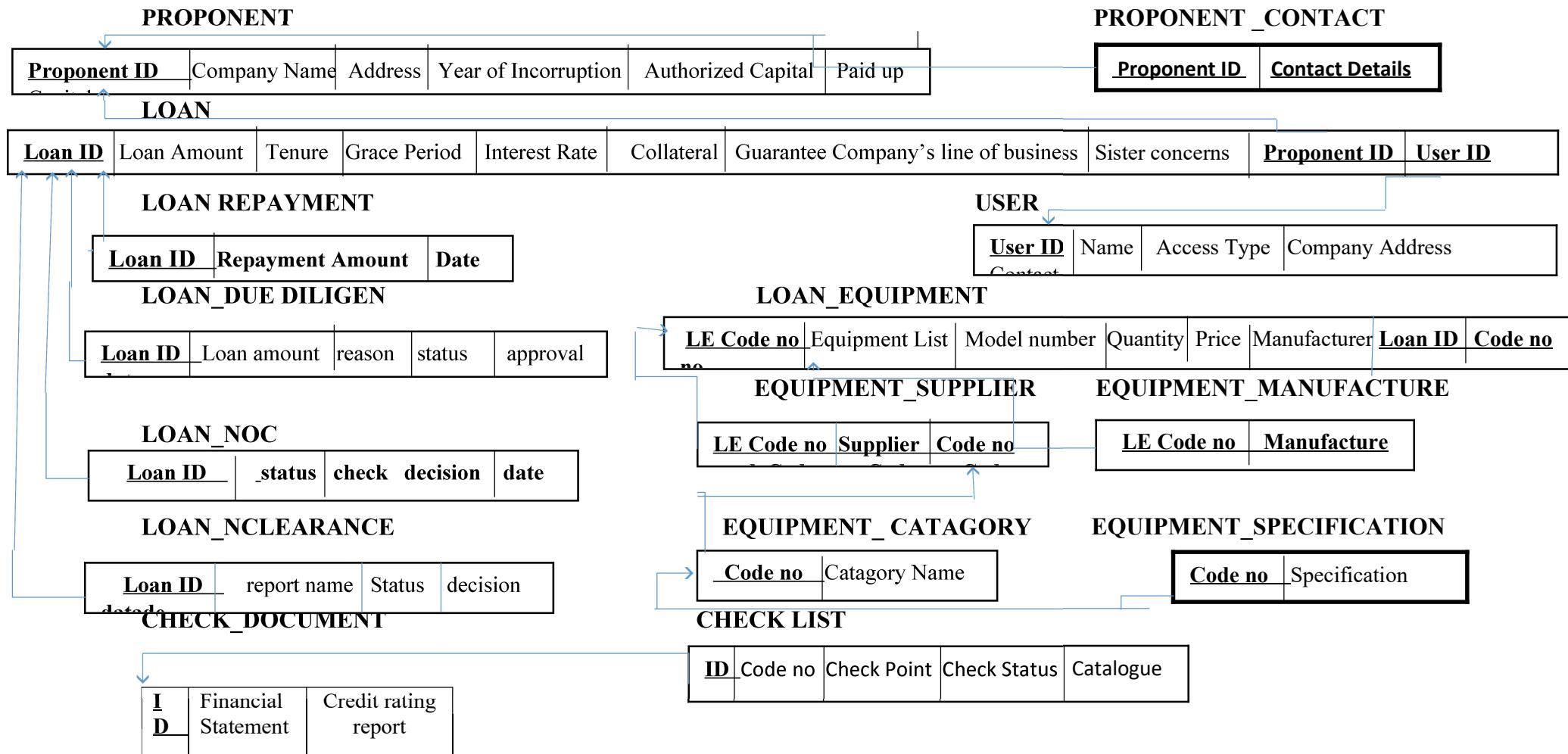
There is a list of equipment that are available for the loan and they have energy data and production data. Both of them are needed to be tracked. Energy data has Data no, code no, supplier, category, unit price, production, proposed energy data, actual energy data. Production data will keep track of Proponent ID, month of report, site name, site operation hours, site production volume, site electricity consumption, electricity measurement point, electricity measuring method, site gas consumption, gas measurement point, gas measuring method. All these will be received by the employees. Multiple equipment can have multiple production data. One energy data should belong to one or multiple equipment.

After the loan is granted the company need to keep track of the subprojects. The subprojects will have a unique id, name, disbursement schedule, actual disbursement, repayment schedule, actual schedule, installation plan, purchasing status, installation status. Each subproject will have a name clearance.

## ER DIAGRAM FOR A-TYPE LOAN



## RELATION SCHEMA (LOAN –A TYPE)



### SUB\_PROJECT

SubProject ID

### PROJECT\_SCHEDULE

<u>SubProject ID</u>	Requested Disbursement no	Disbursement Date	Requested Amount

### PROJECT\_ACTUAL SCHEDULE

<u>SubProject ID</u>	Disbursement no	Disbursement Date	Agreement no	Agreement Date

### PROJECT\_REPAYMENT SCHEDULE

<u>SubProject ID</u>	Total Repayment	Amount	Date

### PROJECT\_ACTUAL REPAYMENT

<u>SubProject ID</u>	Amount Paid	Date

### PROJECT\_INSTALLATION

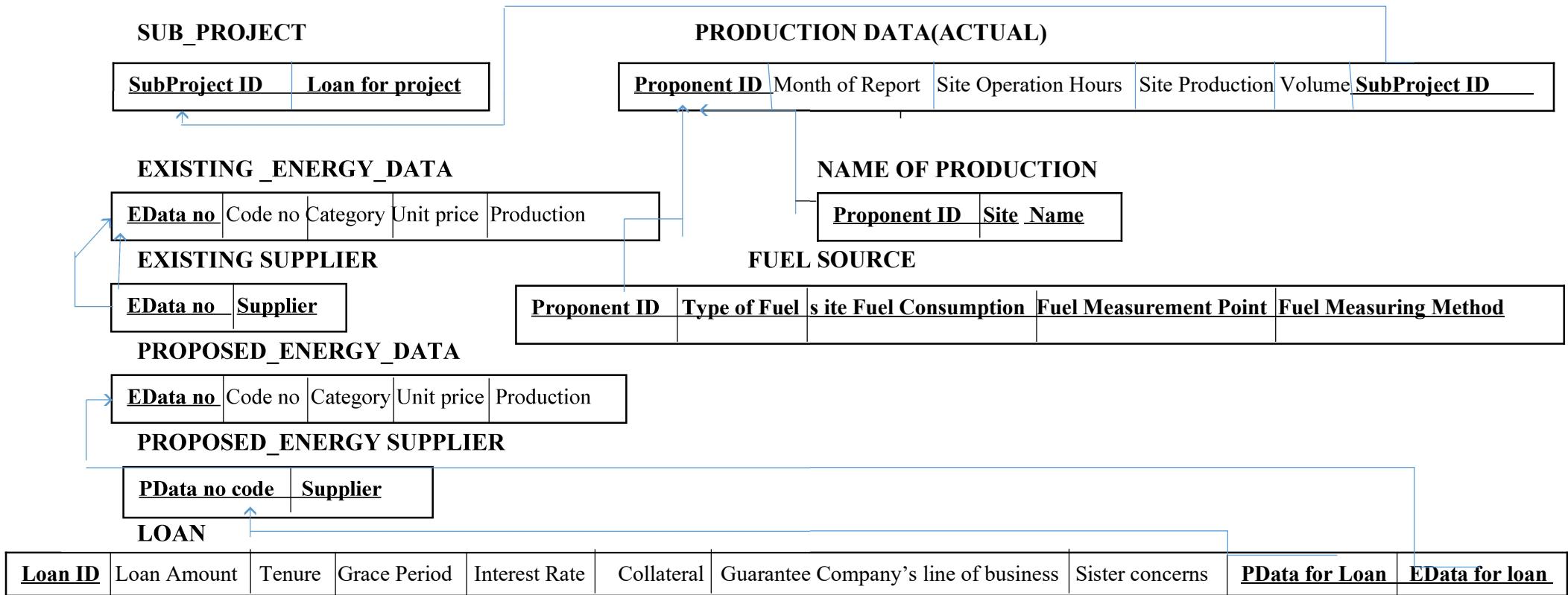
<u>SubProject ID</u>	Eligible Equipment	Unit no	Amount	Paid Amount	Paid Date	Scheduled Date	Scheduled Amount

### PROJECT\_INSPECTION

<u>Subproject ID</u>	SID	User Name	Documents	Check Date	Installation	Inspection date

### PROJECT\_STATUS

<u>SubProject ID</u>	SID	Equipment name	Specification	Model number	supplier	manufacturer	unit price	Number of Introduced	total investment amount
Quotation Attachments	Invoice Attachment	Receipt Attachment							



## NORMALIZATION (A-TYPE LOAN)

PROPOSER

1NF:

<u>Proposer ID</u>	Company Name	H#	R#	City	Area	Country	<u>Year of Incorporation</u>	Authorized Capital	Paid up Capital

2NF:

<u>Proposer ID</u>	<u>Year of Incorporation</u>	Authorized Capital	Paid up Capital

<u>Proposer ID</u>	Company Name	H#	R#	City	Area	Country

PROPOSER\_CONTACT

1NF:

<u>Proposer ID</u>	<u>Contact details</u>
--------------------	------------------------

No 2NF

No 3NF

LOAN

1NF:

<u>Loan ID</u>	Loan amount	Company Line of Business	Sister Concerns	Grace period	Interest rate	Collateral	Guarantee	<u>Proposer Id</u>	User Id
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2NF:

<u>Loan ID</u>	Loan amount	Grace period	Interest rate
----------------	-------------	--------------	---------------

<u>Loan ID</u>	<u>Proposer Id</u>	User Id	Collateral	Guarantee
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<u>Proposer Id</u>	Company Line of Business	Sister Concerns
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No 3NF

LOAN EQUIPMENT

1NF:

<u>LE Code NO</u>	Equipment List	Model No	Quantity	Price	<u>Loan ID</u>
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No 2NF

3NF:

<u>LE Code NO</u>	Equipment List	<u>Loan ID</u>
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<u>Model no</u>	<u>Quantity</u>	Price
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#### EQUIPMENT\_SUPPLIER

1NF:

<u>LE Code No.</u>	Supplier
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No 2NF

No 3NF

#### EQUIPMENT\_MANUFACTURE

1NF:

<u>LE Code No.</u>	<u>Manufacture</u>
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No 2NF

No 3NF

#### EQUIPMENT\_CATAGORY

1NF:

<u>Code No.</u>	Equipment Name	<u>LE Code No.</u>
-----------------	----------------	--------------------

No 2NF

No 3NF

#### EQUIPMENT\_SPECIFICATION

1NF:

<u>Code No.</u>	Specification
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No 2NF

No 3NF

#### CHECK\_EQUIPMENT

1NF:

<u>LE Code No</u>	<u>Check List ID</u>	Report name	Status	Decision	Date
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2NF:

<u>Check List ID</u>	Report name	Status
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<u>LE Code No</u>	<u>Check List ID</u>	Decision	Date
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3NF:

<u>LE Code No</u>	<u>Check List ID</u>	<u>Decision</u>	Date
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#### CHECK LIST

1NF:

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<u>ID</u>	Code No	Check Point	Check status	Catalogue
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NO 2NF

NO 3NF

CHECK\_DOCUMENT

1NF:

<u>ID</u>	<u>Financial statement</u>	<u>Credit rating report</u>
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No 2NF

No 3NF

USER

1NF:

<u>User ID</u>	First Name	Last name	Access Type	Company	H#	R#	Cit y	Stat e	Country
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No 2NF

No 3NF

LOAN\_REPAYMENT

1NF:

<u>Loan ID</u>	<u>Repayment amount</u>	<u>Date</u>
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No 2NF

No 3NF

LOAN\_DUE\_DILIGENCE

1NF:

<u>Loan ID</u>	<u>Loan amount</u>	<u>Report</u>	<u>Status</u>	<u>Appro-val</u>	<u>Date</u>

No 2NF

No 3NF

LOAN\_NOC

1NF:

<u>Loan ID</u>	<u>Loan amount</u>	<u>Check Status</u>	<u>Decision</u>	<u>Date</u>

No 2NF No 3NF

LOAN\_CLEAEANCE

1NF:

<u>Loan ID</u>	<u>Report name</u>	<u>Status</u>	<u>Decision</u>	<u>Date</u>

No 2NF

No 3NF

SUBPROJECT

1NF:

<u>Subproject ID</u>
----------------------

No 2NF

No 3NF

SUBPROJECT\_SCHEDULE

1NF:

<u>Subproject ID</u>	<u>Requested Disbursement no</u>	<u>Disbursement date</u>	<u>Requested amount</u>
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No 2NF

No 3NF

SUBPROJECT\_ACTUAL\_SCHEDULE

1NF:

<u>Subproject ID</u>	<u>Disbursement no</u>	<u>Disbursement date</u>	<u>Agreement no</u>	<u>Agreement date</u>
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SUBPROJECT\_REPAYMENT\_SCHEDULE

1NF:

<u>Subproject ID</u>	<u>Repayment amount</u>	<u>Date</u>
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No 2NF

No 3NF

SUBPROJECT\_ACTUAL\_REPAYMENT

1NF

<u>Subproject ID</u>	<u>Amount paid</u>	<u>Date</u>
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No 2NF

No 3NF

SUBPROJECT\_INSTALLATION

1NF:

<u>Subproject ID</u>	<u>Eligible equipment</u>	<u>Unit no</u>	<u>Amount</u>	<u>Paid amount</u>	<u>Paid date</u>	<u>Schedule date</u>	<u>Schedule amount</u>
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No 2NF

No 3NF

SUBPROJECT\_STATUS

1NF:

<u>Subproject ID</u>	<u>Equipment name</u>	<u>Specification</u>	<u>Model no</u>	<u>Supplier</u>	<u>Manufacture</u>	<u>Unit price</u>	<u>Total investment amount</u>	<u>Attachment</u>	<u>Invoice attachment</u>	<u>Receipt attachment</u>	<u>Side</u>
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No 2NF

No 3NF

SUBPROJECT\_INSPECTION

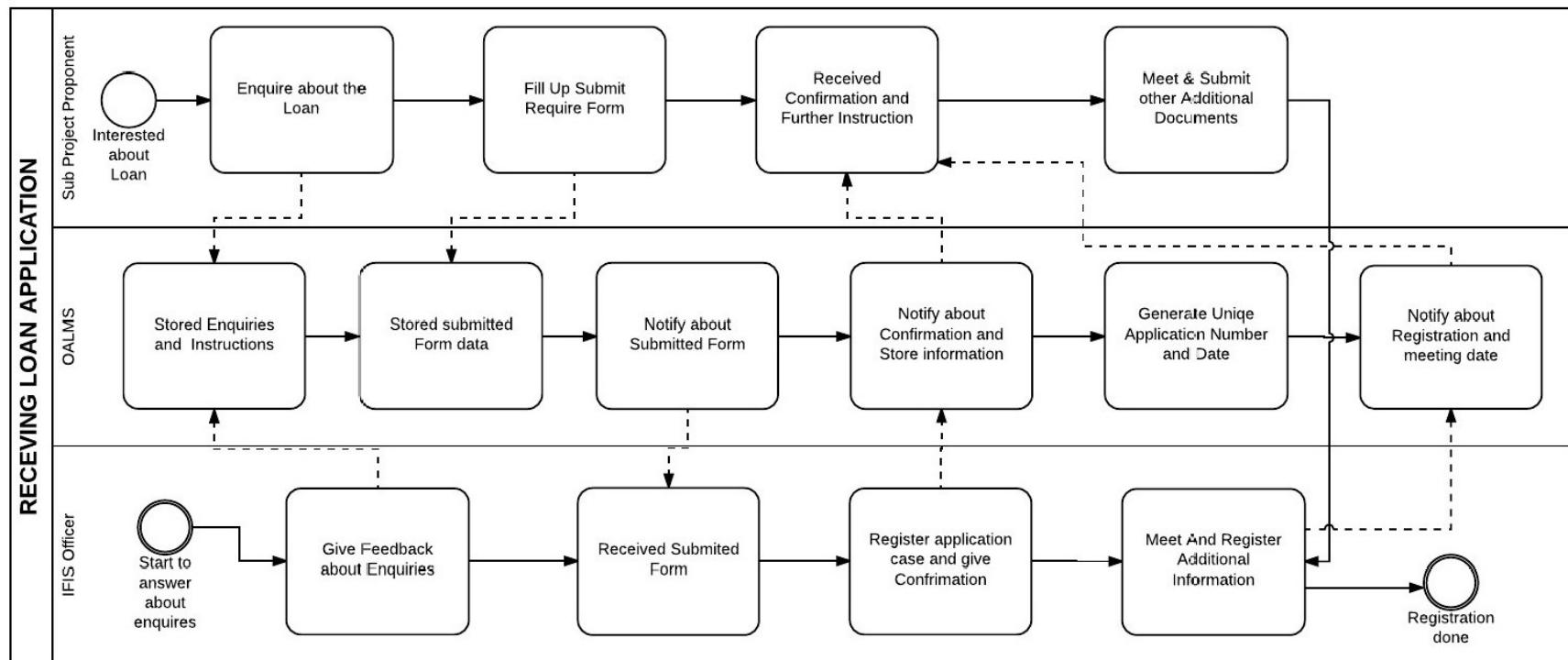
1NF:

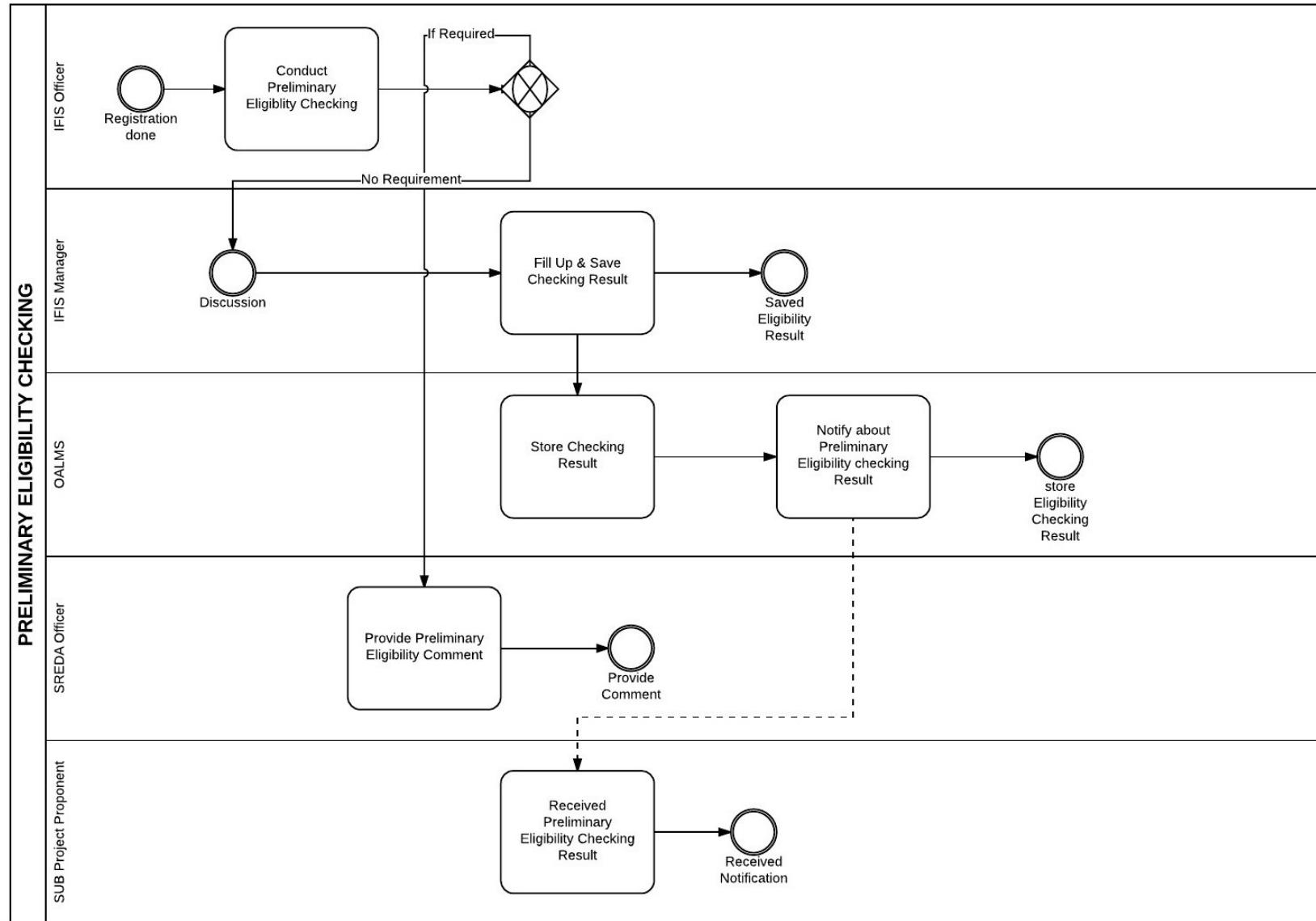
<u>Subproject ID</u>	<u>SID</u>	<u>User name</u>	<u>Document check date</u>	<u>Installations check date</u>	<u>Status</u>

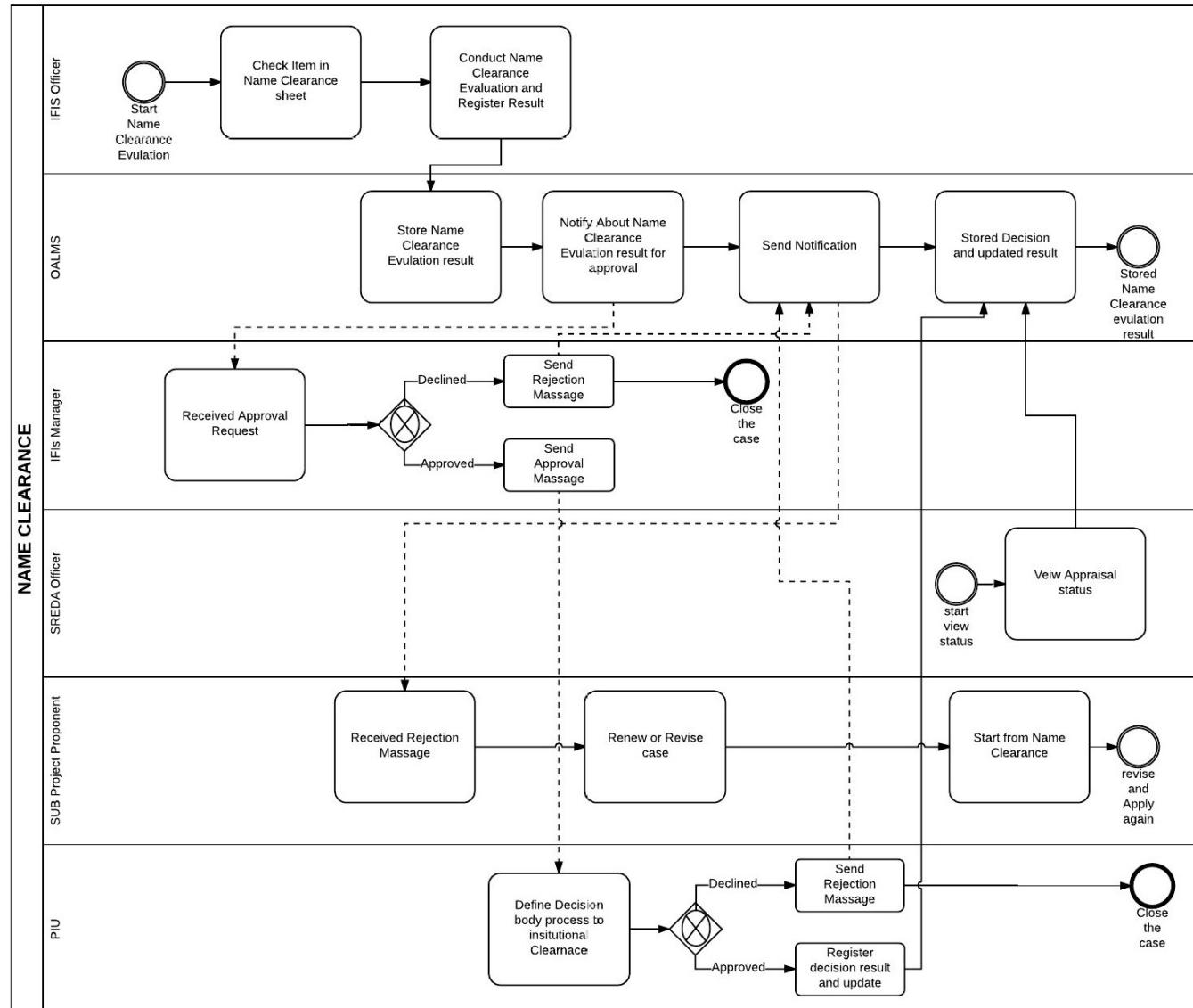
No 2NF

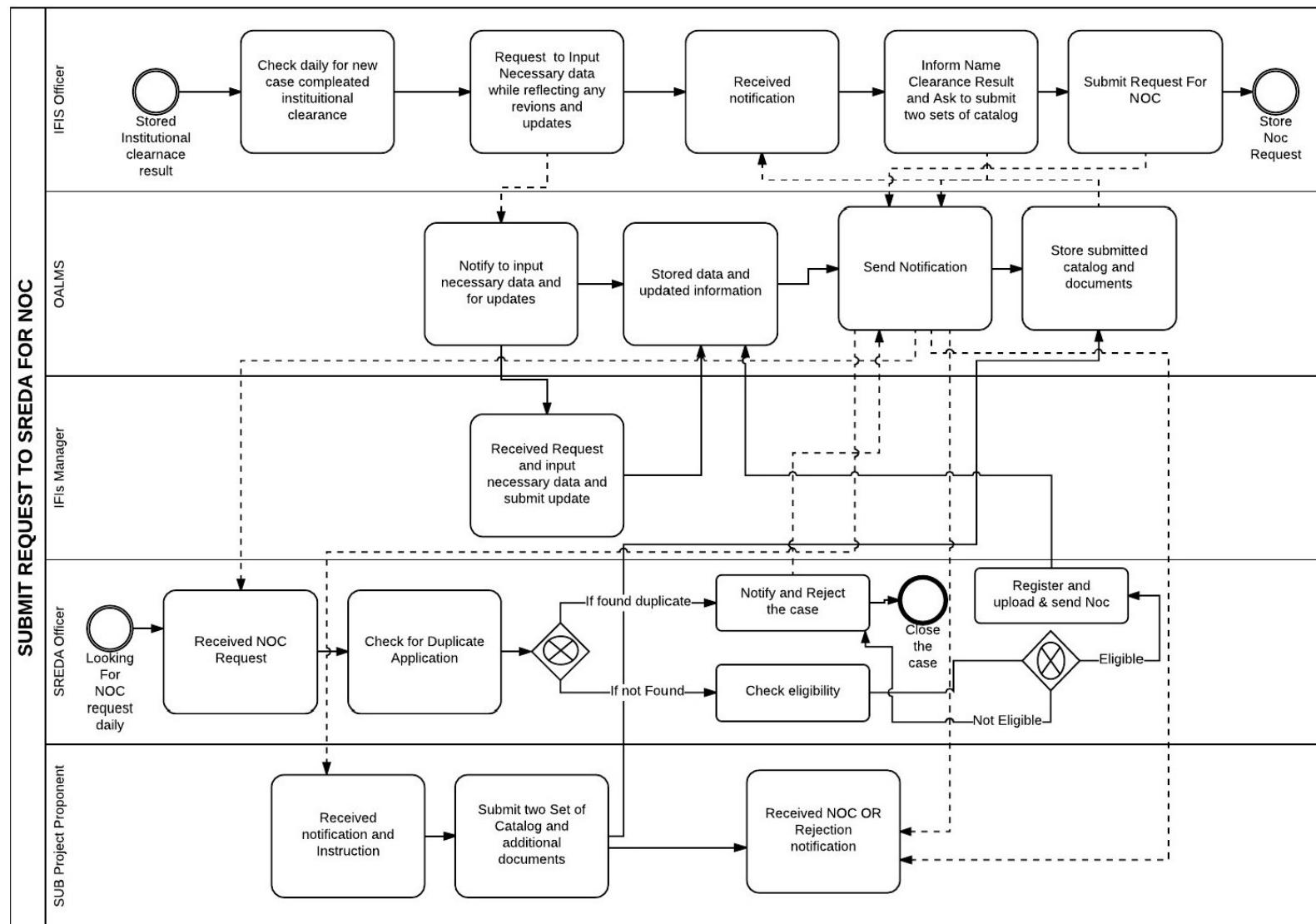
No 3NF

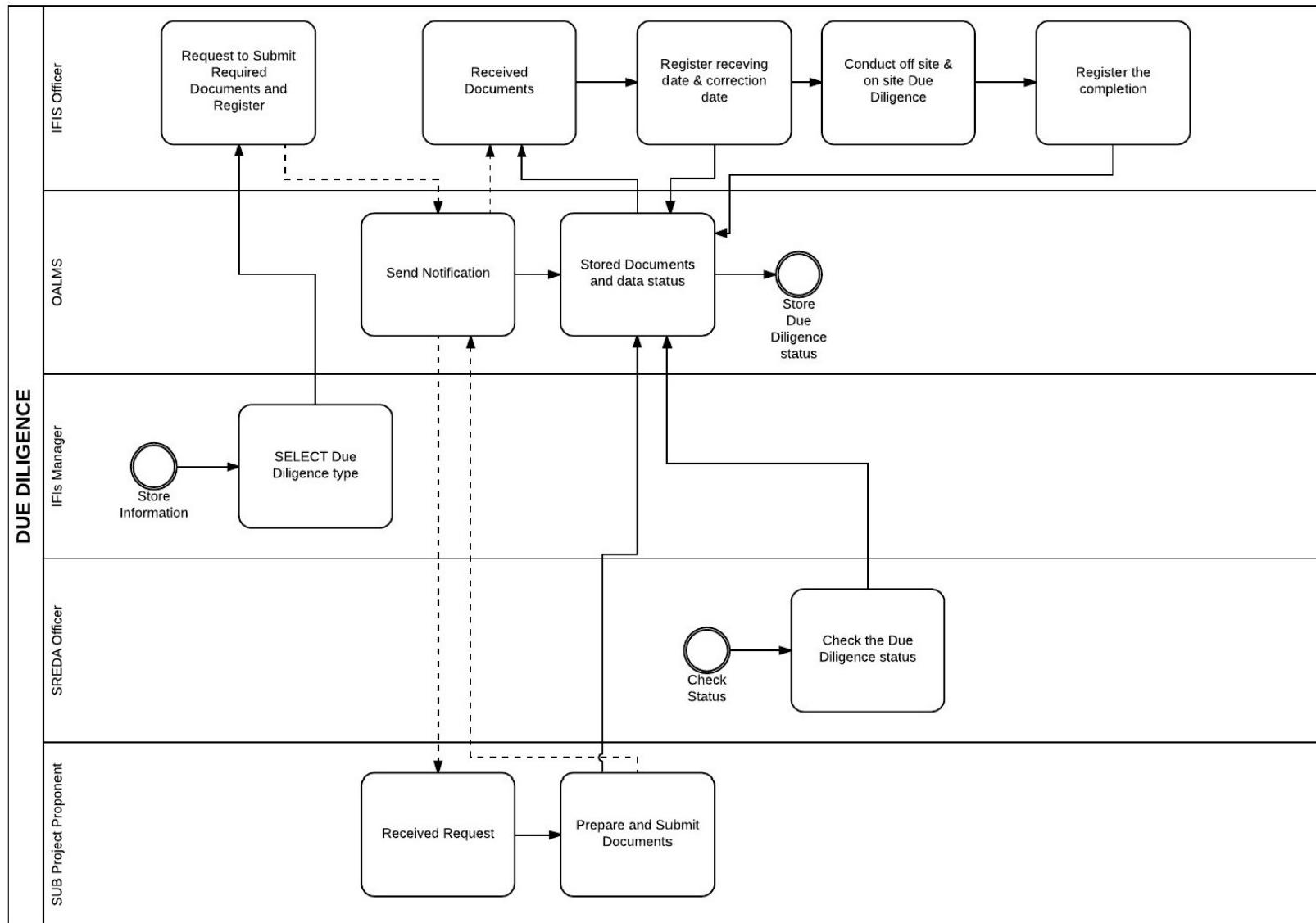
PROCESS MODELLING FOR A TYPE LOAN:

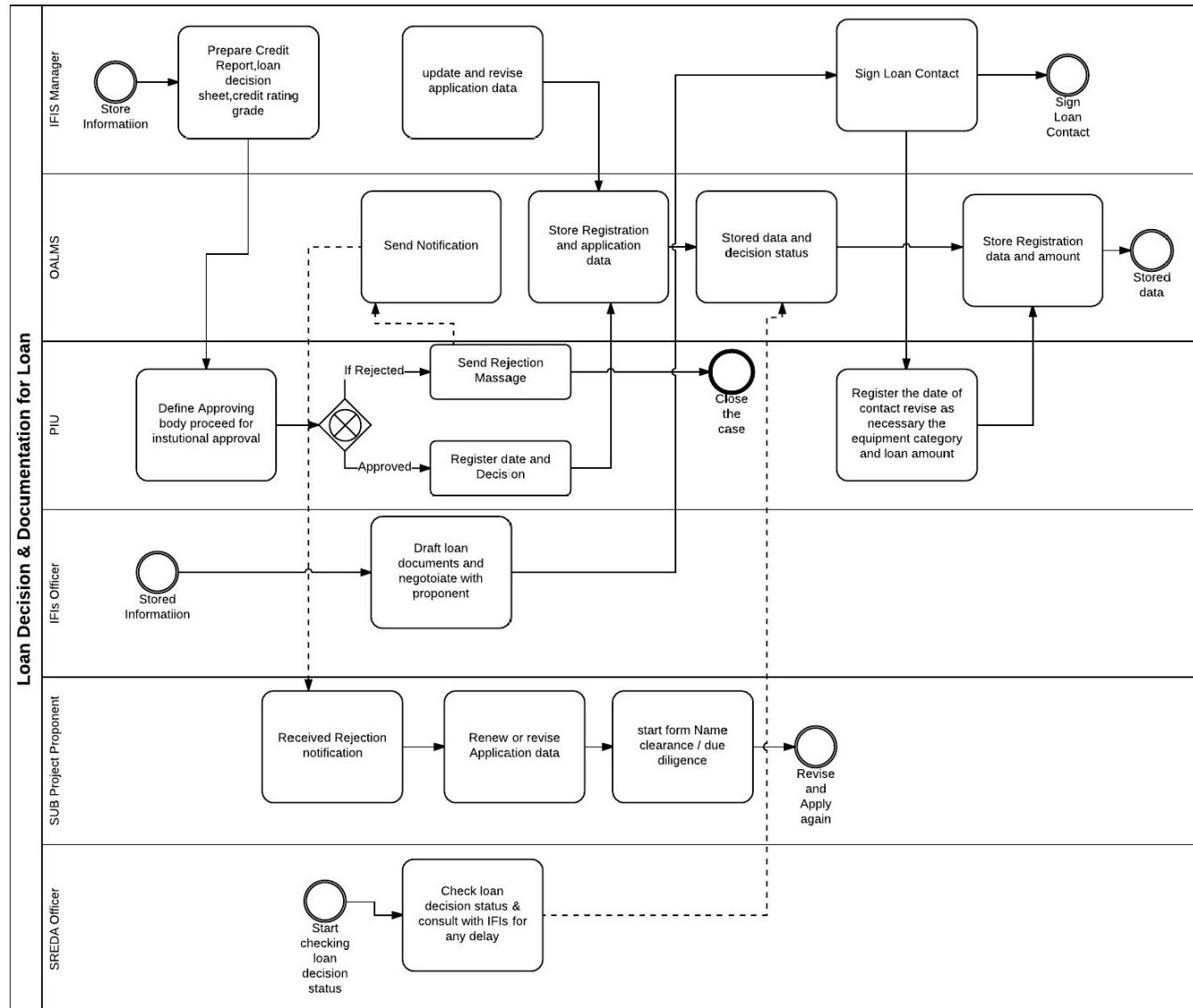


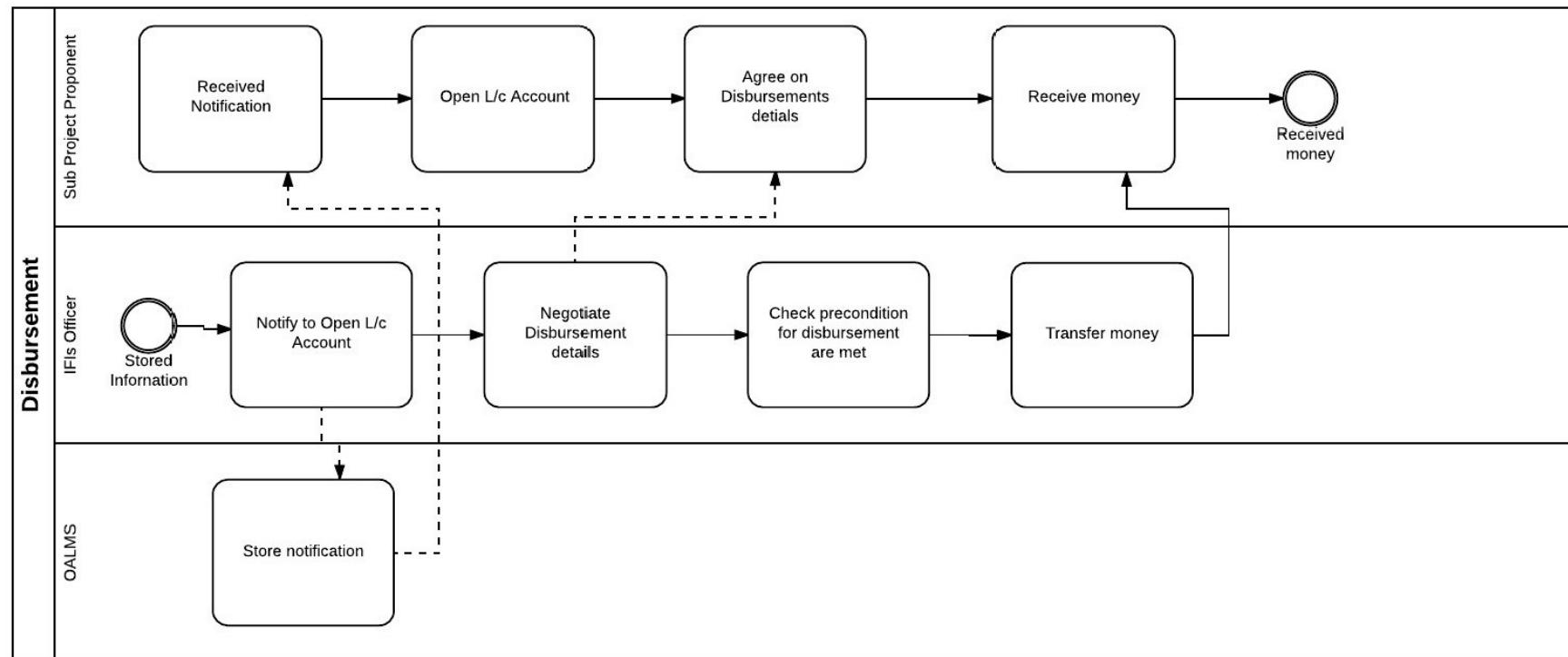


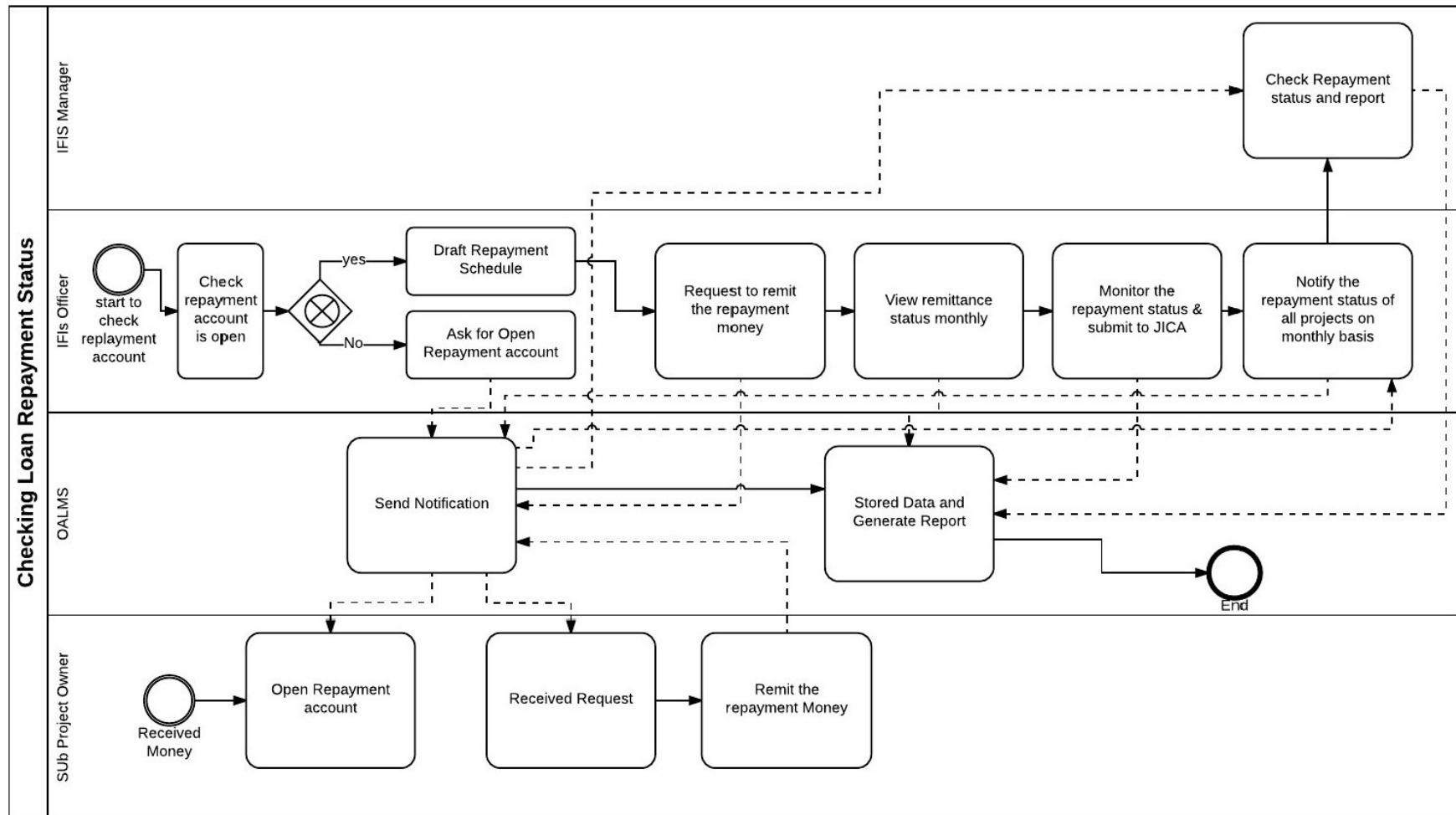












## DATA DICTIONARY

### 1.tblPROPOSER

Column Name	Data type	Size	Remark
Proponent ID	Number	7	Primary Key Exmp: 1234567
Company Name	Text	20	Company name of the proponent Ex: Pran Int. Com. Ltd
House	Number	3	House Number of proponent Ex: 13
Road	Number	3	Road Number of proponent. Ex: 116
City	Text	10	Proponent's city Ex: Dhaka
Area	Text	10	Proponent's area
Country	Text	10	Proponent's country Ex: Bangladesh
Year_of_incorpo	Date	dd/mm/yy	Contains Year of incorporation Ex: 04/06/17
Aurh_cap	Number	10	Authorized Capital for proponent Ex: 3500000
Paid_capital	Number	10	Paid capital by Proponent

			Ex: 3500000
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### 1. **tblPROPOSER\_CONTACT**

Column Name	Data type	Size	Remark
Proposer_ID	Number	7	Primary key Ex: 1234567
Contact_details	Varchar	11	Primary key

### 2. **tblLOAN**

Column Name	Data type	Size	Remark
Loan ID	Varchar	7	Primary key Ex: ab12345
Loan amount	Number	15	Amount of the loan given to proposer
Company Line of Business	Text	100	Contains type of the company. Ex: Textile and garment
Sister Concern	Text	50	Associated companies of the proposer
Grace Period	Date	dd/mm/yy	Grace period of loan

Interest Rate	Number	2	It contains interest of the loan. Ex: 5
Collateral	Text	50	It contains Collateral of the loan
Guarantee	Text	20	Guarantee of the loan

### **3. tblLoan\_Equipment**

Column Name	Data type	Size	Remark
LE_Code_no	Number	10	Equipment code number
Equipment List	Text	50	Name Of the equipment. Ex: Spinning machine
Model no	Varchar	10	Equipment model number
Quantity	number	3	Quantity of equipment's. Ex: 13
Price	Number	10	Price of the equipment's. Ex: 50000

### **4. tbIEQUIPMENT\_SUPPLIER**

Column Name	Data type	Size	Remark
LE_Code_No	Varchar	5	Primary Ex: 3AZ00
Supplier	Text	15	Supplier of the equipment

#### 5. tblEQUIPMENT\_MANUFACTURER

Column Name	Data type	Size	Remark
LE_Code_No	Number	10	Primary
Manufacturer	Text	20	Manufacturer of the equipment's

#### 6. tblEQUIPMENT\_CATAGORY

Column Name	Data type	Size	Remark
Code no	Number	7	Primary key Ex: 52423
Equipment name	Text	20	Name of the Equipment
LE_Code_No	Number	10	Foreign key. Loan equipment code no

#### 7. tblEQUIPMENT\_SPECIFICATION

Column Name	Data type	Size	Remark
Code No	Number	7	Primary key. Equipment code no
Specification	Text	100	Specification of the equipment

#### 8. tblCHECK\_EQUIPMENT

Column Name	Data type	Size	Remark
LE_Code_No	Number	10	Primary key Ex: 43524
Check_List_ID	Number	7	Primary Key
Report Name	Text	15	Name of the report
Status	Text	50	Status of the Equipment
Decision	Text	10	Decision whether the equipment is right or not
Date	Date	dd/mm/yy	Date of checking Ex: 23/07/17

#### **9. tblCHECK\_LIST**

Column Name	Data type	Size	Remark
ID	Number	7	Primary key.
Code_no	Number	7	Equipment code no
Check_point	Boolean		Contains whether Equipment is checked or not
Chec_sts	Text	50	Status of checked equipment
Catalogue	Text	20	Catalogue of the equipment

#### **10. CHECK\_DOCUMENT**

Column Name	Data type	Size	Remark
ID	Number	7	Primary key
Check_Finan_state	Boolean		Checked or not
Check_Crd_rat_rep	Boolean		Checked or not

## 11. USER

Column Name	Data type	Size	Remark
User_ID	Number	7	Primary Key. Identity of User
fName	Text	10	First name of the user
lName	Text	10	Last name of the user
Access_type	Text	7	What type of user
Company	Text	20	Name of the company user belongs to
House	Number	5	House Number of user
Road	Number	5	Road Number of user
City	Text	10	User's city
Country	Text	10	User's country

#### **12. LOAN\_REPAYMENT**

Column Name	Data type	Size	Remark
Loan_ID	Number	7	Primary Key
Repay_amnt	Number	15	Contains repayment amount
Date	Date	dd/mm/yy	Date of repayment

#### **13. LOAN\_DUE\_DILIGENCE**

Column Name	Data type	Size	Remark
Loan_ID	Number	7	Primary Key
Loan_amnt	Number	15	Amount of the loan
Report	Text	50	Report of due diligence
Status	Text	50	Status of due diligence
Approval	Boolean		Due diligence approved or not
Date	Date	dd/mm/yy	Date of approval

#### **14. LOAN\_NOC**

Column Name	Data type	Size	Remark
Loan_ID	Varchar	7	Primary Key Ex: ah6522
Loan_amnt	Number	15	Amount of the loan Ex: 50000
Chec_sts	Text	50	NOC issuing status
Decision	Text	10	Decision whether the NOC is issued or not
Date	Date	dd/mm/yy	NOC issued Date Ex: 12/04/16

## **15. LOAN\_CLEARENCE**

Column Name	Data type	Size	Remark
Loan_ID	Varchar	7	Primary Key Ex: hf4534

Report_name	Text	10	Name of the report
Status	Text	50	Status of Name clearance
Decision	Text	10	Decision of name Clarence
Date	Date	dd/mm/yy	Date of decision Ex:11/05/17

#### 16. SUB-PROJECT

Column Name	Data type	Size	Remark
Sub-project_ID	Number	7	Primary key. Sub-project ID

#### 17. SUBPROJECT\_SCHEDULE

Column Name	Data type	Size	Remark
Sub-project_ID	Number	7	Primary key. Sub-project ID
Req_disb_no	Number	7	Requested disbursement no
Date	Date	dd/mm/yy	Date of disbursement
req_amnt	Number	15	Requested Amount of disbursement

#### **18. SUBPROJECT\_INSTALLATION**

Column Name	Data type	Size	Remark
Sub-project_ID	Number	7	Primary key. Sub-project ID
Eli_eqp	Text	20	Eligible equipment name
Unit_no	number	2	Quantity of equipment
amount	Number	15	Amount of installation
Paid_amnt	Number	15	Paid amount
Paid_date	Date	dd/mm/yy	Date of payment
Schedule_date	Date	dd/mm/yy	Next schedule date
Schedule_amnt	Number	15	Next schedule amount

#### **INPUT FORM AND OUTPUT REPORT :**

## LOGIN PANEL

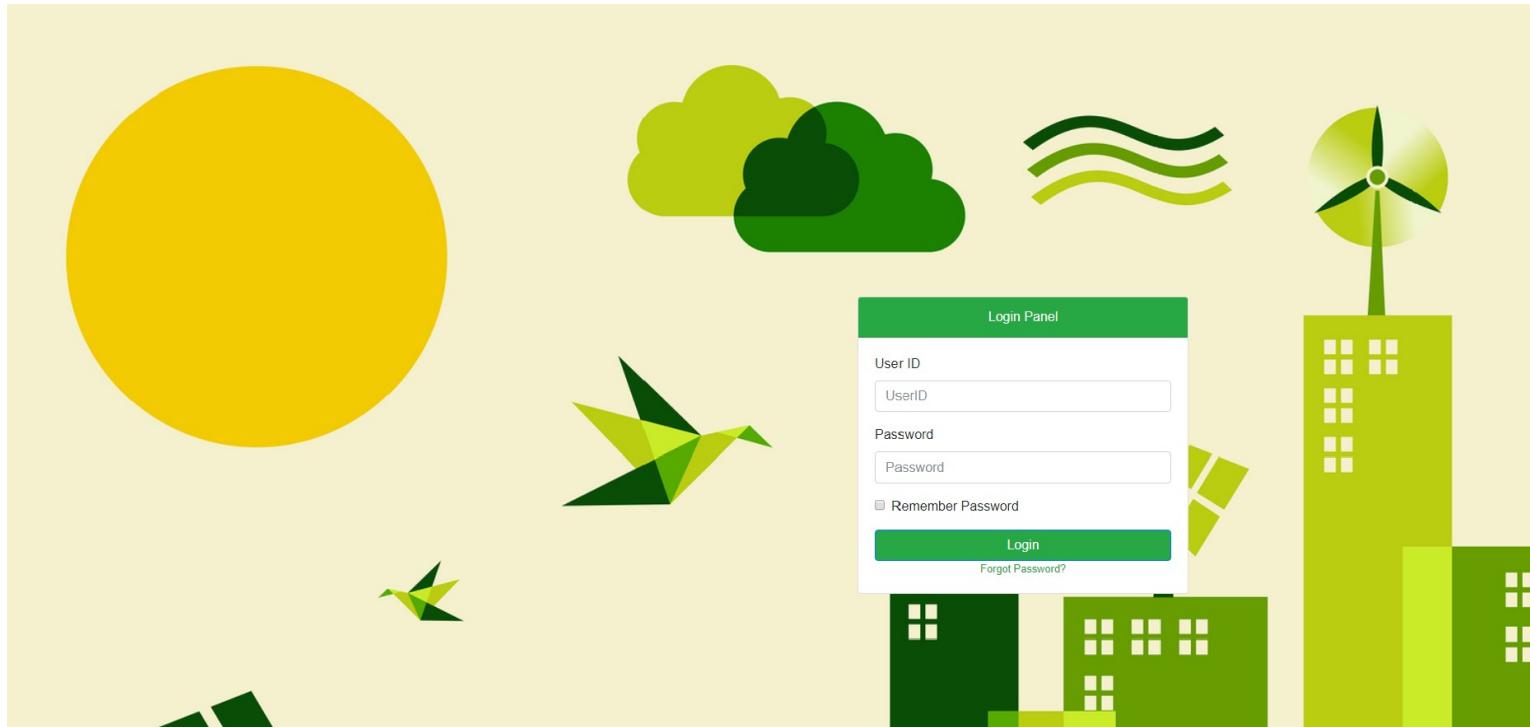


Figure : Login Panel

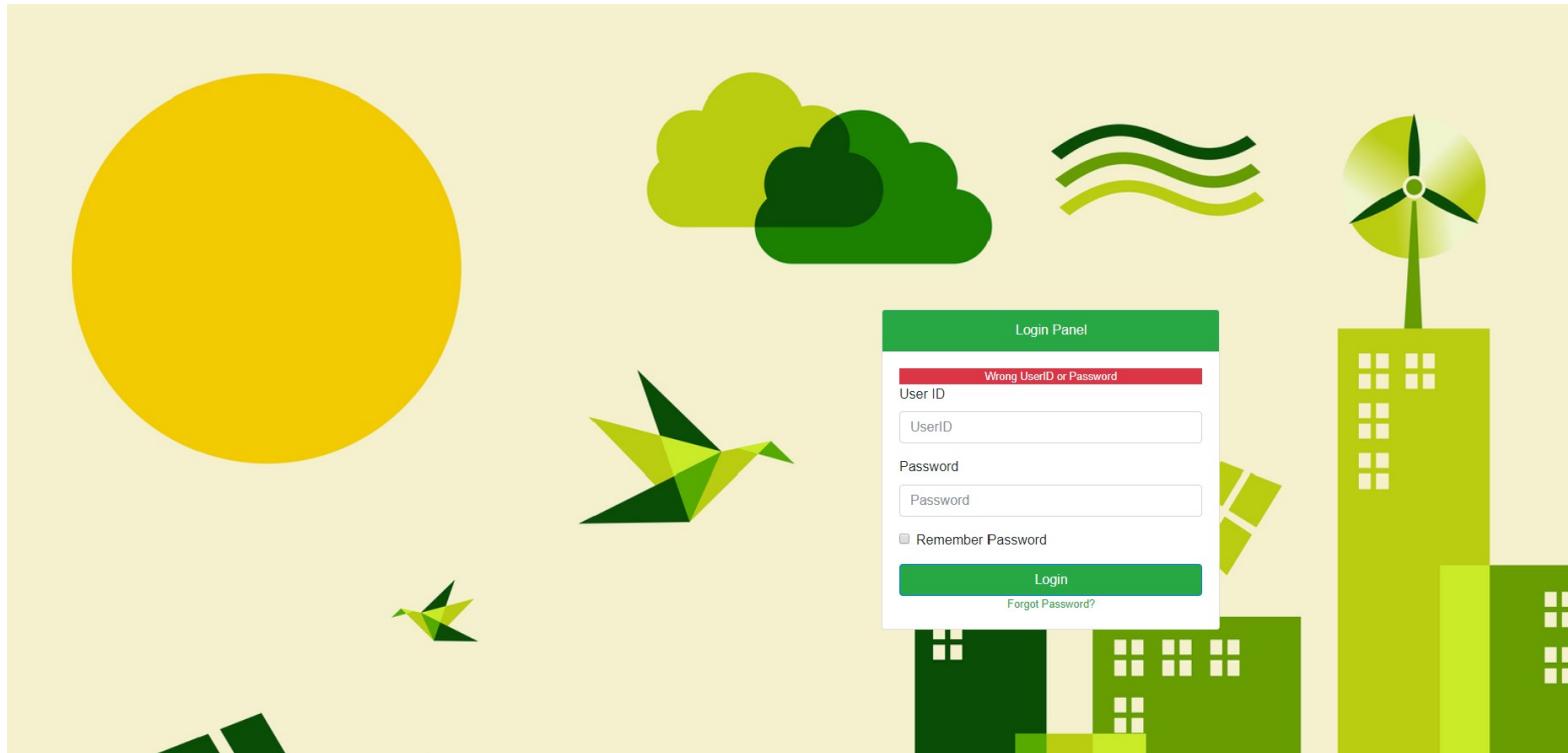


Figure : Login Panel

**PURPOSE :** Every Sub-Project Owner And Employee, Authority can get access to data in the system after input given userId and Password

**HOW THE FORM WORKS :** Individual User can Login in the system after input given userID and Password and if you user forget userID or Password wrong userID or Password message will appear and user failed to login in the system.

## PRE SCREENING APPLICATION FORM :

The screenshot shows a web browser window with four tabs open, all titled "Application". The active tab is "127.0.0.1:55143/preApp.html". The page has a green header bar with the title "PRE SCREENING APPLICATION FORM" and navigation links for "Home", "Contact", and "Procedure". On the right side of the header is a search bar with a "Go" button. The main form area contains several input fields:

- COMPANY NAME**: Three adjacent input fields labeled "Enter company name", "Enter First name", and "Enter First name".
- ADDRESS**: A single input field labeled "Enter an address of main office".
- CITY**: Two adjacent input fields labeled "City" and "ZIP CODE".
- TELEPHONE NO.**: An input field labeled "Enter contact no."
- E-MAIL**: An input field labeled "Enter email".
- NO. OF EMPLOYEE**: A dropdown menu labeled "Choose... ▾".
- YEAR OF INCORPORATION**: An input field.
- PROPOSER ID**: An input field containing the value "2823".

A blue "Submit" button is located at the bottom left of the form area.

The screenshot shows a web-based application window titled 'Application' with four tabs open. The active tab is 'Application' and displays the URL '127.0.0.1:55143/preApp.html'. The form contains the following fields:

- PROPONENT ID:** A text input field containing '2823'.
- NAME OF PROPONENT:** A text input field with placeholder text 'Enter Owner name'.
- TELEPHONE NO.:** A text input field with placeholder text 'Enter contact no.'.
- E-MAIL:** A text input field with placeholder text 'Enter email'.
- AUTHORIZED CAPITAL:** A text input field with placeholder text 'city.'
- PAID UP CAPITAL:** A text input field with placeholder text 'city'.
- Previous record of access to the project fund?** Two radio buttons: 'Yes' and 'No'.
- Production volume/value by product, energy consumption for past twelve months (may not be applicable for newly developed sub-projects)**
- Attach file**: A blue button.
- PROPONENT'S SUB PROJECT PLAN(if any)**
- Enter an adress of main office**: A text input field.
- Save**: A blue button.

Below the form, there is a footer section:

Posted by: Noushin Islam  
ID: 1410458.

Figure : Pre screening Application form

## PURPOSE:

The purpose of Pre Screening application form is to save valid information about proponent. It refers to online procedure so that proponent can submit their applications from easily.

## HOW THE FORM WORKS:

Proponent fill up the form with their information and submit it, the information is stored into the database. The ID of the proponent is generated automatically. Then proponent needs to fill up their information with their sub-project overview(if any) and requirements for both technical and financial status. All information are save into OLMAS website with their ID.

## RELATED QUERY :

```
INSERT INTO PRE-SCREENING APPLICATION FORM (NAME,NAME OF OWNER, NAME OF OWNER ADDRESS, CITY, ZIP CODE, NUMBER OF EMPLOYEE, EMAIL, YEAR OF IN CORPORATION, AUTHORIZED CAPITAL, PAID UP CAPITAL, PROPONENTS SUB_PROJECT PLAN  
VALUES ('P name', 'O name', 'Islam', 'house no. 5, sector 13, road no.6', 'Dhaka', '1229', 'text....');
```

## NAME CLEARENCE FORM:

The screenshot shows a web-based application titled "NAME CLEARENCE". The interface includes a header with tabs for "Name clearance", "Application", and "Name clearance". The main content area has a green header bar with the title "NAME CLEARENCE" and a sub-header "Select Sub Project Proponent ID : Choose". Below this is a table with three rows, each representing a "Check point" and its corresponding "Check" status. A "Save" button is located at the bottom left, and a footer at the bottom right displays the post information: "Posted by: Noushin Islam" and "ID: 1410458".

Check point	Check	
Credit Rating Report	Equivalent to Bangladesh Bank Rating Grade 4 or higher. In case Bangladesh Bank rating is not yet obtained, rating equivalent to BB or BB+ or higher that can be mapped with the authorised External Credit Assessment Institutions (ECAs) will be required.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> not satisfactory <input type="checkbox"/> not available
Credit Rating Report	(a) The business results should show a profit for last 2 years at least. and (b) If the above condition (a) is not fulfilled, there should be a promising prospect of business profitability for the coming years.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> not satisfactory <input type="checkbox"/> not available
Credit Rating Report	There are no substantial issues on managerial, and financial status of the proponent.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> not satisfactory <input type="checkbox"/> not available

Figure: Name clearance form

## PURPOSE:

Purpose of name clearance is to check eligibility requirements by officers in charge(IFS) and analyze result by manager for further procedure.

### HOW THE FORM WORKS:

Name clearance procedure is processed by proponent, manager and Officer In charge. The Officer In Charge (IFIs) justify Name Clearance Evaluation sheet then notify it on OALMS .

Then Manager (IFIs) Check and analyze result, giving Approval for further process in OALMS .All the record saved in OLAMS system.

### RELATED QUERY:

```
INSERT INTO NAME CLEARENCE ( Sub Project Poponent ID,CHECK )
VALUES ('909','unaviliable');
```

### OUTPUT FORM

If proponent needs to verify the progress of this system ,they can see the overall view of application for load .By clicking the output button it shows the graphical view about proponents who apply for loan .

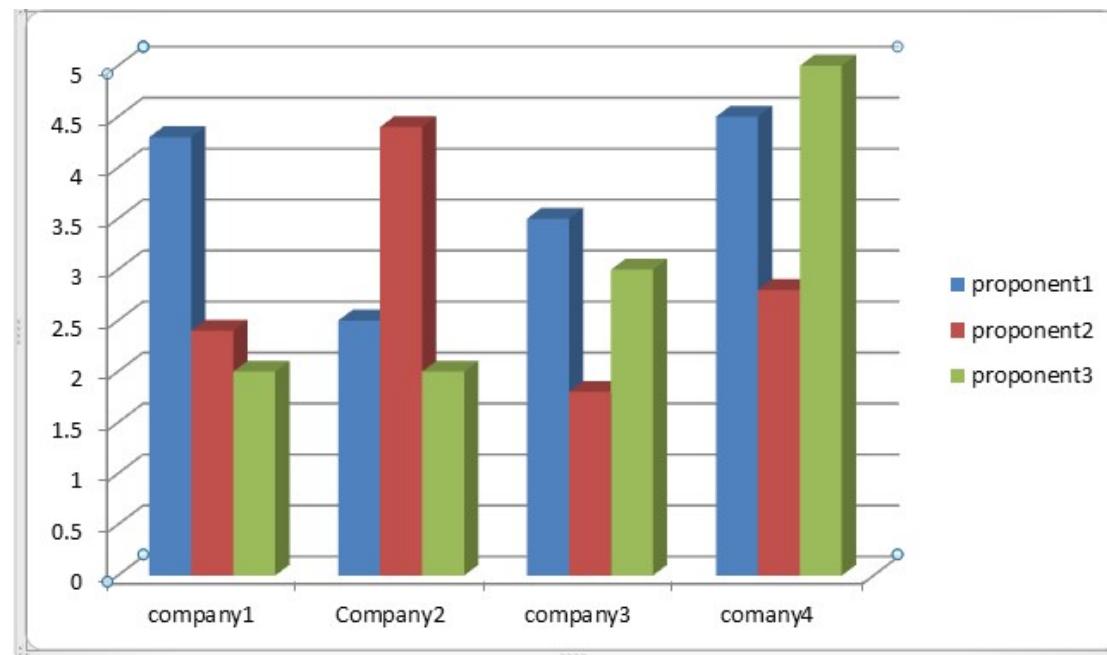
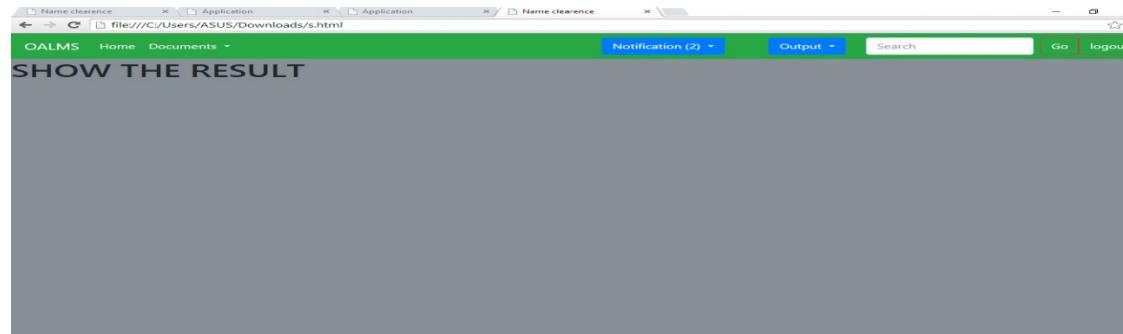


Figure :shows the request of loan application pre year

## Equipment Procurement and Installation Plan Input Form

OALMS Home Documents ▾

Search

### Equipment Procurement and Installation Plan

#NO	Eligible EE&C equipment	Number of Unit	Amount (Million BDT)	Payment Schedule(a)Paid portion			
				MM/YY	Amount	MM/YY	Amount
1				10/2016		10/2016	
2				10/2016		10/2016	
3				10/2016		10/2016	
4				10/2016		10/2016	
5				10/2016		10/2016	
6				10/2016		10/2016	
7				10/2016		10/2016	

**PURPOSE:** The IFI Officer in charge will prepare this form and this information will be stored into the database through this input form.  
“Save & Submit” button will perform following query.

## RELATED QUERIES

```
INSERT INTO tblEPIP (Eligible EE&C equipment, Number of Unit, Amount (Million BDT), MM/YY1, Amount, MM/YY2,Amount)
VALUES ('eqlb','numlb', 'amtlb', 'ddl', 'amtlb2', 'ddl2', 'amtlb3');
```

## EE&C Equipment Purchasing and Installation Status Input Form

OLMS Home Documents ▾

Search Search

EE&C Equipment Purchasing and Installation Status Form

Sub-project Number	Sub-project Owner
1 Name of Equipment	
2 Specification	
3 Model Number	
4 Supplier	
4 Manufacturer	
5 Unit price	
6 Number of introduced	
7 total investment amount	

Choose Files Save & Submit

Purpose: The officer in charge will ask the sub-project owner to submit Equipment purchasing and installation information and the information will be submitted & stored through this input form. “Save & Submit” button will perform following query. ‘Choose Files’ option will allow to upload attachments.

```
INSERT INTO tbIEPISF (Name of Equipment, Specification, Model Number, Supplier, Manufacturer, Unit price, Number of introduced, Total investment amount)
VALUES ('nlb','slb', 'mtlb', 'splb','mulb','uplb', 'nilb', 'tilb');
```

## ENERGY EFFICIENCY RELATED DATA FORM

The screenshot shows a web-based form titled "Energy Efficiency Related Data Form". The browser title bar reads "Energy Efficiency Related Data Form". The address bar shows the URL "file:///C:/Users/Mahpara/Desktop/Energy\_Efficiency\_Related\_Data\_Form.html". The page header includes the text "Online Automated Loan Management System(OALMS)" and navigation links for "Home" and "Documents". A search bar with a "Search" button is also present.

The form consists of several input fields:

- Sub Project Number: SF21261929
- Month of Reporting: Select Month
- Site Operating Hours: [Input Field]
- Site Production Volume: [Input Field]
- Type of Fuel: Select
- Site of Fuel Consumption: [Input Field]
- Fuel Measurement Point: [Input Field]
- Fuel Measuring Method: [Input Field]
- Other Events(If Any): [Input Field]

The screenshot shows a web-based form titled "Energy Efficiency Related Data Form". The form is contained within a browser window with the URL "file:///C:/Users/Mahpara/Desktop/Energy\_Efficiency\_Related\_Data\_Form.html". The form fields include:

- Month of Reporting:** A dropdown menu labeled "Select Month".
- Site Operating Hours:** An input field.
- Site Production Volume:** An input field.
- Type of Fuel:** A dropdown menu labeled "Select".
- Site of Fuel Consumption:** An input field.
- Fuel Measurement Point:** An input field.
- Fuel Measuring Method:** An input field.
- Other Events(if Any):** A large input field for notes.
- Submit:** A blue button at the bottom left.

Figure: Energy Efficiency Related Data Form

## PURPOSE:

The main purpose of this form is to check the records of the energy of the installed equipment of the site. The data analysis of this form will reflect the energy efficiency of the equipment. It will also show that the goal of the project is achieved.

## HOW THE FORM WORKS:

The project is identified by the sub-project number. The name of the sub-project owner will not be stored in the system to maintain authenticity. The form will have monthly reporting so that each month the data can be stored separately and can be used further to analyze the energy usage and efficiency. The form will store data separately for different kind of sources like: electricity /gas; so that an accurate report can be generated.

### **RELATED QUERIES:**

```
INSERT INTO Energey Efficiency Related Data Form (Sub Project Number ,Month Of Reporting, Site operating hours, Site Production Volume,TypeOffuel,SiteOffuelConsumption,FuelMeasuringpoint,Fuel,MeasuringMethod,OtherEvents)
VALUES ('112','june','10','300ml','gas','abc','sce','text....');
```

## DUE DILIGENCE TYPE CHECK

The screenshot shows a web browser window titled "Due Diligence Type Check". The address bar displays the local file path "file:///C:/Users/Mahpara/Desktop/Due\_Diligence\_Type\_Check.html". The header includes the system name "Online Automated Loan Management System(OALMS)" and navigation links for "Home" and "Documents". A search bar with a "Search" button is also present.

The main form area contains the following fields:

- Application Number:** An input field containing the value "21261929".
- Reason Selection:** Two checkboxes:
  - Simple Due Diligence(Loan Amount Up to 100 Million BDT)
  - General Due Diligence(Loan Amount in Excess of 100 Million BDT)
- Other Reason for Simple or General Type Due Diligence:** A text input field.
- Describe Reason in Detail:** A large text input field.
- Role Selection:** Two checkboxes:
  - Officer in Charge
  - Manager
- Save:** A blue "Save" button.

Figure: Due Diligence Type Checking Form

### **PURPOSE:**

The purpose of this form is to check the due diligence type. Authority checks the loan amount and decides whether the due diligence is simple or general and states the reasoning.

### **HOW THE FORM WORKS:**

The officer in charge and the manager both handles this form. Each of them will be able to see the other person's decision. If the officer in charge goes through the form and makes the decision the manager will be able to see it. Both the officer in charge and the manager needs come in the same conclusion to approve this.

### **RELATED QUERIES:**

```
INSERT INTO DueDiligence (OtherReasonofsimpleor general type duediligence ,Simple Du Diliengce,GeneralDueDiligence,DescribeReasonInDetailes)  
VALUES ('text1..''check''check''text2...');
```

## EE&C EQUIPMENT STATUS REPORT

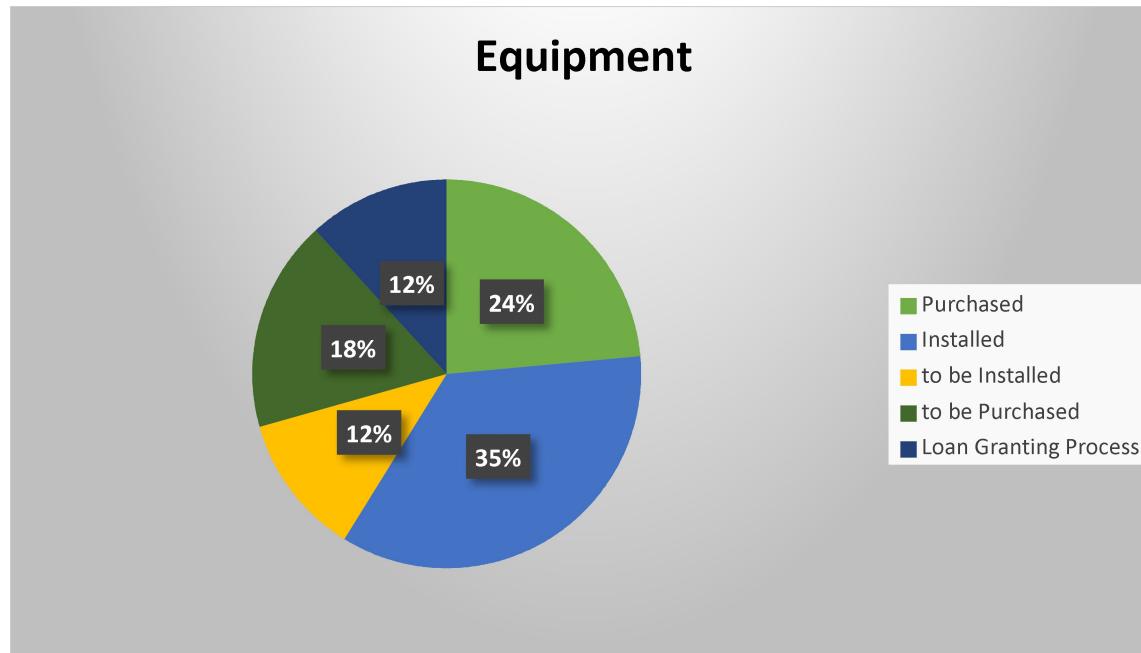


Figure: EE&C Equipment Status Report

## **PURPOSE:**

The purpose of this report is to see the status of the equipment. How many equipment are there and how many are being purchased and installed and then how many are in the process of being purchased and installed can be clearly seen from this report.

## **HOW THE REPORT WORKS:**

The authority can see this report and analyze the progress of the project. It also helps them to keep track of the equipment and their status.

The screenshot shows a web-based application interface for managing loan documents. At the top, there is a green header bar with the OALMS logo, a navigation menu (Home, Documents), and a search bar. Below the header, the main title "Required Documents Checksheet" is centered. Underneath the title, there are two buttons: "Edit" (highlighted in yellow) and "Submit & Save". The main content area is a table with 8 rows, each representing a required document item. The columns are labeled "#", "Required Documents", "Check", "Receiving Date", and "Corrected Documents Date". Each row contains a numbered list of requirements, a checkbox for "Check", a date input field for "Receiving Date", and a date input field for "Corrected Documents Date".

#	Required Documents	Check	Receiving Date	Corrected Documents Date
1	History of business, Certified copy of the Articles of Association, Certificate of Incorporation, License for business and other Qualifications / Certificates such as ISO (if any)	<input type="checkbox"/>	12/02/2017	15/02/2017
2	List and profile (including experience) of each director, and an organogram	<input type="checkbox"/>	12/02/2017	15/02/2017
3	List of main products, processing chart, marketing channels	<input type="checkbox"/>	12/02/2017	15/02/2017
4	Sales amount of each product for the past 3 years, -Sales amount to each client for the past 3 years (for existing businesses)	<input type="checkbox"/>	12/02/2017	15/02/2017
5	Financial Statements, Cash Flow Statement and Cost Accounting Statement for 3years for existing company. Projected financials for new companies and organisations.	<input type="checkbox"/>	12/02/2017	15/02/2017
6	Debt exposure of the company with any bank or financial institution	<input type="checkbox"/>	12/02/2017	15/02/2017
7	Plan for investment [investing amount, fund raising plan (debt, equity), subjects for investment (plant and/or machinery),	<input type="checkbox"/>	12/02/2017	15/02/2017

Figure : Required Documents Checking Form  
Design by Ariyan

**PURPOSE :** The main purpose of this form is check Received Documents and Input Receiving Documents date and Corrected documents date in the system .

**HOW THE FORM WORKS :** Sub-Project Owner will send Required Documents to IFIs and IFIs will Check the received documents and register receiving and Corrected documents date in the OALMS using this form and also can edit change data if needed.

**RELATED QUERIES :**

```
INSERT INTO tblRequiredDocuments(RdocId , Check , RecevingDocDate, CurrectedDocDate)
VALUES (RdocId,Cresult,RDD,CDD);
```

OALMS Home Documents ▾

Search

## Check Eligibility

Select Equipment :

Chemical Fertilizer : Heat Exchanger Replacement of urea fertilizer Plant

Specification : Heat exchanger (Waste heat recovery system), Whose capacity is equal to 10,000 kj/h or more

#	Check Point	Eligibility	Evidence	Note
		Catalog	Other Doc	
1	Is it a heat exchanger which recovers waste heat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Is its Capacity equal to or more than 10,000 kj/h?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure : Eligibility Checking Form  
Design by Ariyan

## PURPOSE:

Purpose of this form is to check eligibility and Register the result of evaluation with reason for such judgement.

## HOW THE FORM WORKS :

Sub-Project Owner will submit Asking Equipment and Catalog and other document to IFIs. For Multiple Equipment There will multiple Eligibility Form with Specification. IFIs Manager will check eligibility and check submitted documents and Register the result of evaluation with reason for such judgement using this form.

## RELATED QUERIES :

```
INSERT INTO tblEligibilityCheck(checkpointId,Eligibility, Catalog, OtherDoc, Note)
```

```
VALUES (icheckpointId,Eresult ,Cresult,Oresult,Note);
```

## ABBREVIATION

OALMS	Online Loan management System
APO	Advance payment option
BDT	Bangladesh taka (currency)
BIFFL	Bangladesh Infrastructure Finance Fund Limited
CEO	Chief Executive Officer
CIB	Credit Information Bureau (of Bangladesh Bank)
CRG	Credit Risk Grading (of Bangladesh Bank)
DLD	Delay liquidated damage
DSRA	Debt service reserve account
EE&C	Energy efficiency & conservation
ESCO	Energy service company
ESMS	Environmental and Social Management System
FR	Functional requirement
ICT	Information and communication technology
ID	Identification
IDCOL	Infrastructure Development Company Limited
IFI	Implementing financial institution
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
JPY	Japanese yen (currency)
L/C	Letter of credit
MFI	Microfinance institution
MIS	Management information system
MOF	Ministry of Finance
MPEMR	Ministry of Power, Energy and Mineral Resources
N/A	Not applicable
NGO	Non-governmental organisation
NOC	Non-objection certificate
p.a.	Per annum

PD	Participating distributor
PIU	Project implementation unit
PLD	Performance liquidated damage
QPR	Quarterly progress report
RAID	Redundant array of independent disks
RO	Reimbursement option
ROE	Return on equity
SC	Steering Committee
SPV	Special purpose vehicle
SREDA	Sustainable and Renewable Energy Development Authority
T/A	Technical assistance
TAC	Technical Advisory Committee
VPN	Virtual private network

## REFERENCE :

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