

GIS FOR POWER DISCOM

Sequence of Topics

- 1. Revamped Distribution Sector Reform Scheme (RDSS)**
- 2. Work Flow**
- 3. GIS for RDSS- Survey and Measurement**
- 4. GIS in Consumer Indexing, Outage Management**
- 5. GIS in DTR Failure and Replacement**

System of Insight (Analytics)



System of Engagement (Apps and Maps)



Real-Time Measurement (Field / IoT / Remote Sensing)



System of Record (Transactions)

Broad Objectives of GIS

Digitally transforming Discoms with GIS

- Asset Mapping
- Network Planning
- Consumer Indexing
- Outage management
- Equipment Failure
- E Survey
- E Measurement

GIS CELL WORKS

Ensuring

Through

Acceptability :

- => Problem definition by users
- => Proof of Concept development
- => Execution through collaboration under user's ownership

Adoptability :

- => Applications as per present systems & database
- => Maximum Automation
- => Minimum capacity building requirement at the user end

Affordability :

- => Multipurpose geo-spatial database, common, compatible, standardized (100s of layers at field level)
- => In house developed/open source software
- => Full Utilization of available assets

Assimilability :

- => Integration of Various technologies like GIS,GPS,Web MIS, Mobile etc.

Availability :

- => Departmental /Integrated Decision Support Systems
- =

In House Development

- Android Based Apps for
 - Asset Mapping of 11KV ,33KV
 - DTR Failure an Replacement
 - E Survey and E Measurement
- In House Web Map Application and Map Server
 - Map for Planning, Management
 - Customized UIs for all Business
 - Integration with ERP, MDAS, Smart Bijlee, 1912

Benefits

- Using location, utility staff can discover patterns and trends that simple reporting cannot detect—improving asset management results.
- optimization decreases operating expenses (OPEX) and capital expenditures (CAPEX). It shortens restoration time
- (GIS) technology discovers patterns, makes connections, and uncovers relationships among materials, workers, and fleets
- GIS connects IT systems to the operational state of the network. It integrates external information sources with location, manages data transactions, and enforces integrity of network and structural data.
- To produce efficient designs, engineering teams require diverse data. Reliable information sharpens every project and reduces risks. A single source of true design information comes from a modern geographic information system (GIS), which provides a solid data and communication foundation to model utility networks. This enables utilities to succeed with repeatable solutions to engineering problems. The modern capabilities of GIS reinforce excellence for utility design and engineering.



MP DISCOM Network Map And Analysis

- » 11 KV feeder maps(EZ).
- » 11 KV feeder maps(CZ).
- » 11 KV feeder maps (WZ).
- » 33 KV Network (CZ).

Network Planning

- » EZ Technical VR Report
- » CZ Technical VR Report
- » WZ Technical VR Report
- » MP DISCOM Technical Loss Report

E Survey,Estimation And GIS Maps

- » Daily Progress of E-Survey.
- » EZ ERP Sanctioned Estimate Report.
- » Pre construction survey maps.
- » Post construction verification

- Asset Mapping of Existing 11KV,33KV Feeders, 33/11 KV Substations, DTR ,Poles
- Consumer Indexing - Tagging of Diaries and consumers with DTR
- Asset Planning Based on Mapped Infra
- GIS Based DTR Failure and Replacement
- Outage Management MDAS Integration

Revamped Distribution Sector Reform Scheme (RDSS)

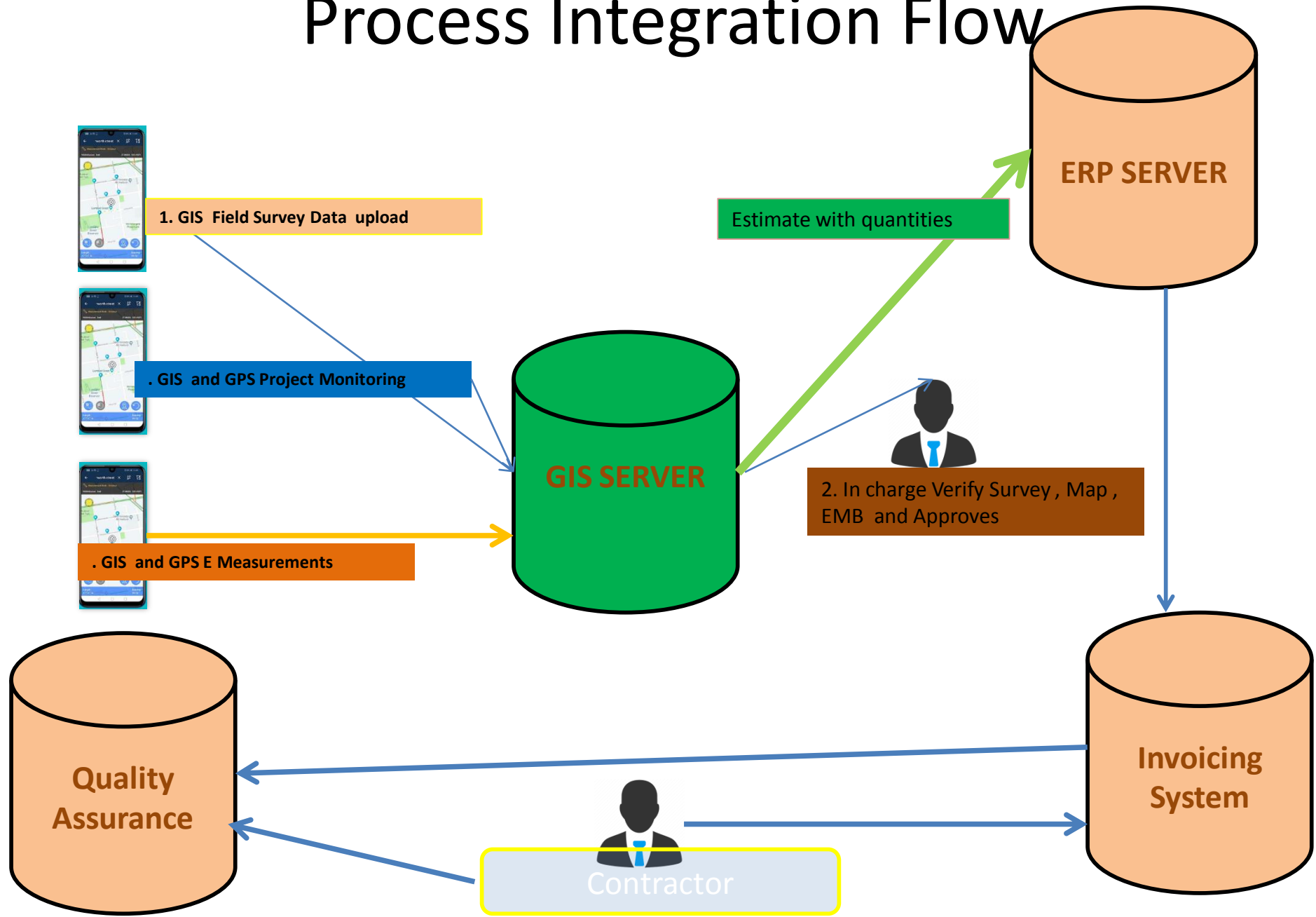
And

GIS

Integration of Systems

- GPS and GIS based E Survey and Estimate Preparation in ERP
- E Tendering and Award of Contract
- Invoicing System
- Quality Control and Assurance System
- GPS and GIS based Project Monitoring System
- GPS and GIS based E Verification and Measurement as per completion Schedule

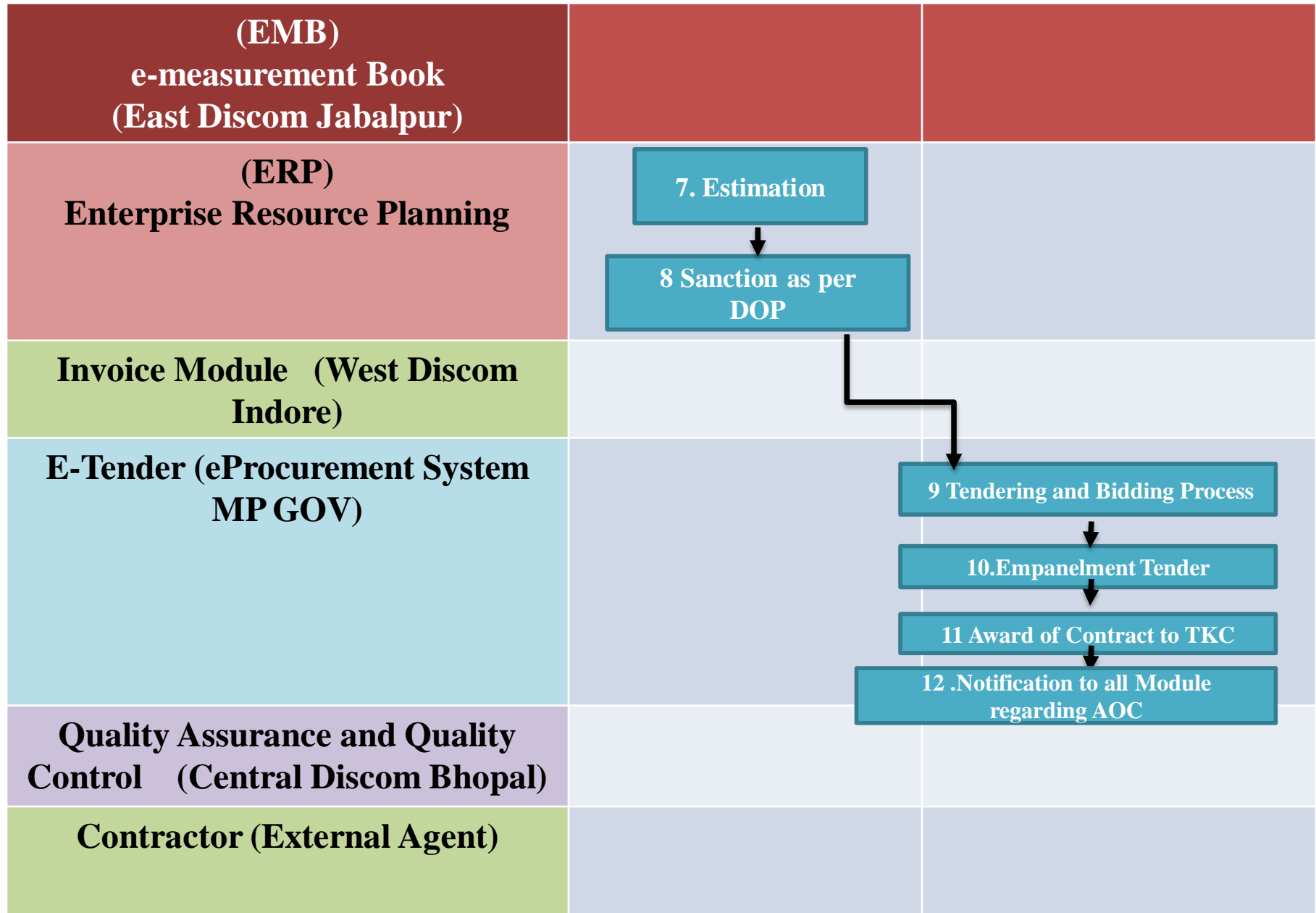
Process Integration Flow



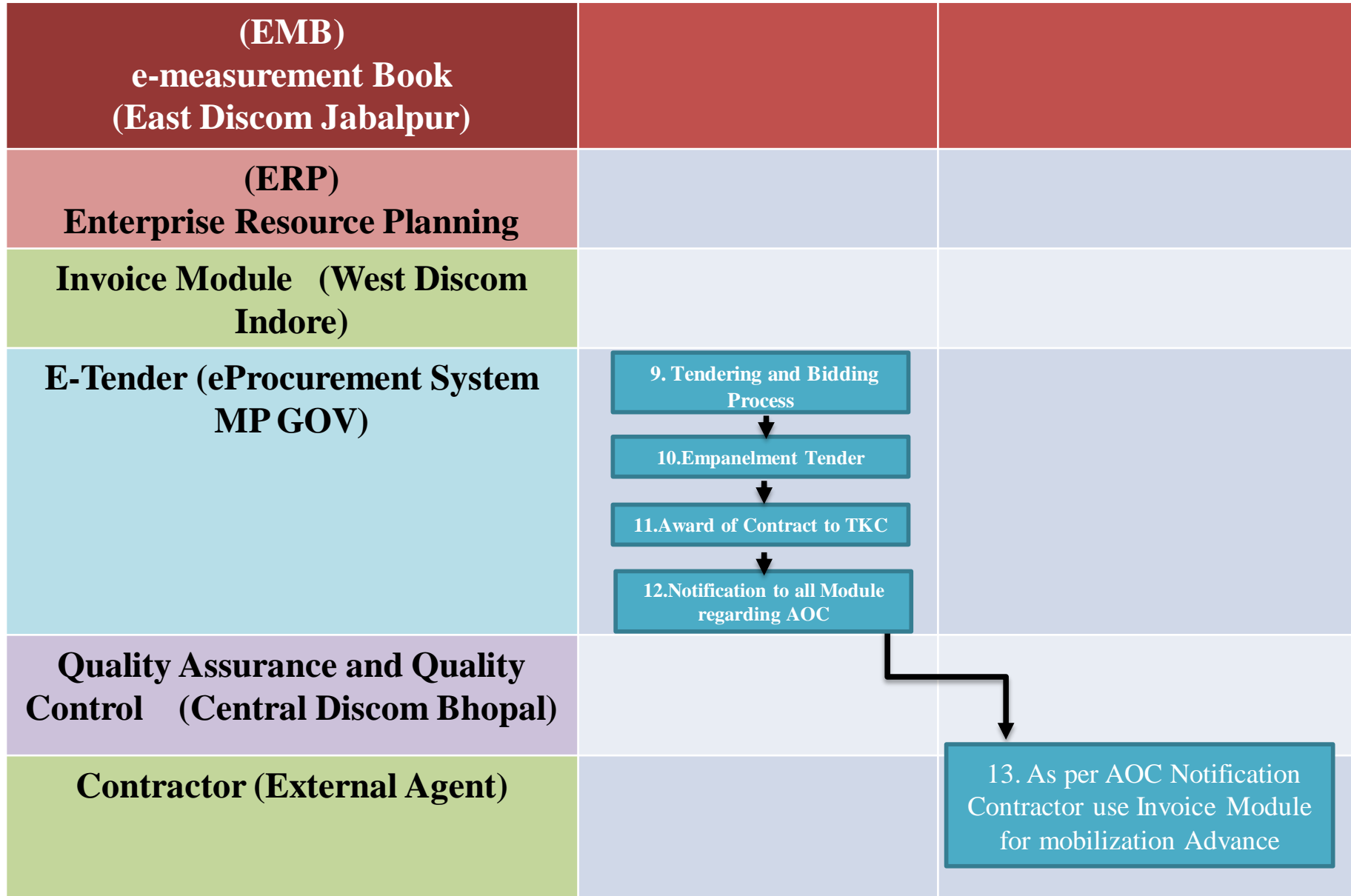
Process Flow

<p>(EMB) e-measurement Book (East Discom Jabalpur)</p>	<p>1. Preliminary Assessments of work#-Desktop Review</p> <p>2. Creation of Shelf of Works</p> <p>3. Assignment of Work for Survey</p>	<p>4. Amendment of Quantity if any</p> <p>5. Verification of Survey</p> <p>6. Estimation of Quantities from Survey</p>
<p>(ERP)</p>	<p>7 Estimation</p>	<p>8 Sanction as per DOP</p>
<p>Invoice Module</p>		
<p>E-Tender</p>		
<p>Quality Assurance</p>		
<p>Contractor</p>		

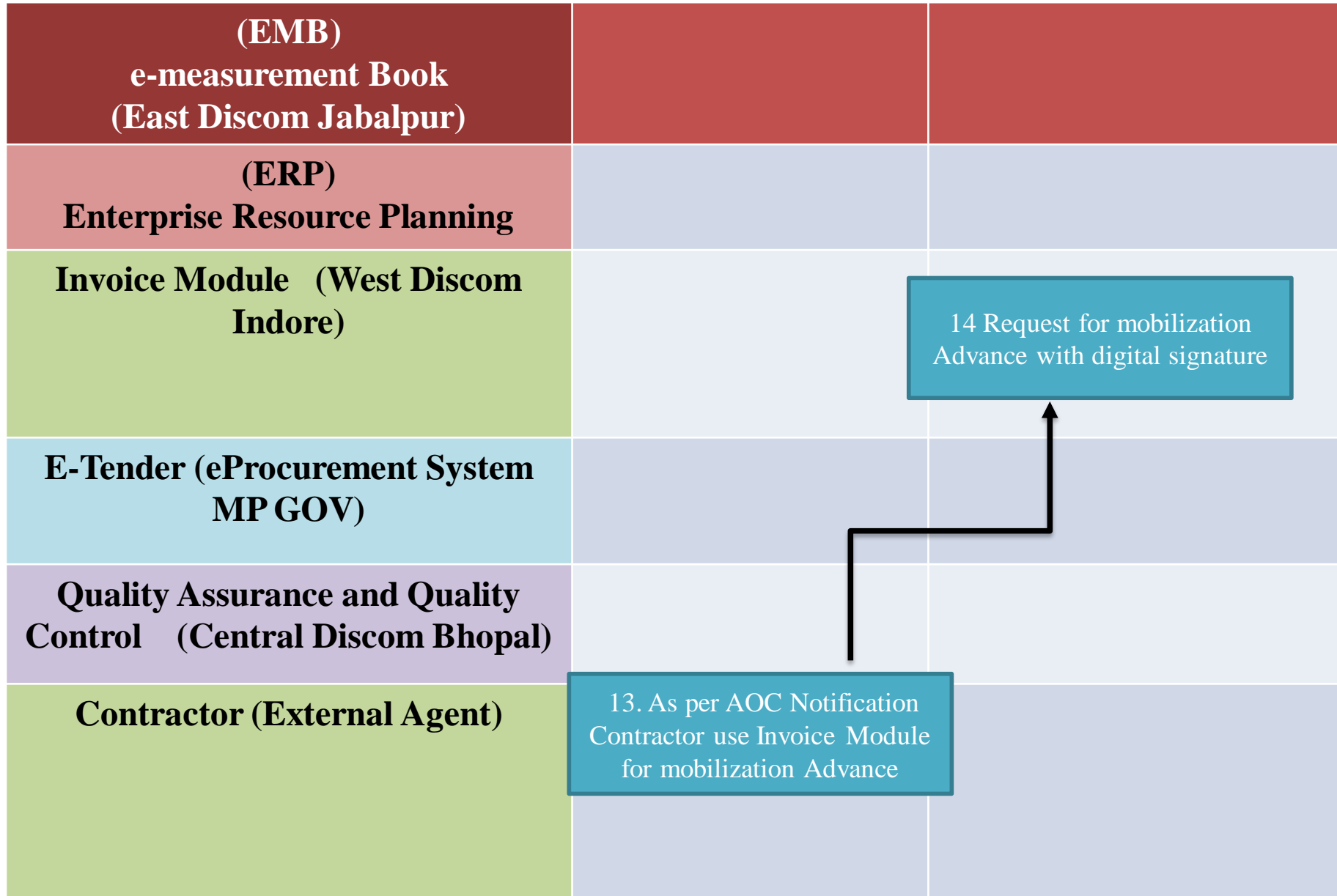
Process Flow



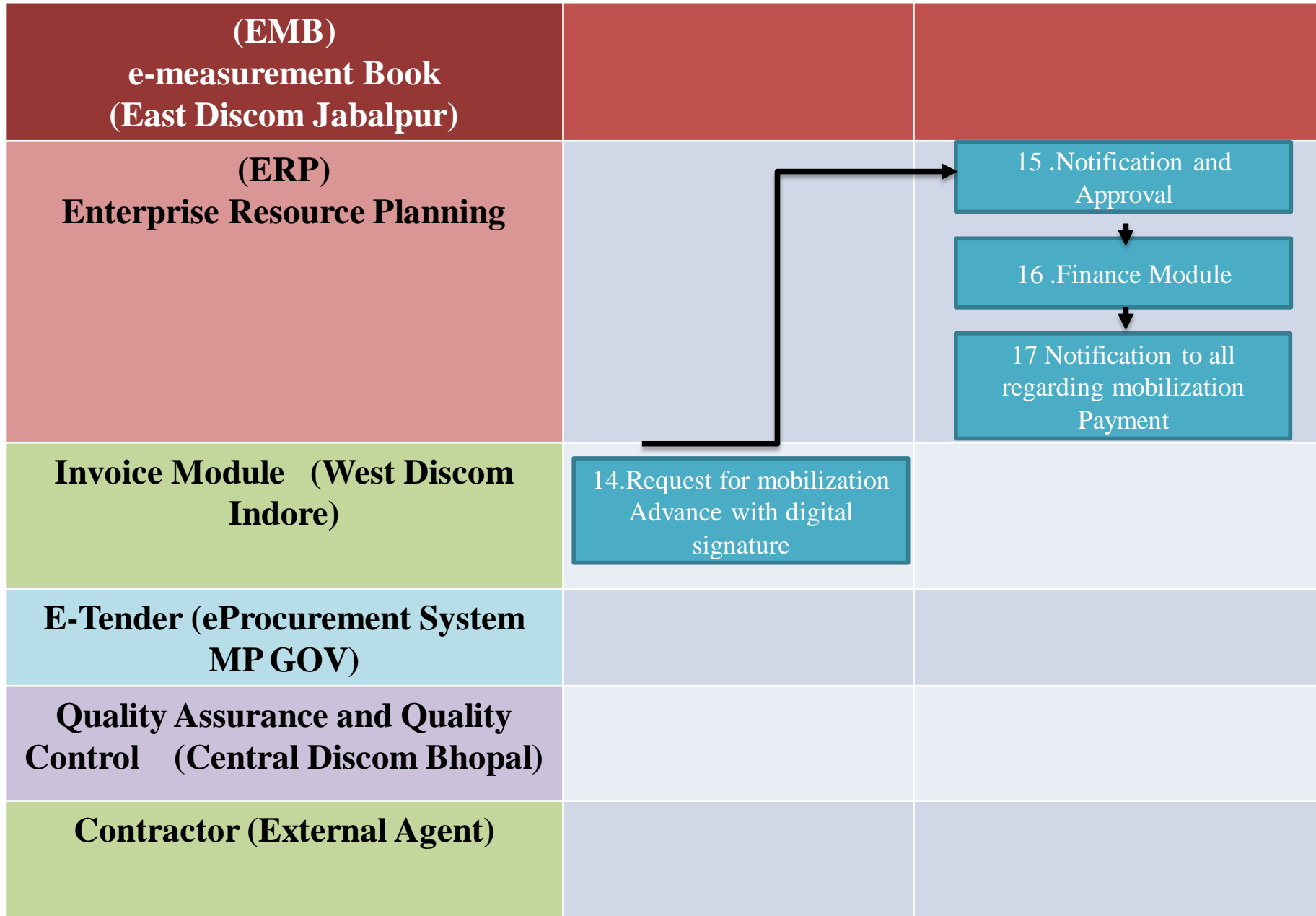
Process Flow



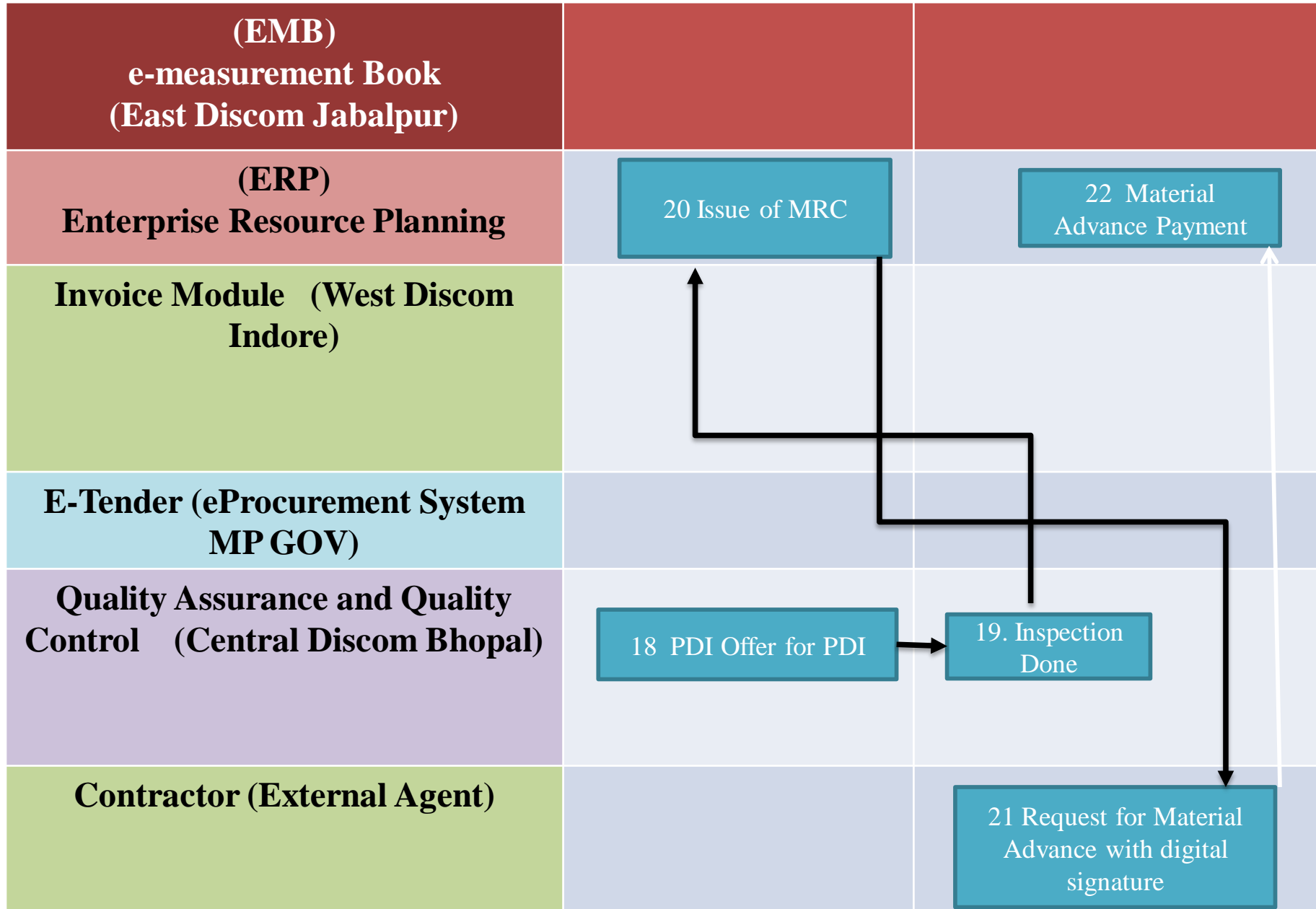
Process Flow



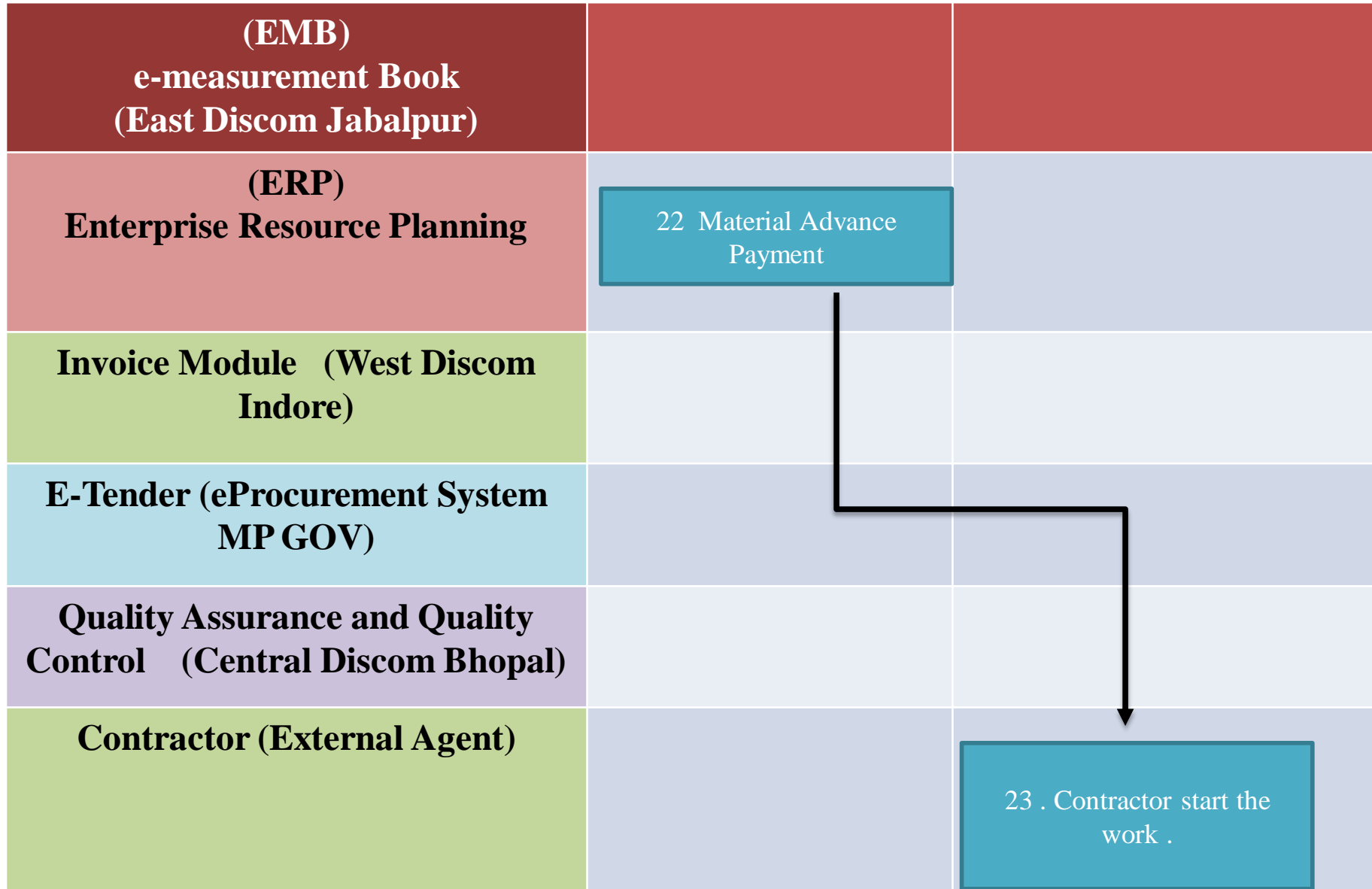
Process Flow



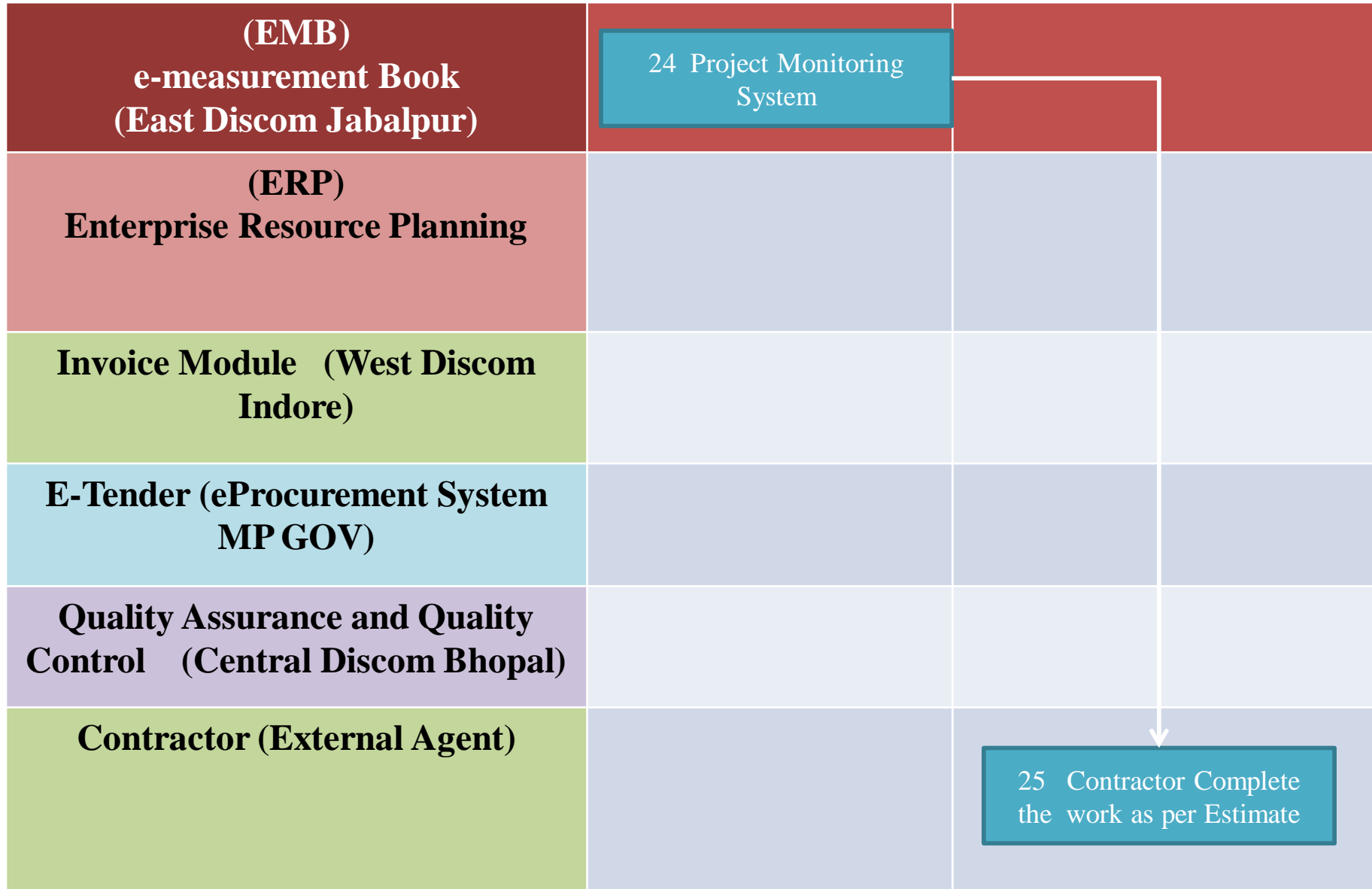
Process Flow



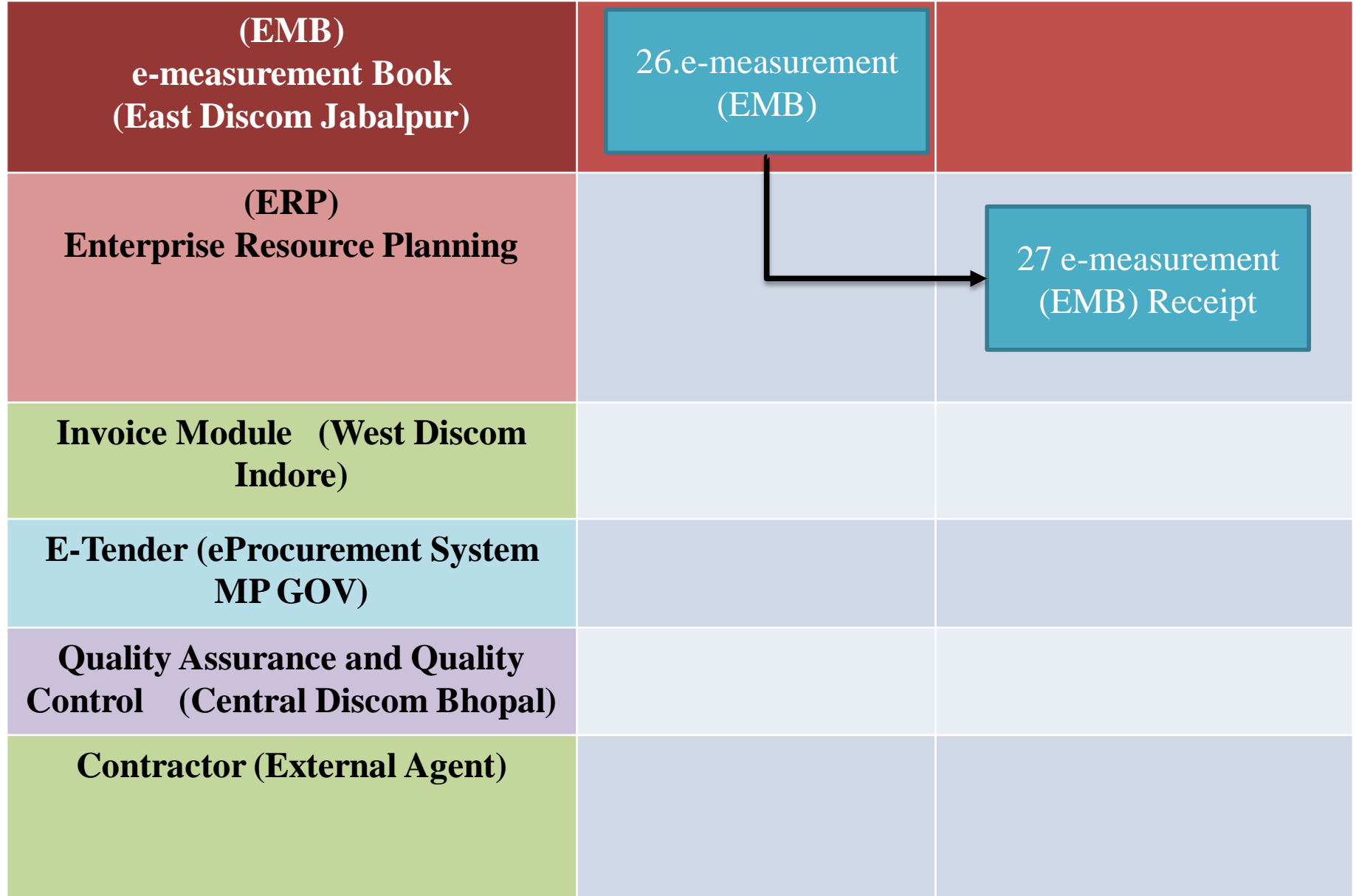
Process Flow



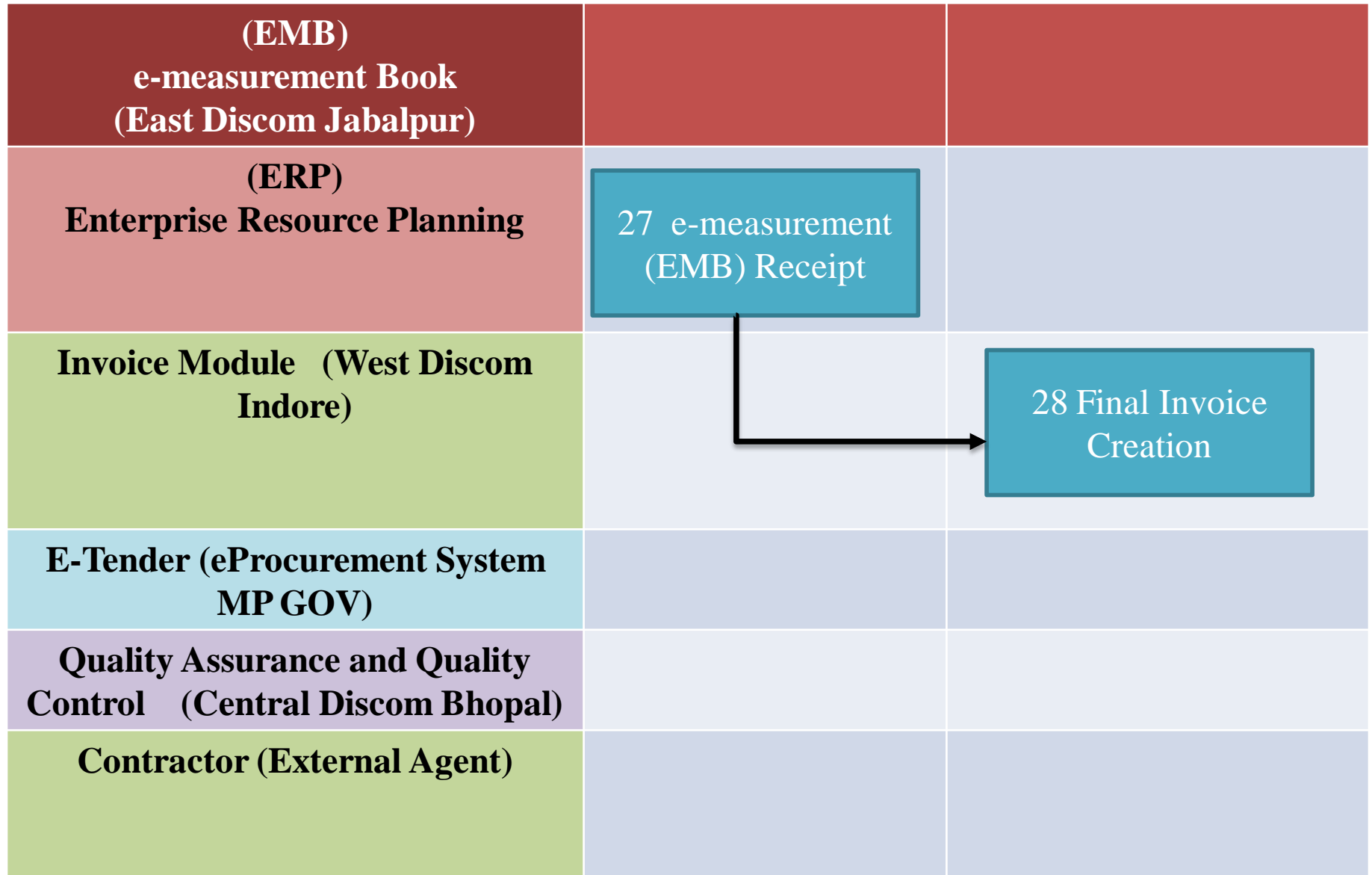
Process Flow



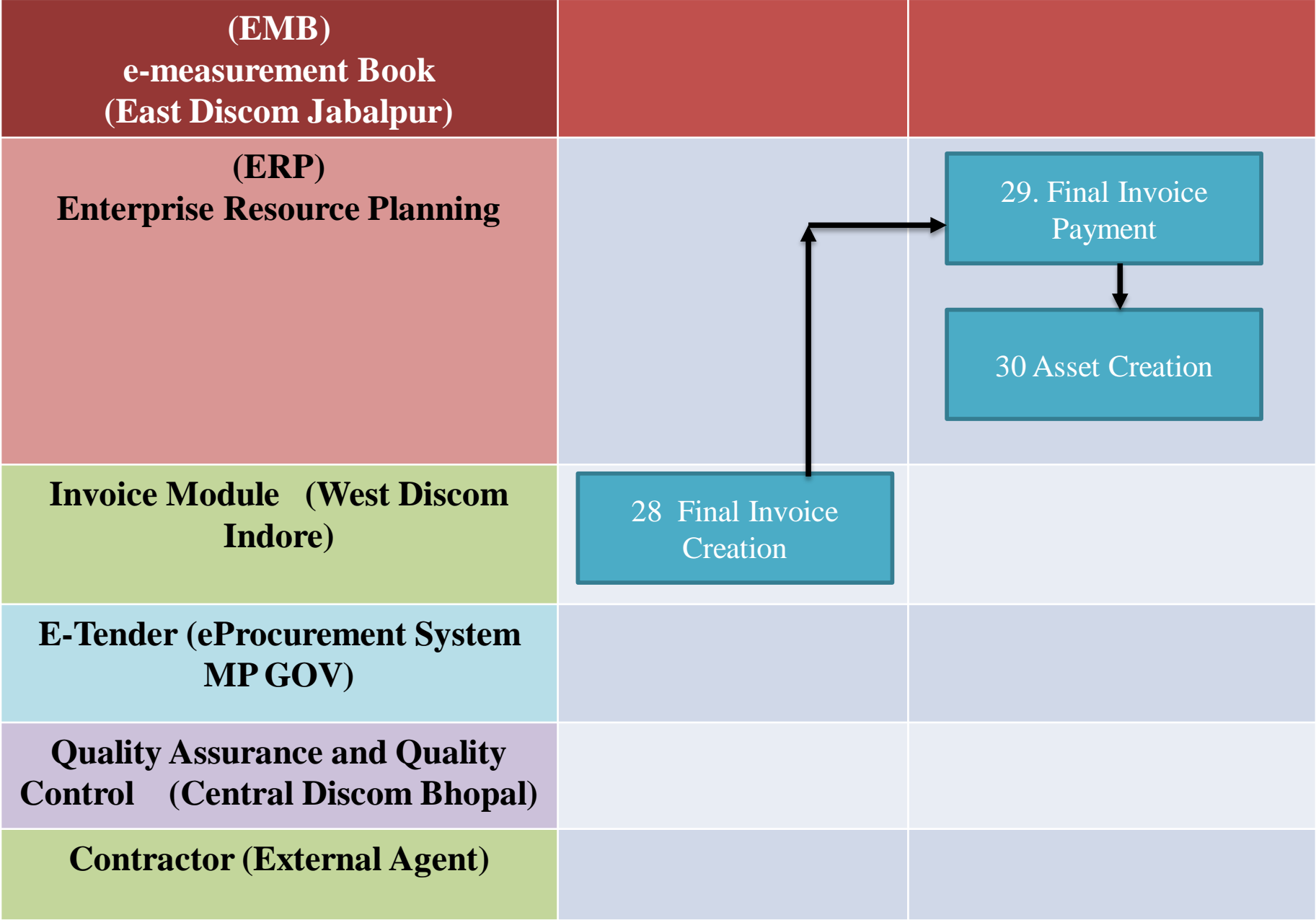
Process Flow



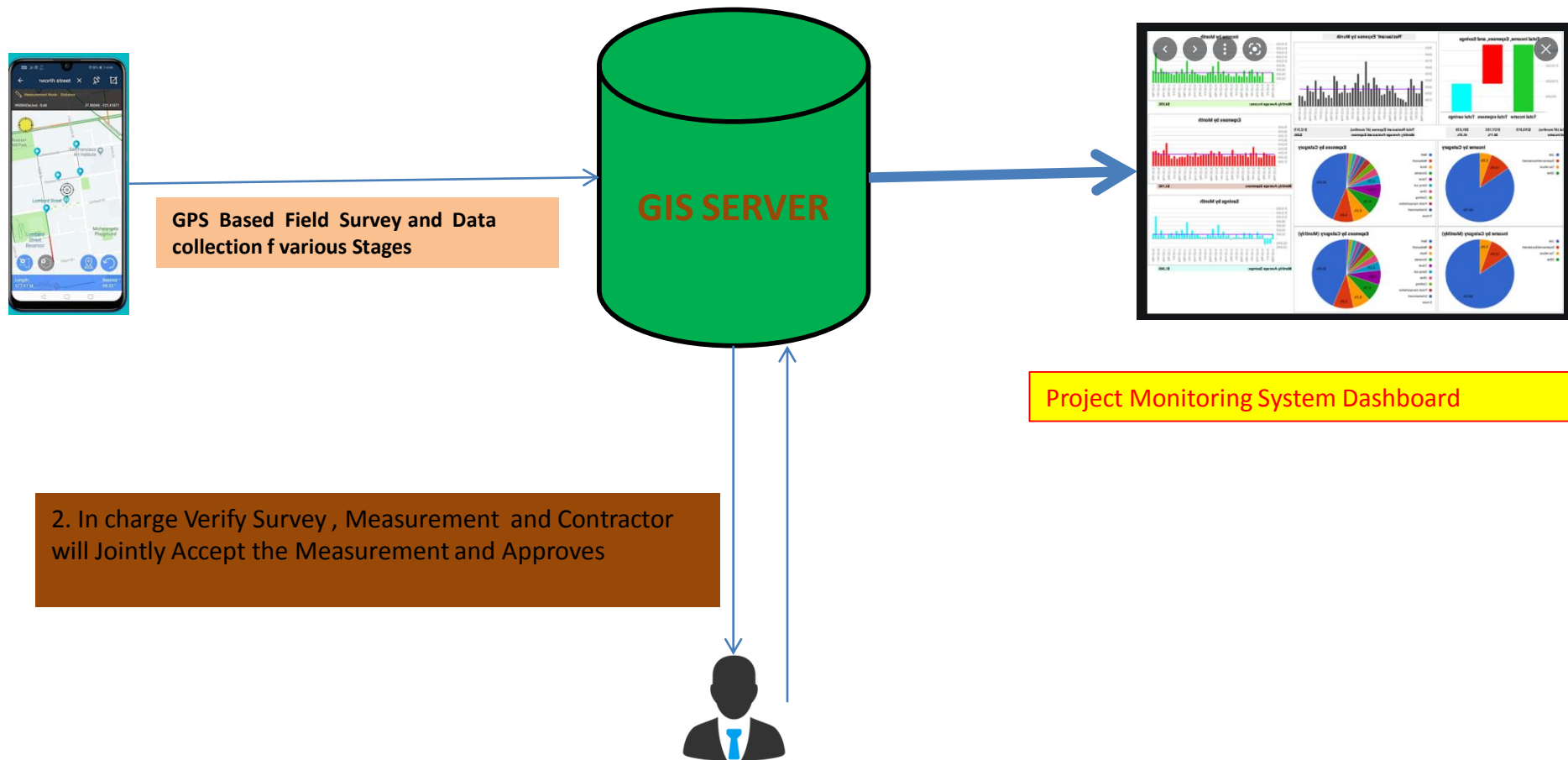
Process Flow



Process Flow

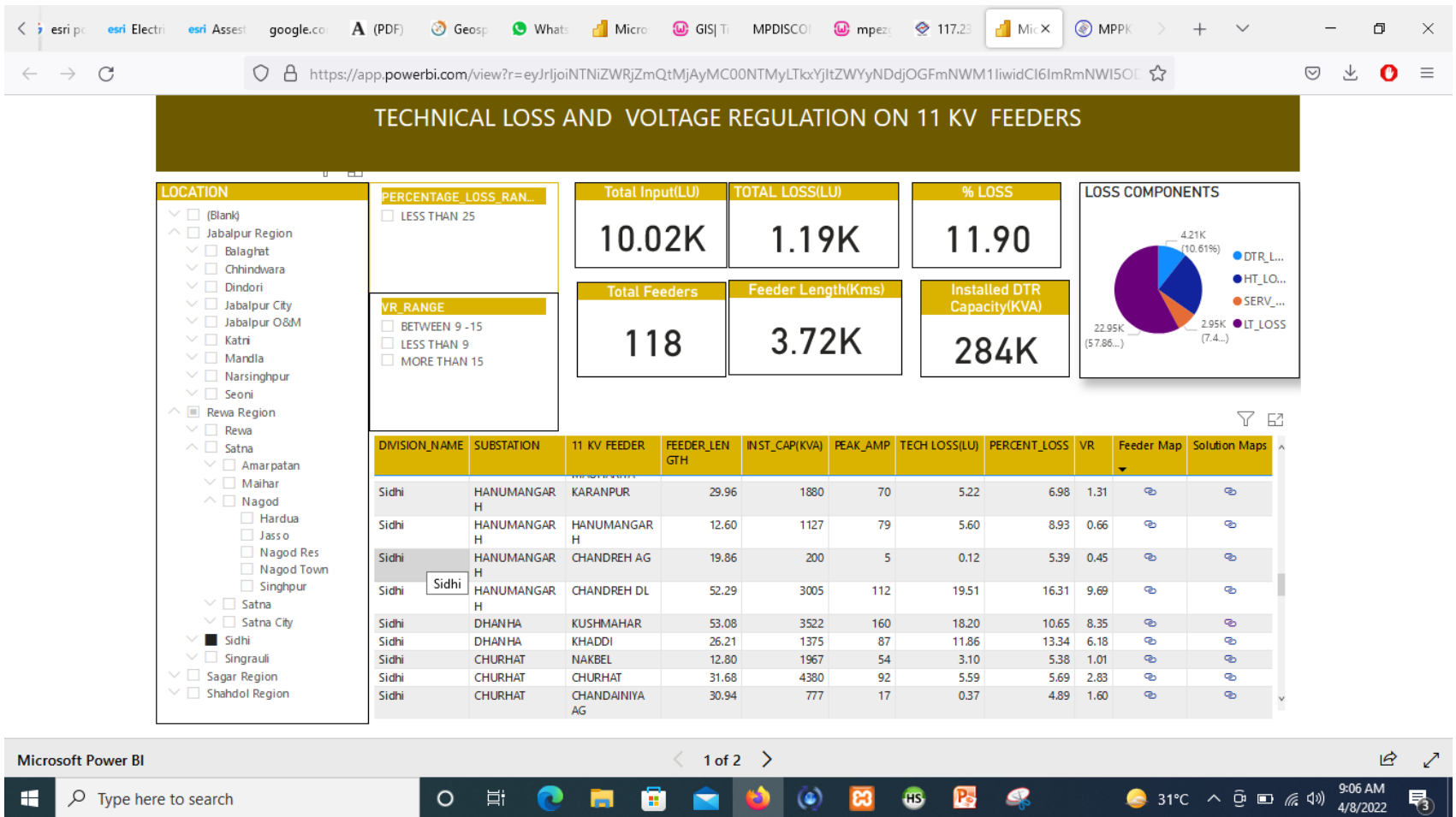


Process Flow for GPS Based Project Monitoring System

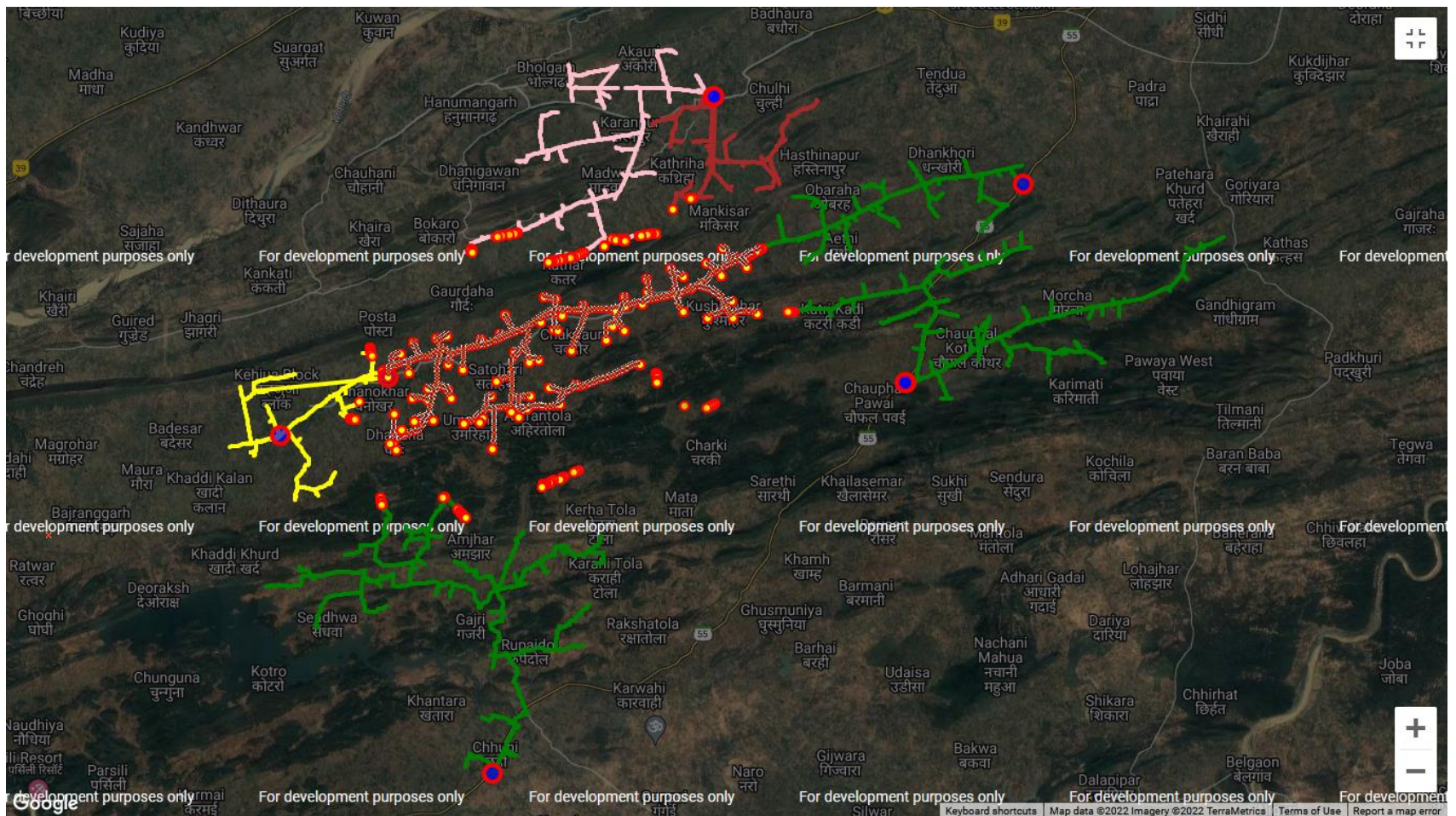


Network Analysis and Planning

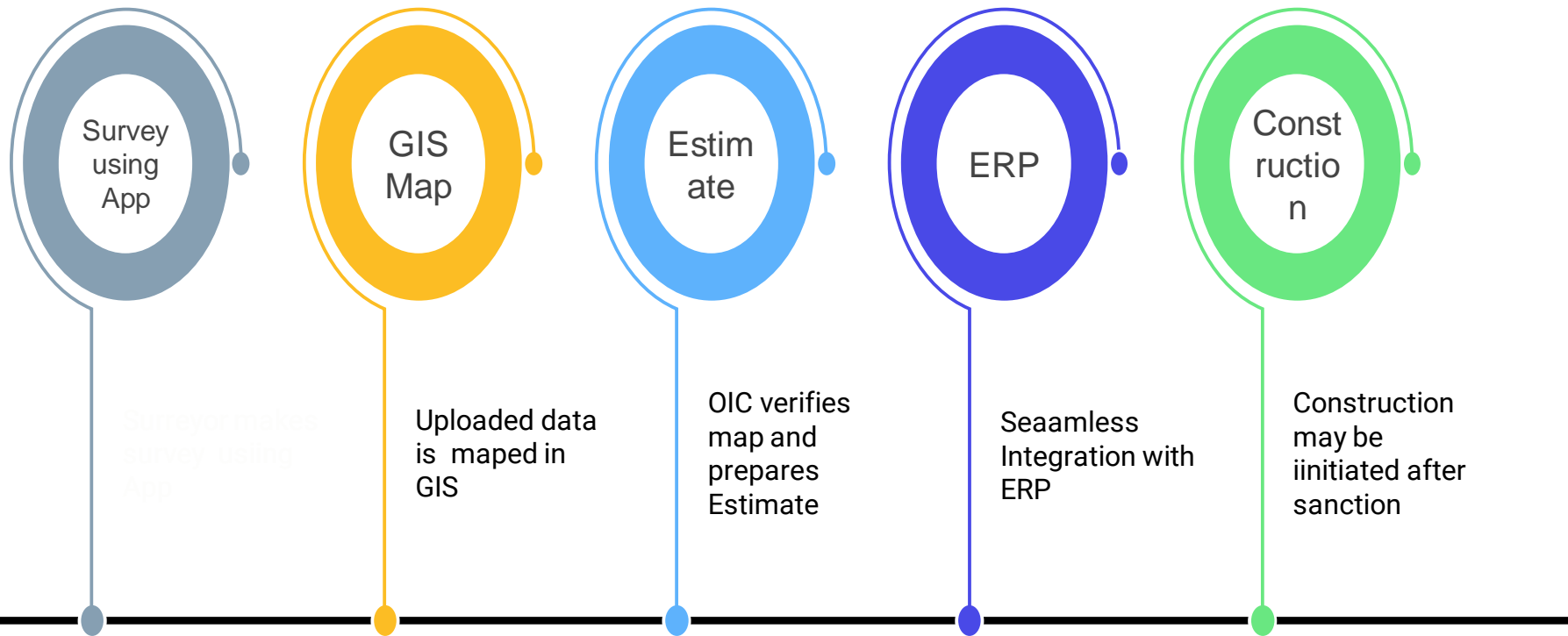
VR and TechLoss



Integrated Solution Map



Sequence



E verification using App

14:05 TATA 100% 81%

SURVEY OF PROPOSED 11KV LINES

App Version 1.4.0

निर्धारित फीडर
Location

Pole Structure::

Pole Type::

Conductor::

Top clamps::

Top clamps

Pin Insulator::

Pin Insulator

Stay set::

Stay set

Back filling::

Back filling

Concreting:

Concreting:

Red oxide paint:

Redoxidepaint:

Aluminium paint:

Aluminium paint:

14:06 TATA 100% 80%

Pin Insulator

Stay set::

Stay set

Back filling::

Back filling

Concreting:

Concreting:

Red oxide paint:

Redoxidepaint:

Aluminium paint:

Aluminium paint:

Anti climbing devices:

Anti climbing devices:

Danger Boards:


Danger Boards:

Binding wire and tape:

Binding wire and tape:

Binding wire and tape:

M.S.Nuts and Bolts:



TAKE PHOTO

E MB Reports and Maps

MPPKV x | Inbox (3) x | mpezgis x | (24) Wha x | GIS| Time x | SURVEY x | E MASU x | e-Measu x | Queue x | how to r x | +

Not secure | mpezgis.co.in/assets/reports/survey_varification_report.php

Feeder Verification Report

10 records per page Search:

S.NO	FEEDER_ID	DEV_POLE_ID	POLE_LAT	POLE_LONG	POLE_STRUCTURE	POLE_TYPE	TOP_CLAMPS	PIN_INSULATOR	STAY_SET	BACK_FILLING	CONCRETING	RED_OXIDE	ALUMINIUM_P
1	140001	1	23.70472	80.31747	DP	H BEAM-13	1	2	3	4	5	6	7
2	140001	2	23.7046	80.317758	POLE	H BEAM-13	1	2	3	4	5	6	7
3	140001	3	23.70449	80.318046	POLE	H BEAM-13	1	2	3	4	5	6	7
4	140001	4	23.7044	80.318345	POLE	H BEAM-13	1	2	3	4	5	6	7
5	140001	5	23.70431	80.3186	POLE	H BEAM-13	1	2	3	4	5	6	7
6	140001	6	23.70415	80.319035	TP	H BEAM-13	1	2	3	4	5	6	7
7	140001	7	23.70396	80.319235	POLE	H BEAM-13	1	2	3	4	5	6	7
8	140001	8	23.70375	80.31944	POLE	H BEAM-13	1	2	3	4	5	6	7
9	140001	9	23.70348	80.319646	POLE	H BEAM-13	1	2	3	4	5	6	7
10	140001	10	23.7032	80.319871	POLE	H BEAM-13	1	2	3	4	5	6	7

Showing 1 to 10 of 188 entries

Previous 1 2 3 4 5 ... 19 Next

pdfcoffee.com_03-....pdf CMB_2015.xls t_emb_fdr_tbl_varif....sql Show all

Type here to search 5:35 AM

E MB and GPS GIS Map

MPPKV x Inbox (3 x) mpezgis x (24) Wh x GIS| Tim x SURVEY x E MASU x e-Measu x Queue x how to x +

Not secure | mpezgis.co.in/assets/proposed_line/proposed_line2.php?id=40001

PROPOSED FEEDER

Report

SUBSTATION NAME	LAKHAPATERI
FEEDER NAME	33 KV LAKHAPATERI TO NIWAR
TOTAL LENGTH (KM)	
LENGTH	6.54
POLE TYPE	
H BEAM 13 METER	168
H BEAM 11 METER	0
CONCRETE POLE 9 METER	0
CONCRETE POLE 11 METER	0
SUPPORT TYPE	
POLE	141
SINGLE POLE CUT POINT	0
DP	18
TP	8
4P	1

</>

33 KV LAKHAPATERI TO NIWAR

POLE TYPE : H BEAM-H 13 METER
SUPPORT TYPE : Pole
CONDUCTOR TYPE : Dog
TOP CLAMP : 1
PIN INSULATOR : 2
STAY SET : 3
BACK FILLING : 4
CONCRETING : 5
RED OXIDE : 6

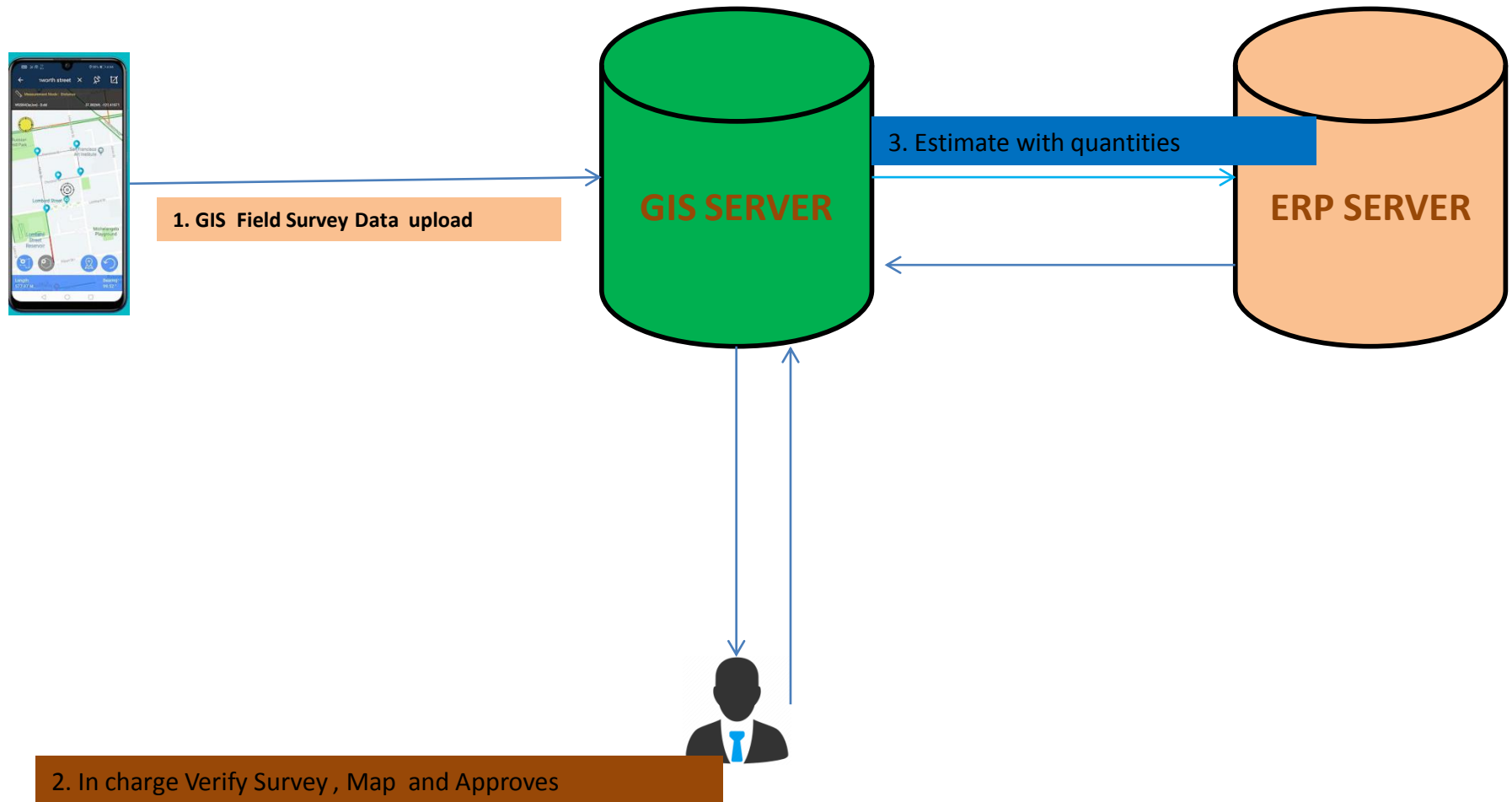
For development purposes only

pdfcoffee.com_03-....pdf CMB_2015.xls t_emb_fdr_tbl_varif....sql Show all

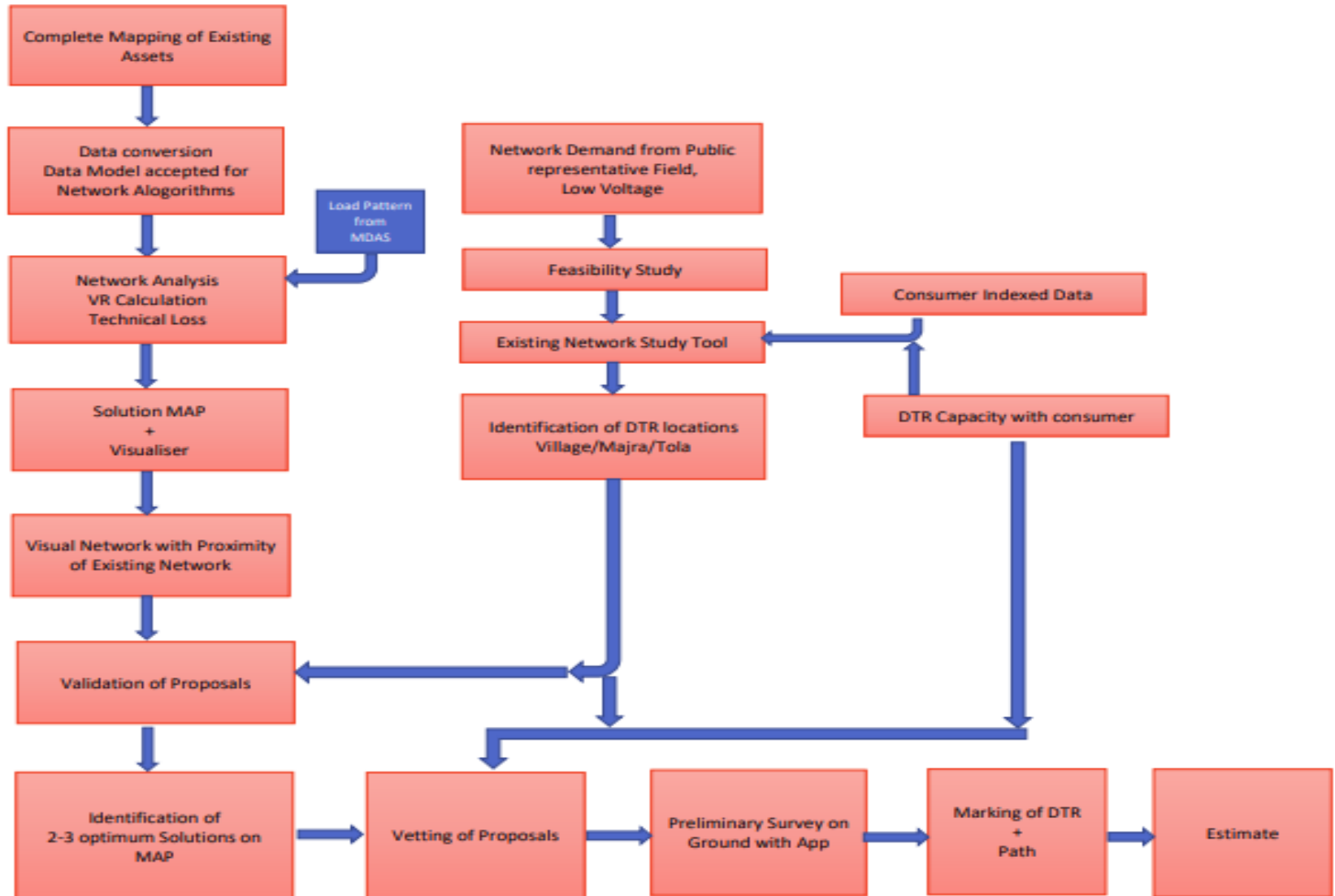
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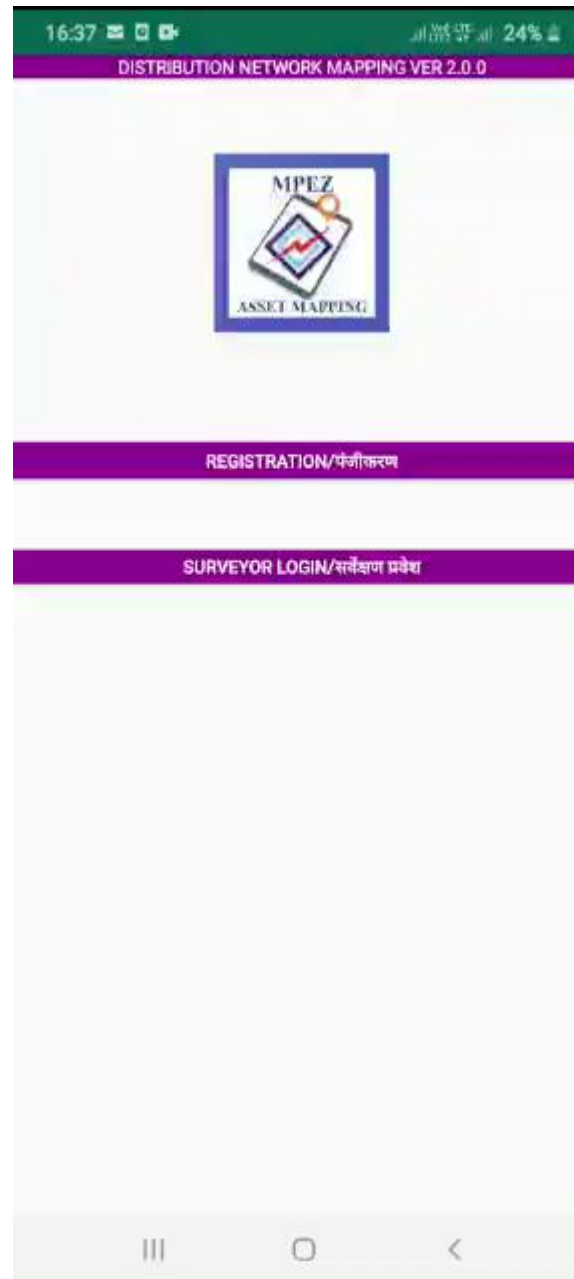
Process Flow for E M B



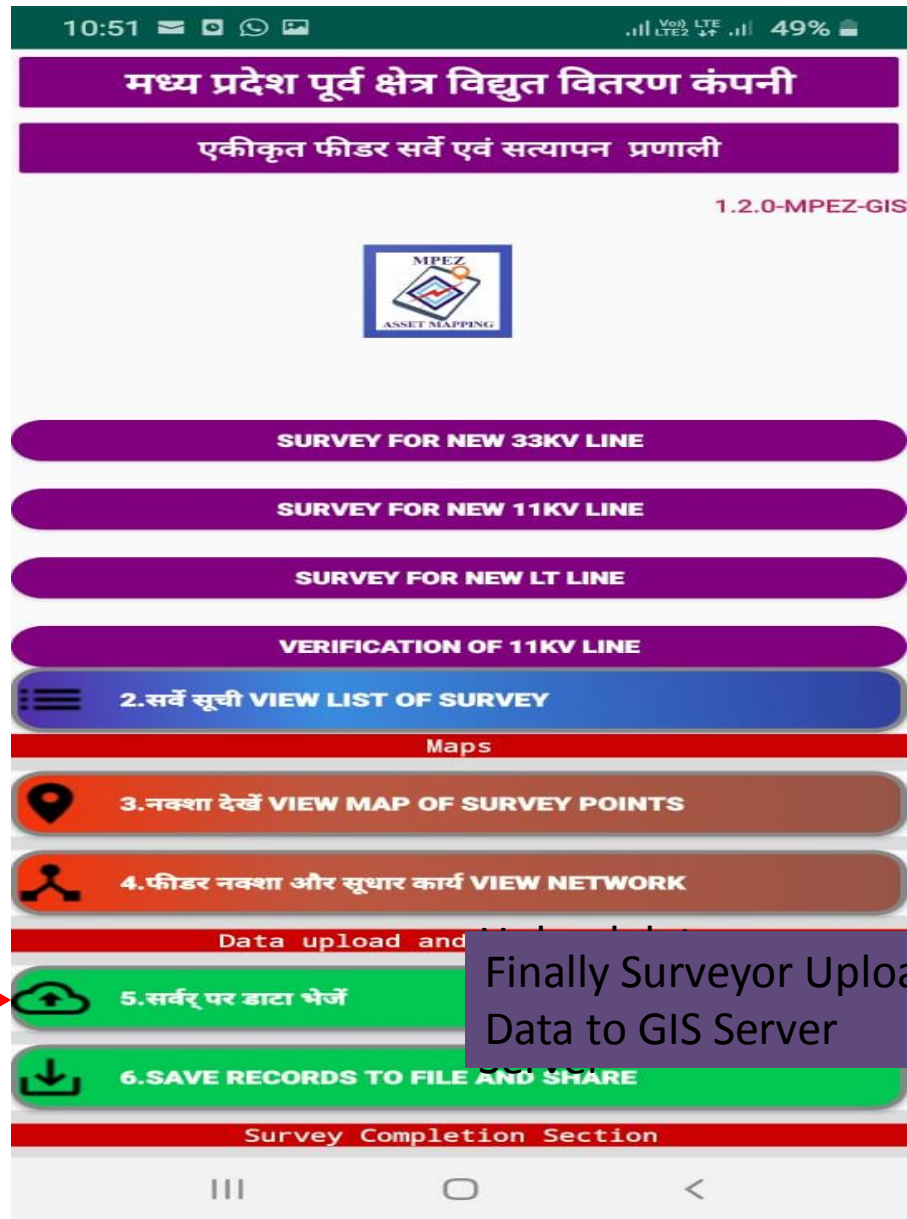
GPS and GIS Based E Measurement Project



3 Minutes Short Video on Field Survey of Proposed Line using App



After Survey , The Surveyor uploads Map with all details to GIS Server



Finally Surveyor Uploads Map Data to GIS Server

OIC After Survey Logins in Dash Board for further Actions

Admin | Dashboard x +

← → X Not secure | mpezgis.co.in/assets/login.php

MPEZ GIS

Search...

MAIN NAVIGATION

- Dashboard
- Dashboard v1
- Dashboard v2

Dashboard

Home > Dashboard >

AE/JE Login

Username

Enter Username

Password

Enter Password

Submit

Type here to search

25°C Light rain 10:23 PM 8/2/2021

The GIS Data of Field Survey is Seen on Desktop by OIC , with all Details , Pole Type , Support Structure ,Length, Conductor

FEEDER NAME		DCDS NIWARI BHAT
TOTAL LENGTH (KM)		
LENGTH		5.40
CONDUCTOR	LENGTH(KM)	
DOG		5.40
POLE TYPE		
H BEEM 13 METER		91
H BEEM 11 METER		0
CONCRETE POLE 9 METER		0
CONCRETE POLE 11 METER		0
SUPPORT TYPE		
POLE		78
SINGLE POLE CUT POINT		0
DP		11
TP		0
4P		2

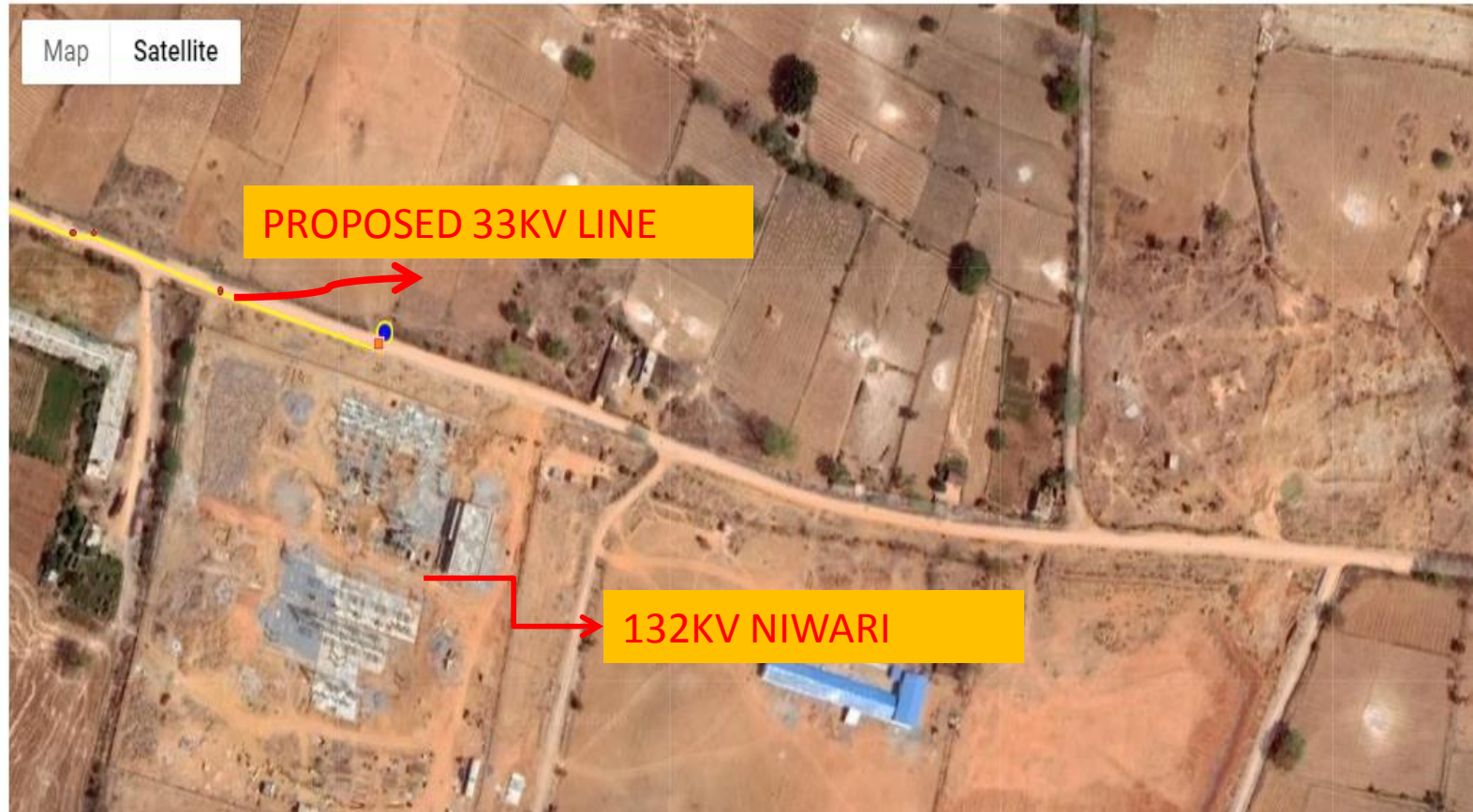
DCDS NIWARI BHAT



Precise Locations, Routes are Verified

TOTAL LENGTH (KM)	
LENGTH	5.40
CONDUCTOR	LENGTH(KM)
DOG	5.40
POLE TYPE	
H BEEM 13 METER	91
H BEEM 11 METER	0
CONCRETE POLE 9 METER	0
CONCRETE POLE 11 METER	0
SUPPORT TYPE	
POLE	78
SINGLE POLE CUT POINT	0
DP	11
TP	0
4P	2

DCDS NIWARI BHAT



E MB Dash Board

ALL 11KV FEEDERS MAP

10 records per page

Search:

S.NO.	SUBSTATION NAME	FEEDER NAME	FEEDER ID	MAP OF PRE COS. SURVEY	SURVEY DETAIL	Prepare Estimate	SUMMARY REPORT	DETAIL OF ESTIMATE
11	TestSubstation	TestProposed11KV	101010	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT
10	TEST SUBSTATION				VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT
9	132KV EHV NIWARI	DCDS NIWARI BHAI	40010	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT
8	33/11 BICHHIYA S/s	11 KV UMARIYA_BUCHHIYA proposed Line	40008	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT
7	TEST SUBSTATION	FEEDER3	40007	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT

OIC Decides to Make Estimate from Map Data

Show all

OIC Chooses Area Type and Stringing Type

Choose Type: NORMAL

DCSS

Subr

DCDS

10 records per page

Search: [Show all](#)

Abstract of Estimate made using Survey Map

mpezgis.co.in x mpezgis.co.in x mpezgis.co.in/assets/r x OFFICER DASH BOARD x New Tab x (37) WhatsApp x

Not secure | mpezgis.co.in/assets/ViewFeederEsSummary.php?id=40010

ASSET MAPPING HOME FEEDER LOAD MAPS POLE NUMBERING REGISTRATION DTR FAILURE CONTACT US DTR FAILURE HELP

11KV FEEDERS ESTIMATE SUMMARY

NAME OF FEEDER:-DCDS NIWARI BHAT
Estimate Amount (in Rs):-10332121.74

[VIEW MAP](#)

10 records per page Search:

S No	SCH. NO	SCH. DESCRIPTION	TOTAL AMOUNT(Rs.)	FEEDER MAP
1	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	505104.52	VIEW MAP
2	A-3.2	33 KV LINES AND DP STRUCTURES 33 KV LINE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG SUPPORTS USING DOG CONDUCTOR DOUBLE CIRCUIT DOUBLE STRINGING (DCDS) FOR URBAN AREA	8348412.82	VIEW MAP
3	A-6.2	33 KV LINES AND DP STRUCTURES 33 KV D.P.STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR.13MTR. LONG FOR DOUBLE STRINGING DOUBLE CIRCUIT	1478604.40	VIEW MAP

Type here to search

10:56 PM 9/2/2021

ANNXURES

ALL 11KV FEEDERS MAP

10 records per page

Search:

S.NO.	SUBSTATION NAME	FEEDER NAME	FEEDER ID	MAP OF PRE COS. SURVEY	SURVEY DETAIL	Prepare Estimate	SUMMARY REPORT	DETAIL OF ESTIMATE
11	TestSubstation	TestProposed11KV	101010	VIEW MAP	VIEW REPORT	Prepare Estimate		
10	TEST SUBSTATION	TARICHAR 33KV DCDS FEEDER	40011	VIEW MAP	VIEW REPORT	Prepare Estimate		
9	132KV EHV NIWARI	DCDS NIWARI BHAT	40010	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT
8	33/11 BICHHIYA S/s	11 KV UMARIYA_BUCHHIYA proposed Line	40008	VIEW MAP	VIEW REPORT	Prepare Estimate	VIEW REPORT	VIEW REPORT

[mpezgis.co.in/assets/ViewFeederEsSummary.php?id=40010](#)

The Estimate Attributes are Seen by OIC

Details of Estimates Prepared Using Prevailing SOR Schedules and Map Data

Inbox (3,829) - we x | (34) WhatsApp x | New Tab x | mpezgis.co.in x | MPPKVCL Geop x | OFFICER DASH BO x | feedertesting_da x

Not secure | mpezgis.co.in/assets/ViewFeederEstimate.php?id=40010

11KV FEEDERS ESTIMATE

Name of Feeder

S No	SCH. NO	SCH. DESCRIPTION	ITEM DESCRIPTION	SOR QTY	SOR UNT	TOTAL QTY	TOTAL AMOUNT(Rs.)	FEEDER ID	FEEDER MAP	Length (Kms)
1	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	CONCRETING (1:3:6) OF H-BEAM @ 0.65 CMT.PER POLE (BASE PEDDING + MUFFING)	2.6	cubic meter	5.2	31177.33	40010	VIEW MAP	
2	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	BRACING SET FOR 8 FEET (2 CENTRE DP ANGLE OF 65X6			16	87903.36	40010	VIEW MAP	
3	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	33 KV STRAIN HARDWARE (FITTINGS			48	9557.76	40010	VIEW MAP	
4	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	33 KV,10 KN PIN COMPOSIT INSULATOR			24	15640.08	40010	VIEW MAP	
5	A-2-C.2	33 KV FOUR POLE STRUCTURE ON H-BEAMS 152 X 152 MM., 37.1 KG./MTR. 13 MTR. LONG	33 KV , 45 KN DISC POLYMER LONG ROD TYPE T&C INSULATOR	24	Number	48	13344	40010	VIEW MAP	

push_emb_in_erp....php ^ | feedertesting_data202... ^ | feedertesting_data202... ^ | feedertesting_data202... ^

Show all x

Type here to search

10:19 PM 9/1/2021

Details of Material are Shown Before Sending to ERP



MADHYA PRADESH POORV KSHETRA VIDYUT VITARAN CO. LTD.
[Wholly owned by the Govt. of MP]
CIN No. : U40109MP2002SCC015120
Block No. 7, Shakti Bhavan, Rampur, Jabalpur - 482008
Phone No. 0761 - 2660079, 2702420/2702020, Fax No. 0761 - 2660128/2661219
Website: www.mpev.co.in



Estimate Draft Report for Project Number: 576585

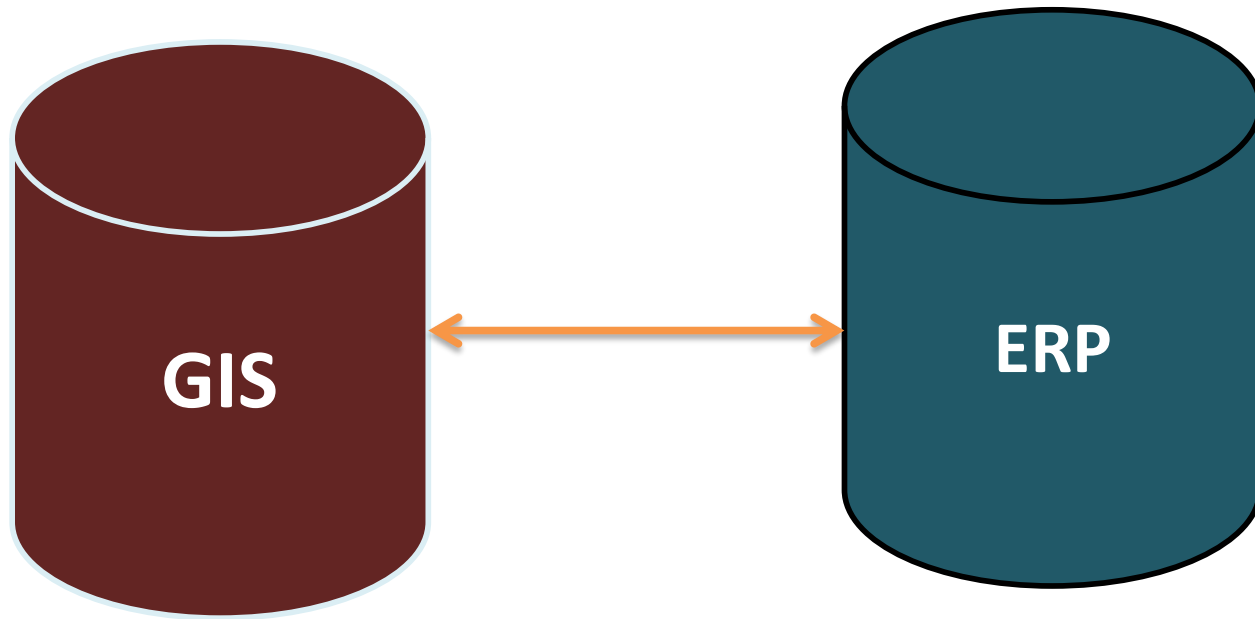
Report Run Date: 16-06-2021 14:38:43

Project Number	: 576585	Estimate Number	: New 33kv Line Niwari Bhata.	Version	: Draft
Project Type	: Departmental	Project Organization	: O/o E.E.(O&M DN.) NIWADI	Distribution Centre	: O/o J.E.(RES) NIWARI
Scheme Code	: 026	Scheme Name	: SUB TRANSMISSION SCH-220, 66 & 132 KV WITH ALLIED S/S	Area Store	: Area Store Chhatarpur
Project Start Date	: 08-APR-21	Completion Date	: 08-APR-23	Project Status	: Ready for Estimation
Total Cost	: 17059058.84	Item Cost	: 13473481.28		
Estimate Prepared By	: Mr. Vinod Sharma				
Name of Work	: 33 kv line from 132kv Devendrapura to 33/11kv Sub staitaion Niwari Bhata under Niwari RES D/C.				
History & Scope	: 33 kv line from 132kv Devendrapura to 33/11kv Sub staitaion Niwari Bhata under Niwari RES D/C.				
Technical Viability	: 12km 33kv line				
Certificate	: survey done by JE Niwari RES D/C.				

Nature of Work:

New, Augmentation and Additional 11/0.433 kV and 33/11 kV Sub-Station

Data transferred from Mobile App to GIS Server finally to ERP Server



App For E -Measurement

1. Surveyor Logs in

10:51 49%

SURVEYOR LOGIN VER 2.0.0

9425806390

...

☐ बने हुए 11KV फीडर का सर्वे

☒ प्रस्तावित फीडर का सर्वे

☐ नव निर्मित फीडर का सत्यापन सर्वे

☐ फीडर टेपिंग ब्रांच सर्वे

LOGIN

e061c724e08cc01d

2. Choses 11KV or 33KV Feeder for Survey

10:51 49%

मध्य प्रदेश पूर्व क्षेत्र विद्युत वितरण कंपनी

एकीकृत फीडर सर्वे एवं सत्यापन प्रणाली

1.2.0-MPEZ-GIS

MPEZ
ASSET-MAPPING

SURVEY FOR NEW 33KV LINE

SURVEY FOR NEW 11KV LINE

SURVEY FOR NEW LT LINE

VERIFICATION OF 11KV LINE

2.सर्वे सूची VIEW LIST OF SURVEY

Maps

3.नक्शा देखें VIEW MAP OF SURVEY POINTS

4.फीडर नक्शा और सुधार कार्य VIEW NETWORK

Data upload and share section

5.सर्वर पर डाटा भेजें

6.SAVE RECORDS TO FILE AND SHARE

Survey Completion Section

3. Conducts survey

10:51 49%

SURVEY OF PROPOSED 11KV LINES

App Version 1.2.0

सबस्टेशन->AMARKANTAK-निर्धारित फीडर ->AMARKANTAK

Location

Pole Structure::

Pole

Pole Type::

H Beam-H बीम-13 Meter

Conductor::

Rabbit

Road Crossing::

नहीं

National Highway or Railway Crossing::

नहीं

Forest Involved::

नहीं

DTR Location:

No DTR

यह सर्किट का अंतिम पोल है या मध्य पोल:

MID POINT

क्या यह टेपिंग पॉइंट होगा?

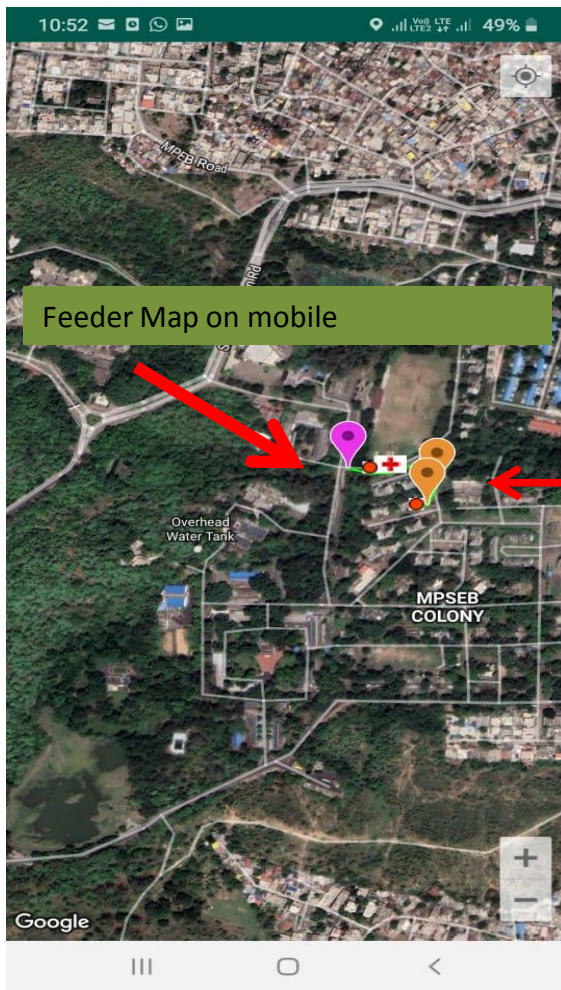
No-

Save coordinates and attributes

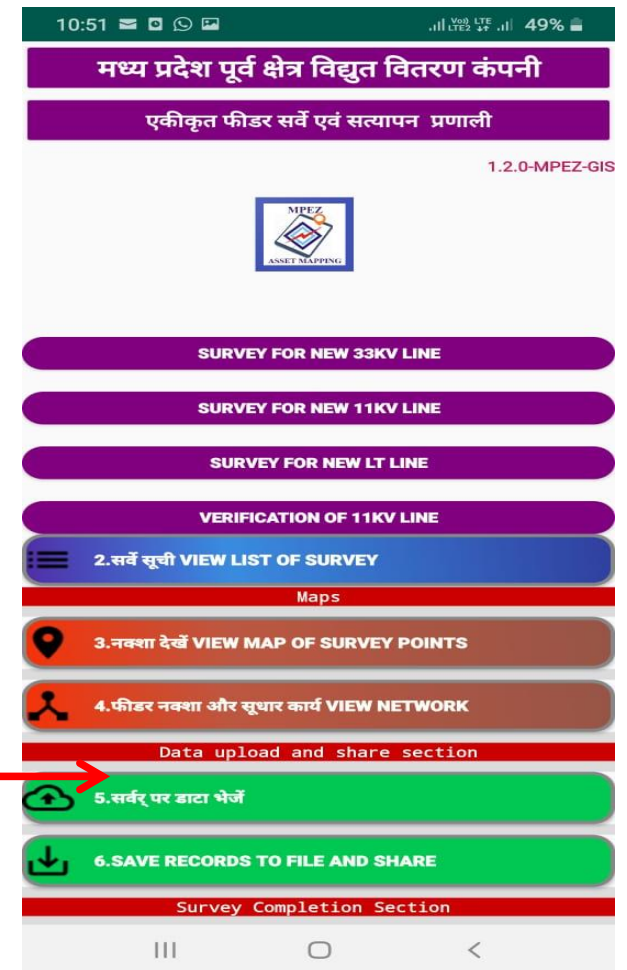
Surveyor Sees His Location and Map of Proposed Feeder Surveyed

Surveyor See Map even during Survey on his mobile App

Finally Surveyor Uploads Map Data to GIS Server



Upload data
from app to GIS
Server



MPEZ-GeoPortal

Sub Module- Consumer Indexing

11 के वी फीडर वार वितरण ट्रांसफार्मेर सूची एवं उपभोक्ता संख्या: 11 KV ITW

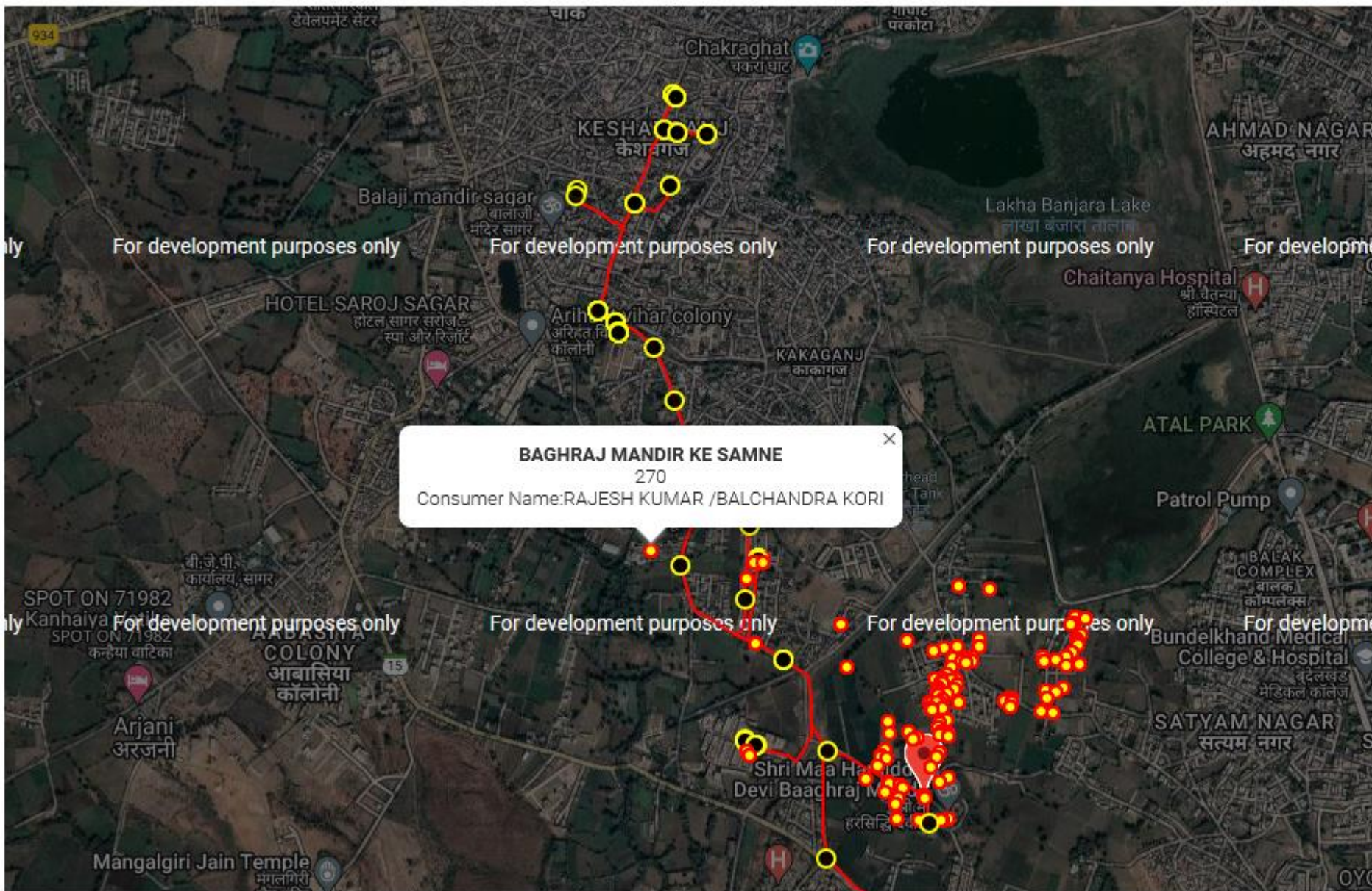
Show

10

 entries

वितरण ट्रंसफार्मेर का नाम ⬇️	वितरण केंद्र का नाम ⬆️	फीडर का नाम ⬆️	ग्रुप क्रमांक ⬆️	डायरी क्रमांक ⬆️	कुल उपभोक्ता की संख्या
BAGHRAJ MANDIR KE PICCHE WALA	1554401	12249	36	21	51
BAGHRAJ MANDIR KE SAMNE	1554401	12249	36	21	128
BAGHRAJ PULL KE PAS	1554401	12249	36	21	4
BAKHLE WALA DTR	1554401	12249	36	26	90
BIDI MAJDOOR COLONY	1554401	12249	36	21	13
CHAMPABAG	1554401	12249	36	24	73
CHHTRASHAL NAGAR BAGHRAJ WARD	1554401	12249	36	17	35
CJ BRANCH	1554401	12249	36	30	378
DESAI RESIDENCY 1	1554401	12249	36	21	1

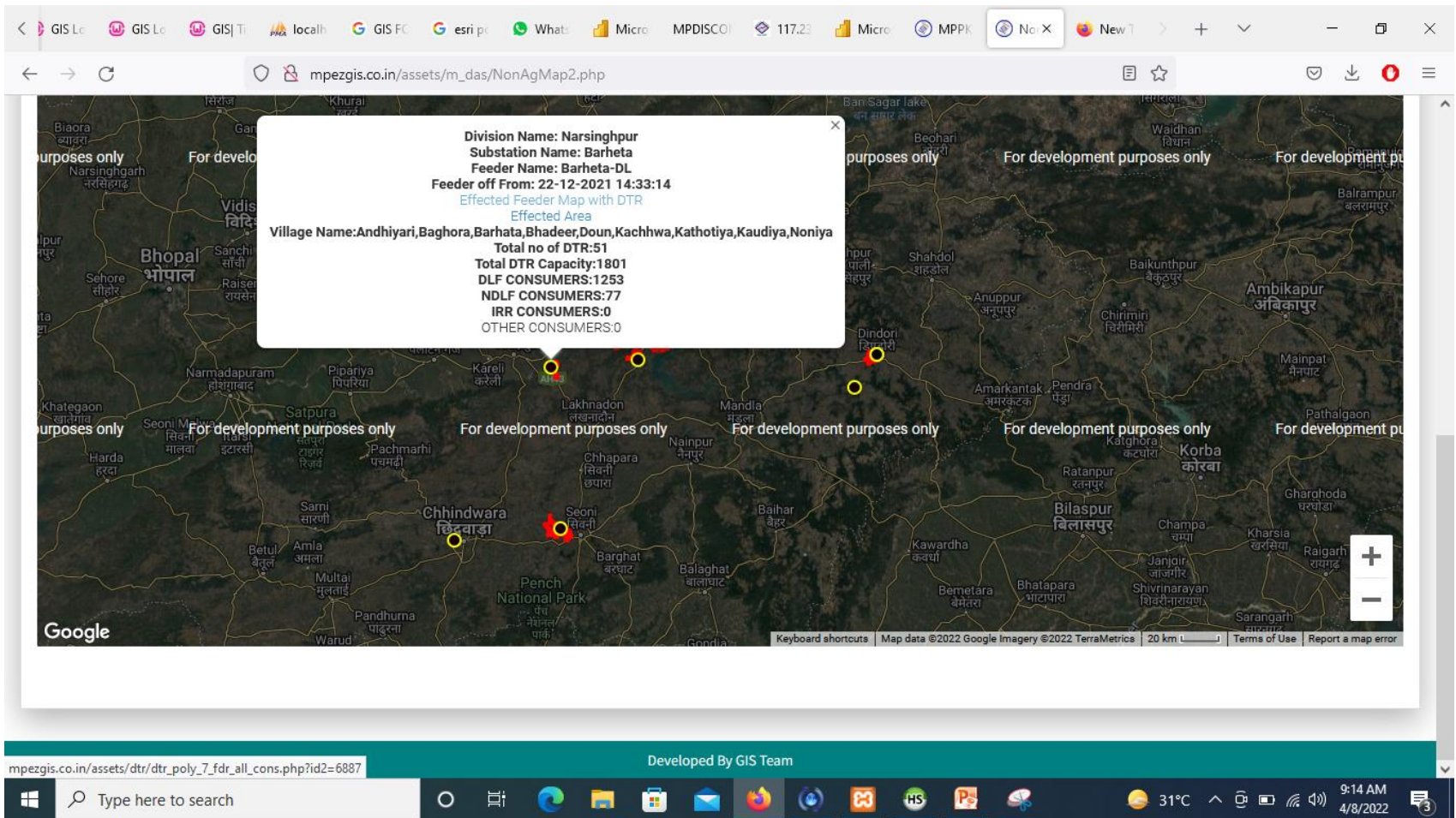
Feeder Name: TIWARA BAZAR



BAGHRAJ MANDIR KE SAMNE
270
Consumer Name:RAJESH KUMAR /BALCHANDRA KORI

Outage Management




Power Failure Map



DC WISE FAILED DTR

Page

Search:

के वी ड्र	11केवी फीडर का नाम	वितरण ट्रांसफार्मर का नाम	फेल हुए वितरण ट्रांसफार्मर का चित्र	शिकायत संख्या	शिकायत स्थिति	Action recorded	स्थल परीक्षण दिनांक और समय	अक्षांश
HORI	Bamhori DL	25 KVA MATA PONDI		129668	DTR to be Issued For ERP Project-2034747	9	2022-04-07 14:49:22	22.971488333333333
HORI	Bamhori DL	25 KVA SCHOOL BAMHORI		138760	DTR to be Issued For ERP Project-2034638	9	2022-04-06 10:13:26	22.991433333333333
TI	KAMTI(AG)	25 KVA RAJPOOT GARDHA		139351	DTR to be Issued For ERP Project-2034617	9	2022-04-05 18:34:54	22.931990000000003

Falied Visualize on Map

