Government of the People's Republic of Bangladesh
Local Government Engineering Department

Field-work Inspection and Monitoring System (FIMS)

Financial Year: 2023 - 2024

Sadik Shams
01-09-2024

Inspection Summary Report

Period: July 2023 to June 2024

Contents

Sadik Sharif.

Abbreviations

ACE	Additional Chief Engineer
AE	Assistant Engineer
DPD	Deputy Project Director
FIMS	Field-work Inspection and Monitoring System (FIMS)
FY	Financial Year
LGED	Local Government Engineering Department
PD	Project Director
RTIP-II	Second Rural Transport Improvement Project
SAE	Sub Assistant Engineer
SE	Superintending Engineer
Sr. AE	Senior Assistant Engineer
SupRB	Program for Supporting Rural Bridges
UAE	Upazila Assistant Engineer
UE	Upazila Engineer
VRRP	Village Road Rehabilitation Project
XEN	Executive Engineer

1. Background

It is to be noted that regular field inspections are being carried out by officials of LGED to ensure quality, timeliness and compliance of ongoing construction and maintenance activities at field level. Paper based inspection reports have been used as a tool to monitor construction and maintenance works under different contracts. In this context, it appears that the traditional paper-based approach is not efficient enough to monitor field works in an effective manner. Against this backdrop, LGED took the initiative for development of a software application with the purpose of facilitating real-time updates of field inspection information in a consistent and proficient manner. Accordingly, a software, namely Field-work Inspection and Monitoring System (FIMS), has been developed under Second Rural Transport Improvement Project (RTIP-II) with a view to enrich and enhance field level contract monitoring capabilities. The software consists of smart phone based mobile applications as well as online web applications.

Main purpose of this initiative is to facilitate a near real-time update of field inspection information allowing engineers to upload inspection data from the field for on-going contracts for roads, bridges and buildings construction and maintenance related activities. It is also intended to enhance productivity, improve inspection consistency, simplify compliance and eliminate backlog paperwork.

2. Features of FIMS

Site inspection visits at project locations involve collecting data, making evaluations and reporting on the findings, observations and recommended actions to be taken to the superiors and to the related officials. The mobile app automate this process and store data in a central repository through backend integration with appropriate server-side applications. Its web interface has a dashboard to produce various statistics on field inspections along with facilitates for managing inspection templates, uploading scheme list, viewing/downloading uploaded reports submitted by the mobile app, generation of reports and so on.

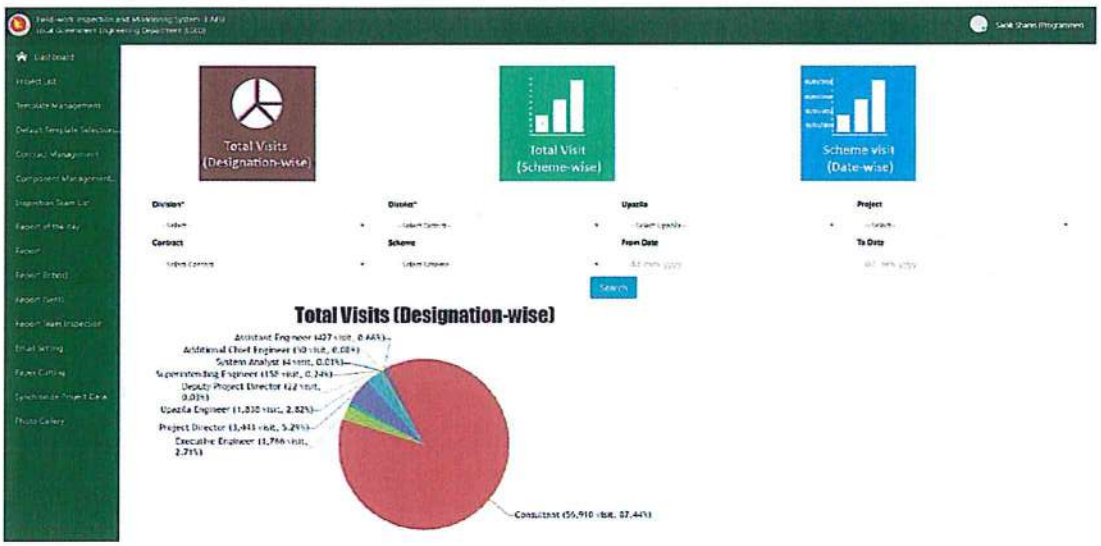

Figure-1: Web interface of FIMS

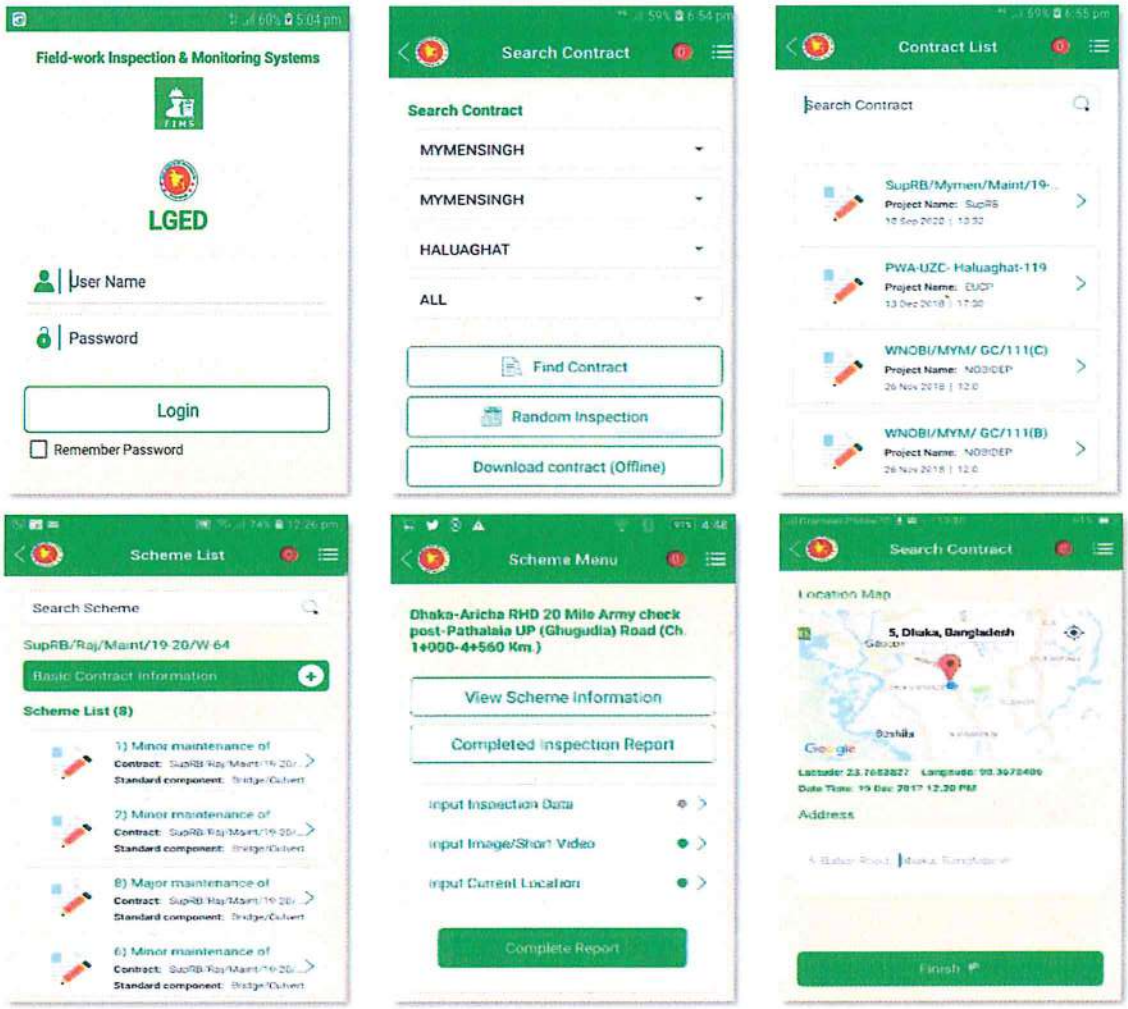

Figure-2: Mobile app interface of FIMS

Key Features:

- Report and monitor field observations in an easy, authentic and aesthetic way on real-time;
- Capable to meet the diversified inspection requirements of versatile projects of LGED;
- Easy to fill-up the inspection form/checklist/templates during field inspection;
- Embed geographic information consisting latitude & longitude coordinates in the report;
- Capture geotagged photographs and/or short length videos of the on-going works;
- Submit and share the inspection report for on-going schemes, and upcoming schemes (random inspection);
- Share the inspection report instantly from the field or later at convenience;
- Monitor the number of field visits conducted by different level of officers;
- Download inspection and other reports from both mobile and web application;
- Enable to create environment friendly paperless reporting.

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3. Implementation Status of FIMS

Software development, testing and deployment was completed in the beginning of 2019. Its web application has been deployed onto the live server located at the data center of Bangladesh Computer Council (BCC). Address (URL) of its web application is http://fims.lged.gov.bd. Android version and iOS of the mobile app is available in the Google 'Play Store' and Apple 'App Store' respectively.

In the process of implementation, after successful deployment, necessary hands-on trainings were provided to the related officials of different projects at headquarter level, executive engineers at district level, members of the inspection team, and field level supervision and monitoring consultants working under different projects.

4. Statistics of Field Inspection Submitted by FIMS during Jul 2019 to Jun 2024

Before doing inspection, it is essential to upload basic information of ongoing packages and schemes are being implemented under different projects onto the FIMS so that real-time field inspection reports can be submitted for those schemes. Accordingly, after having instruction from the Chief Engineer, different projects were start uploading their ongoing contracts (packages and schemes) onto the FIMS. Later on real time inspection has been started when substantial number of schemes were uploaded onto the FIMS.

SL	Financial Year	No. of Inspection
1	FY: 2019-20	259
2	FY: 2020-21	6211
3	FY: 2021-22	10302
4	FY: 2022-23	12321
5	FY: 2023-24	33305
TOTAL		**62398**

Table 1: Number of inspection submitted using FIMS during 2019-20 to 2023-24

Figure 3: Number of inspection submitted using FIMS by Financial Year

4.1. Number of inspection submitted by Division during July-2019 to June 2024

Statistics on number of site visit and inspection submitted using FIMS is demonstrated in the table and chart below:

Division	No. of Inspection during July-2019 to June 2024					Total No. of Inspection
	FY: 2019-20	FY: 2020-21	FY: 2021-22	FY: 2022-23	FY: 2023-24	
RANGPUR	2	961	1067	1141	3136	6307
RAJSHAHI	22	499	909	1644	4812	7886
KHULNA	7	629	1318	2214	5639	9807
DHAKA	38	2301	3034	2959	7046	15378
CHATTOGRAM	36	305	919	1662	4948	7870
BARISHAL	38	543	1467	1630	4486	8164
SYLHET	64	419	552	434	1709	3178
MYMENSINGH	52	554	1036	637	1529	3808
TOTAL	**259**	**6211**	**10302**	**12321**	**33305**	**62398**

Table 2: Number of inspection submitted using FIMS by Division

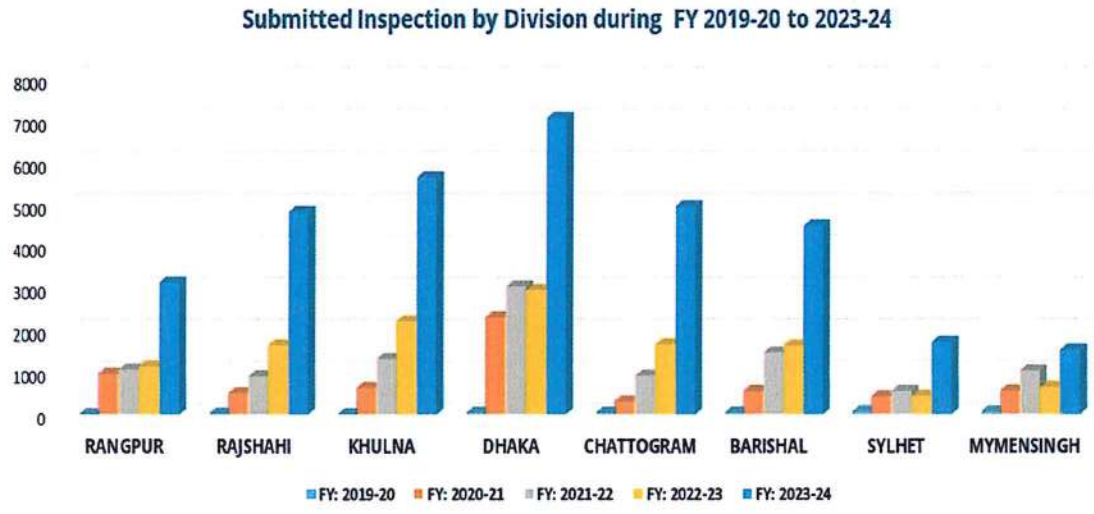

Figure 4: Number of inspection submitted using FIMS by Division

Altogether 62398 inspection reports were submitted using FIMS during July 2019 to June 2024 but in the F.Y 2023-24 a total of 33305 inspection reports were submitted using FIMS.

4.2. Number of inspection submitted by District (FY: 2023-2024)

Statistics on number of site visit and inspection submitted by different districts using FIMS is presented in the table below:

SL	Division	District	Total No. of Inspection	SL	Division	District	Total No. of Inspection
1	RANGPUR	DINAJPUR	568	33	DHAKA	MUNSHIGANJ	397
2	RANGPUR	THAKURGAON	527	34	DHAKA	MANIKGANJ	425
3	RANGPUR	PANCHAGARH	296	35	DHAKA	FARIDPUR	1049
4	RANGPUR	RANGPUR	496	36	DHAKA	RAJBARI	226
5	RANGPUR	LALMONIRHAT	112	37	DHAKA	MADARIPUR	766
6	RANGPUR	NILPHAMARI	623	38	DHAKA	GOPALGANJ	698
7	RANGPUR	KURIGRAM	283	39	DHAKA	SHARIATPUR	295
8	RANGPUR	GAIBANDHA	231	40	CHATTOGRAM	CUMILLA	704
9	RAJSHAHI	BOGURA	826	41	CHATTOGRAM	B.BARIA	482
10	RAJSHAHI	JOYPURHAT	585	42	CHATTOGRAM	CHANDPUR	618
11	RAJSHAHI	RAJSHAHI	765	43	CHATTOGRAM	NOAKHALI	545
12	RAJSHAHI	NAOGAON	370	44	CHATTOGRAM	LAXMIPUR	241
13	RAJSHAHI	NATORE	738	45	CHATTOGRAM	FENI	358
14	RAJSHAHI	C. NAWABGANJ	303	46	CHATTOGRAM	CHATTOGRAM	632
15	RAJSHAHI	PABNA	683	47	CHATTOGRAM	COX'S BAZAR	264
16	RAJSHAHI	SERAJGANJ	542	48	CHATTOGRAM	RANGAMATI	583
17	KHULNA	KUSHTIA	867	49	CHATTOGRAM	KHAGRACHARI	162
18	KHULNA	CHUADANGA	412	50	CHATTOGRAM	BANDARBAN	359
19	KHULNA	MEHERPUR	196	51	BARISHAL	BARISHAL	1116
20	KHULNA	JASHORE	1424	52	BARISHAL	JHALOKATHI	1024
21	KHULNA	JHENAIDAH	540	53	BARISHAL	PEROJPUR	649
22	KHULNA	MAGURA	295	54	BARISHAL	BHOLA	436
23	KHULNA	NARAIL	462	55	BARISHAL	PATUAKHALI	741
24	KHULNA	KHULNA	456	56	BARISHAL	BARGUNA	520
25	KHULNA	SATKHIRA	521	57	SYLHET	SYLHET	494
26	KHULNA	BAGERHAT	466	58	SYLHET	MOULVIBAZAR	327
27	DHAKA	KISHOREGANJ	487	59	SYLHET	HABIGANJ	596
28	DHAKA	TANGAIL	816	60	SYLHET	SUNAMGANJ	292
29	DHAKA	DHAKA	796	61	MYMENSINGH	JAMALPUR	342
30	DHAKA	GAZIPUR	335	62	MYMENSINGH	SHERPUR	339
31	DHAKA	NARSHINGDI	353	63	MYMENSINGH	MYMENSINGH	424
32	DHAKA	NARAYANGANJ	403	64	MYMENSINGH	NETROKONA	424
						Total	**33305**

Table 3: Number of inspection submitted using FIMS by District. FY: 2023-2024

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4.3. Number of inspection submitted by Designation during FY: 2023-2024.

Statistics on number of site visit and inspection submitted by different level of officials/ consultants using FIMS is demonstrated in the table and chart below:

SL	Designation	No. of Inspection During FY:					Total No. of Inspection
		2019-20	2020-21	2021-22	2022-23	2023-24	
1	ACE	1	7	34	7	1	50
2	SE	1	34	29	90	1	155
3	PD	56	8	1321	1442	523	3350
4	XEN	18	666	648	242	73	1647
5	DPD	1	2	13	3	1	20
6	Sr. AE	56	89	32	14	1	192
7	AE	10	60	26	31	14	141
8	UE	86	80	609	644	102	1521
9	UAE	1	0	15	7	2	25
10	Consultant	29	5265	7575	9841	32587	55297
Total		**259**	**6211**	**10302**	**12321**	**33305**	**62398**

Table 4: Number of inspection submitted using FIMS by Division

Statistics on number of site visit and inspection submitted by different level of officials/ consultants using FIMS is presented (in %) in the Column-chart below:

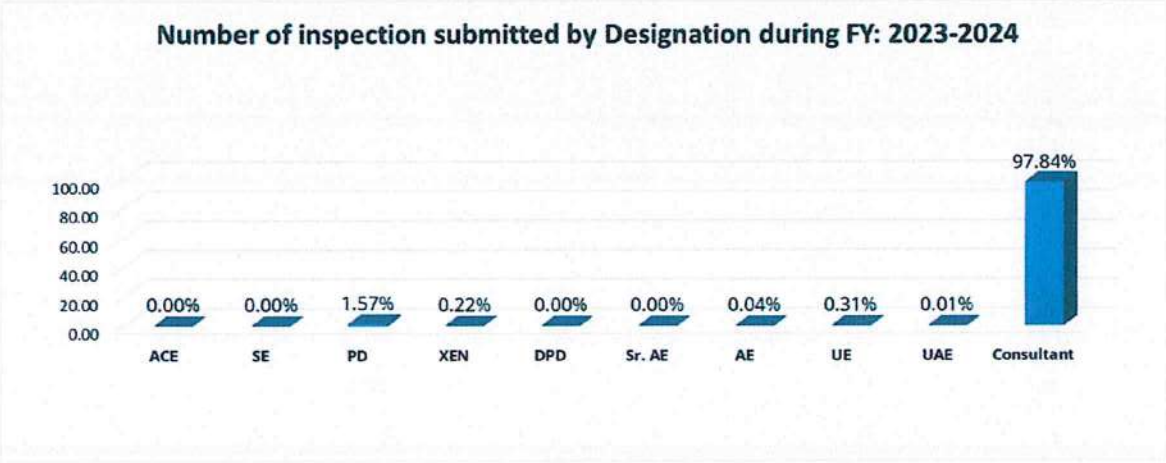

Figure 5: Number of inspection submitted using FIMS by Designation during FY: 2023-2024

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4.4. Number of inspection submitted against Project during FY: 2023-2024

Statistics on number of site visits and inspection submitted against different projects using FIMS is presented in the Pie-chart below:

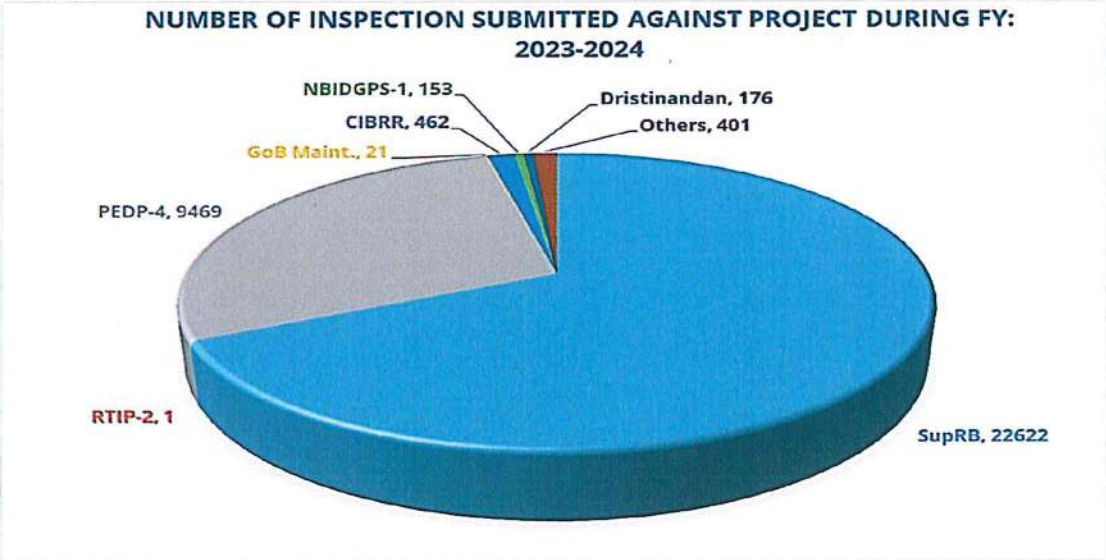

Figure 6: Number of inspection submitted using FIMS against Project during FY: 2023-2024

5. Summary of Findings from Field Inspection Report

Several inspection templates are available in FIMS to prepare field inspection report. Most of the cases general and quick inspection templates are being used by the inspectors while fill-in and submit inspection report using FIMS. Those report template consists of name of the district, upazila, and project, package number and name of the scheme being inspected along with road ID, designation of the inspector, date and time of inspection, description of work, work status, overall progress, observation of work being inspected, recommendation, GPS position (latitude, longitude) of the scheme and geotagged photos of ongoing works.

Whilst reviewing the submitted reports, it is found that in most cases the inspectors reported on quality and quantity progress of work as satisfactory and work was done according to the specifications. During site visits the inspectors sometimes checked the material quality and provided their observations as well. In some cases, some deviations have been observed, where inspectors instructed contractors to rectify the same. Some sample of recommendations provided against not fully satisfactory works during Site visit by the Field officials are as follows:

- Quality of work was found satisfactory, but Hand Gloves are found insufficient. Contractor has been instructed to procure sufficient Hand gloves to ensure safety of workers.
- Contractor has been instructed to take initiative for removing Electric Pole before starting of Work.
- It has been found that expiry of water filter will be over very soon. Contractor has been instructed to change the water filter to ensure supply of Hygienic drinking water to the workers.

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- Since the Pile diameter is more than 800mm, as such contractor has been instructed to use Rotary Drilling in lieu of Percussion Drilling.
- Water cement ratio should be maintained properly during concreting work.
- Layer wise compaction should be ensured at backfilling work.
- Stack of Stone chips and sand should be covered.
- Contractor has been instructed to take safety measures surrounding the Construction site where Winch machine is installed.
- To accelerate the work progress, Contractor has been instructed to engage sufficient manpower.
- Contractor has been instructed to perform slump test during concreting to ensure workability of concrete.
- All the test reports are not found at site. As such, Contractor has been instructed to keep all the Test reports at site.
- During visit, Contractor's Representative /Engineer was not found at site. Contractor has been informed to keep Contractor's Representative /Engineer always at site.
- Some leakage has been found in Shuttering. Contractor has been advised to make the Shuttering leak-proof.
- Some inferior Quality of CC block has been found at Site. Contractor has been instructed to remove inferior quality of CC block and cast CC block again as per specification.
- Adequate quantity of PPE was not found at site. Contractor has been instructed to procure adequate quantity of PPE. Contractor has agreed to procure the same.
- During visit, it has been found that for Dust Suppression, water is being sprinkled once daily. Contractor has been instructed to sprinkle water three times daily and regularly.
- Requested Upazila Engineer to issue administrative letter against the Contractor for non-compliance of OHS issues.
- Contractor has been instructed to submit Pile load test methodology before preparation of pile load test work.
- Before Deck slab casting, some shortcomings have been identified and shown to the contractor to rectify those before casting. Contractor has agreed to rectify those defects.
- Implementation of Traffic Management Plan was not found adequate. Contractor has been instructed to ensure proper Traffic Management Plan.
- During visit, it has been found that before applying Prime coat, existing surface was not cleaned properly. Contractor has been advised for cleaning the surface properly before applying prime coat.
- Contractor has been advised not to do painting work during rain or just after rain. Contractor has also been advised to bring well graded stone chips at site.

During follow up visit, it has been found that most of the recommendations have been addressed by the contractor.

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6. Training on FIMS

To train up the LGED Engineers and other site supervisors on the application of FIMS, Two training programs on FIMS have been organized virtually (Mobile app and web application) in the financial year of 2023-24. Those training program were hands-on practical training for the participants where details of the applications were discussed and participants practically worked on Application of FIMS from their duty station. While practicing we have guided them how to operate and how to provide quality input by giving proper information in FIMS mobile app and get report.

Table 5: Summary of training courses and participants is given below:

Date of Training	Level of Participants	Designation	No. of Trainees
27/12/2023	HQ Level, Region Level, District Level, Upazila Level	PD, DPD, XENs, BMEs, RQCEs, Survey Specialists, FREs and AEs under SupRB and Others Consultants	161
05/05/2024	Upazila Level	UE and UAE (GOB)	80
		Total	**241**

7. Training Plan for FY 2024-2025

It is planned that in Financial Year 2024-2025, Training on FIMS will be provided to 980 Field Participants. To improve the quality of FIMS report, primarily initiative will be taken by providing Hands on Training to the key officials (Consultants and LGED senior Field Officials), who will disseminate their knowledge and experience to the LGED Field Supervisory staff afterwards. The Key officials will be taken to the ongoing site where they will practice mobile apps for quality reporting in FIMS as well as participants will be trained for capturing important photographs.

8. Conclusion

It is nevertheless to say that implementation of a new system and change management for adaptation of the same is always being considered as a challenging task. Consequently, to bring the FIMS as a tool to carry out regular field level inspection also faces similar challenges. Initially, during FY 2019-20 only a few inspections were submitted by FIMS, but, it get momentum from the subsequent financial years where a substantial number of inspections were submitted using FIMS mainly due to strong commitment and willingness of the senior management of LGED towards using the app in day-to-day activities. Field level officials are become accustomed with the mobile app, and submission of significant number of site visit reports. It is a matter of hope that site visit reports are gradually increasing day- by -day.

However, it has been observed that most of the site visit reports are being submitted for the ongoing contracts under SupRB, PEDP-4, CIBRR, RTIP-2, KBSRIDP, GoB Maint. , CAFDRIRP, CIBRR, NBIDGPS-1, Dristinandan and also some other projects, where maximum number of reports were submitted by the field level consultants of respective projects. As discussed earlier, it was not possible to arrange adequate hand-on training sessions to cover all the relevant officials and staffs of LGED mainly due to COVID-19 pandemic situation. We have arranged online virtual training, and it presumes that number of inspections using FIMS are increasing day by day where LGED officials are submitting their regular inspection reports whilst visiting sites under different projects. Earlier OHS issues were rare addressed in the FIMS report. Since Training has been provided to the OHS officers, at present, OHS issues are being addressed significantly.

In the Financial year 2023-2024, provisions have been kept for providing training to the GoB officials such as Upazila Engineers, Upazila Assistant Engineers, and Sub-Assistant Engineers etc. If training is provided to UEs, UAEs and SAEs, more report will be generated, since these officials visit the construction sites very frequently.

Quality of reports submitted by FIMS appear satisfactory in most cases and already improved, but, report writing quality needs to be improved more to identify relevant topics. It is found in many cases that detail description of inspected works along with observations and recommendations were not articulated adequately, which needs to be enriched to make the inspection report more beneficial.

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Annex-1: Randomly Downloaded Inspection Reports from FIMS

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Details Information of Inspection (Component wise)

1. New Construction

District: B.BARIA, **Upazila:** NABINAGAR ,**Package No:** SupRB/BBaria/New/21-22/W-27
Scheme Name: Construction of 40.06 m long RCC Girder Bridge on Bottali R&H-Bitghar GC Road at Chainage: 6470m (New Ch 5464m) under New Construction category **Road ID:** 412852003

Before Work Start Picture:

Ongoing Work Picture:

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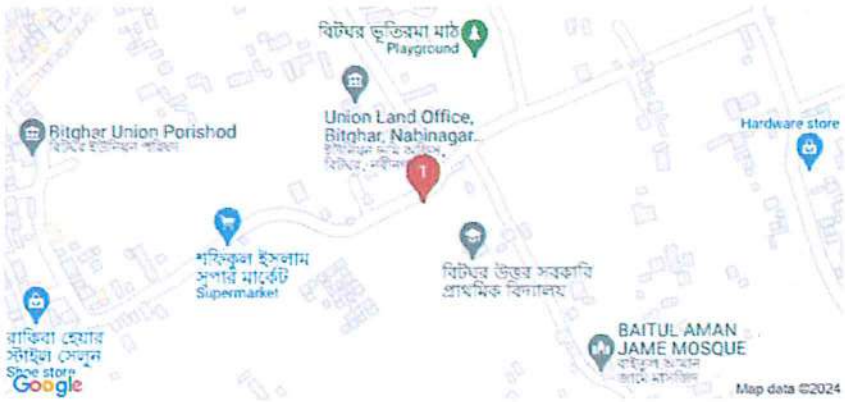
Completed Work Picture:

Location Map:



Location: R2MR+V4R, Bitghar, Bangladesh
Latitude: 23.835093
Longitude: 91.0399122

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2. Capacity Expansion

District: Chuadanga, **Upazila:** Damurhuda, **Package No:** SupRB/Chua/CE/22-23/W-08
Scheme Name: Capacity Expansion of 12.00m RCC Girder Bridge with Construction of 17.00m RCC Girder Bridge on Bhalaipur R&H-BhogiratpurG.C-Gopalpur-Hematpur-Boalmari-Sadarpukur-Muzibnagar Road at Chainage: 409m [218312003], **Road ID**: 218312003

Before Work Start Picture:



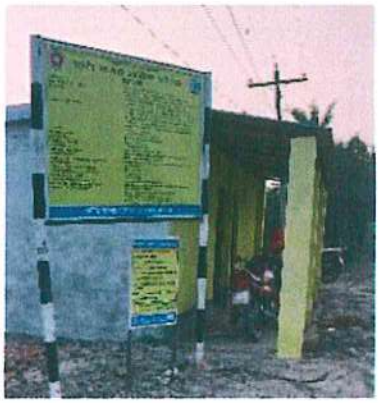


Sadik Sharif,

Ongoing Work Picture:











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Completed Work Picture:

Sadik Sharma

Location Map:

Location: V29J+8GC, Poradah Bazar, Bangladesh, Latitude: 23.868378333333332 Longitude: 89.03110999999998

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3. Major Maintenance-1

District: THAKURGAON, **Upazila:** PIRGANJ ,**Package No:** SupRB/ Thakur/ Maint/ 22-23/ W-590
Scheme Name: Major Maintenance of 220.75m long RCC Girder Bridge on Bhanga Madrasha RHD-Nakkati GC Via Bhabnagonj hat Road at Ch: 6006m [194822011], **Road ID:** 194822011

Before Work Start:

Ongoing Work Picture:

Completed Work Picture:

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Location Map:

Location: Pirganj-Nakati-Vabnaganj Road, null, Bangladesh, Latitude: 25.8953008, Longitude: 88.4171273

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Major Maintenance-2

District: CHANDPUR, **Upazila:** FARIDGANJ , **Package No:** SupRB/Chan/ Maint /21-22/ W-264
Scheme Name: 1.Major Maintenance of 24.30m RCC Girder Bridge on Faridganj GC-Chandra GC Road at Ch.2550m, **Road ID:** 413452002

Before Work Start:

Ongoing Work Picture:

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Completed Work Picture:

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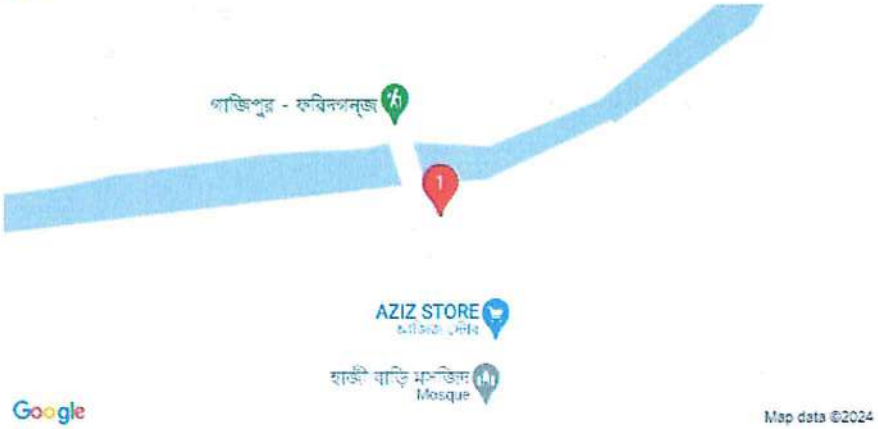
Location Map:



Location: গাজিপুর - ফরিদগনজ, null, Bangladesh, Latitude: 23.1547075, Longitude: 90.7445341

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4. Replacement-1

District: CUMILLA, **Upazila:** MONOHORGANJ, **Package No:** SupRB/ Cum/ Replace/ 19-20/ W-01
Scheme Name: Replacement of 50m long RCC Arch Girder Bridge on Munshirhat-Hasnabad Road at Chainage: 5554m [419902005] **Road ID:** 419902005

Before Work Start:

Ongoing Work Picture:

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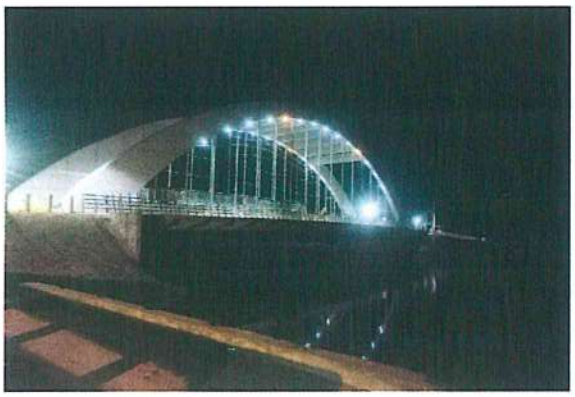
Completed Work Picture:






Location Map:

Location: 43Q5+JWV, null, Bangladesh, Latitude: 23.1381929, Longitude: 91.0599603

Replacement-2

District: FARIDPUR, **Upazila:** FARIDPUR-S,
Package No: SupRB/Farid/ Replace/21-22/W-281
Scheme Name: Construction of 36.06m long RCC Girder Bridge on Kanaipur G.C-Sadardi Hat GC via Hat Gobindapur Road at Chainage: 9400m under Replacement category [329472008], **Road ID:** 329472008

Before Work Start:

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During Work:

Sadik Slam E.

Completed Work Picture:

Sadik Shams.

Location of work:

Location: JR6Q+FJR, Faridpur, Bangladesh, Latitude: 23.6110916, Longitude: 89.8395751

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5. Minor Maintenance

District: DINAJPUR, **Upazila:** DINAJPUR-S
Package No: SupRB/ Dinaj/Maint/21-22/ W-359
Scheme Name: Minor Maintenance of 175.00m long PC Girder Bridge on Ranigonj GC to Motunirhat (Kaharol) GC via-Jamtoli,Nasipurt Road at Chainage:5000m, **Road ID:** 127642005

Before Work Start:

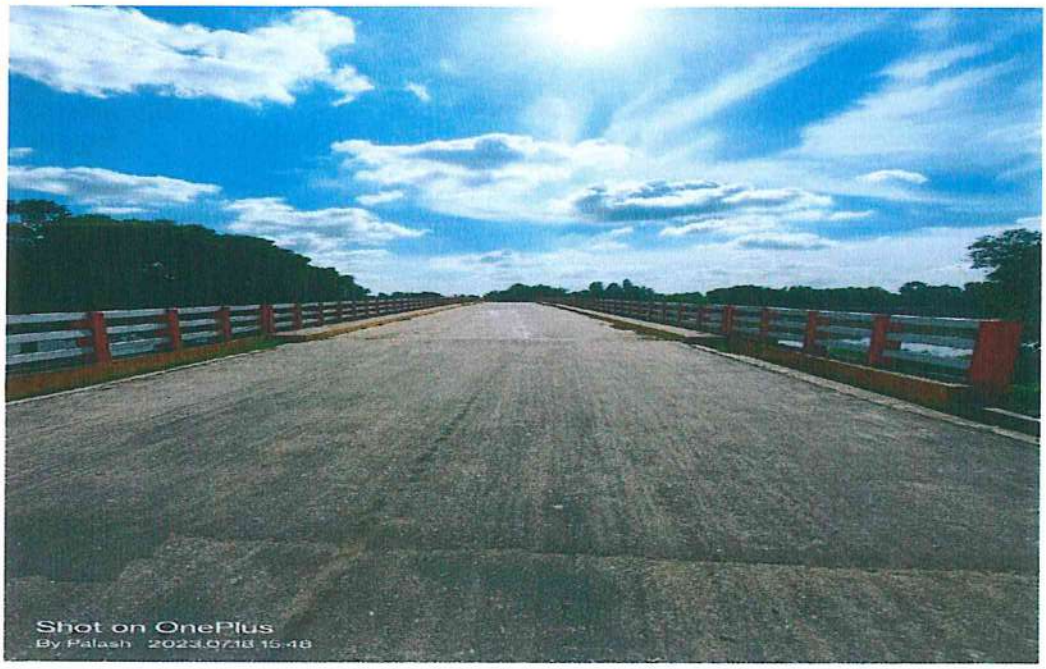

During Work:







Completed Work Picture:



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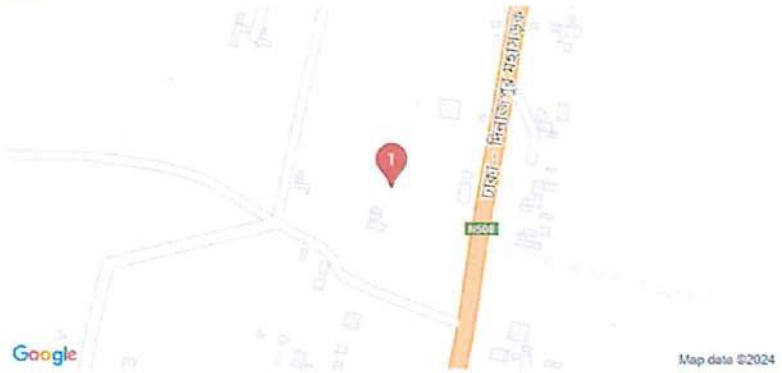
Location of work:



Location: PMXC+X9X, Beldanga, Bangladesh, Latitude: 25.750568, Longitude: 88.6716047

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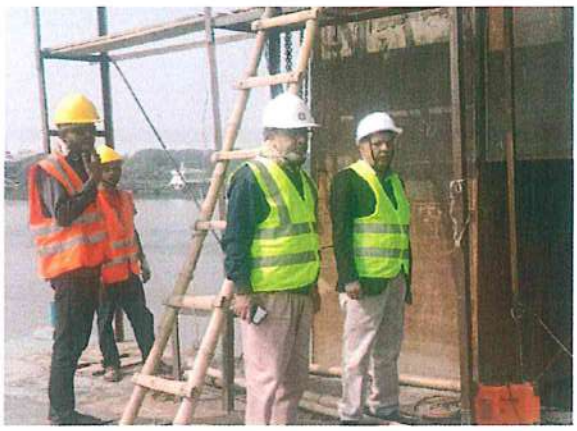
6. Rehabilitation-1

District: JASHORE, **Upazila:** ABHOYNAGAR, **Package No:** SupRB/Jas/Rehab/22-23/W-11
Scheme Name: Rehabilitation of 702.55m PC Girder Bridge on Jessore Khulna RHD Bhangagate (Badamtala) - Amtala GC via Moricha, Nawly Bazar Road at Chainage: 348m [241042007] , **Road ID: 241042007**

Before Work Start:


During Work:






Sadik Sharif

Completed Work Picture:

Sadika Shams.

Location of work:

Location: 394P+9R, Noapara, Bangladesh, Latitude: 23.0552981, Longitude: 89.3853567

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Rehabilitation-2

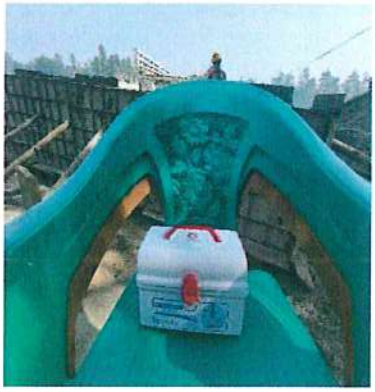
District: TANGAIL, **Upazila:** TANGAIL-S, **Package No:** SupRB/Tang/Rehab/21-22/W-04
Scheme Name: Name: Rehabilitation of 99m PSC Girder Bridge with 90m extension of RCC Slab (Total length=189m) on Barabasalia Bazar- Mogra UP- Mirpur Road at Chainage: 1500m under Rehabilitation category [393953005], **Road ID:** 393953005

Before Work Start:


During Work:




Sadik Sham F.


Completed Work Picture:

Sadik Shams.




Location of work:

Location: 8WC3+F4H, Kuiz Bari, Bangladesh, Latitude: 24.3219799, Longitude: 89.9054567

Sadika Shams
07-05-2024

01-09-24
মোঃ রেফফাত নূর
নির্বাহী প্রকৌশলী.SupRB

01/09/2024
(মোঃ আনোয়ার হোসেন)
প্রকল্প পরিচালক (SupRB)