Application of Project Monitoring Information System (PMIS) for the robust monitoring of the School Reconstruction Program in Nepal during Covid-19 Pandemic

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September 6, 13:00-15:00 (Japan Time)

TC21 Special Session on JSCE Annual Meeting



School Damage and Reconstruction: Overview

2015: Earthquake (Mw: 7.8) damage scenario

- Damaged and destroyed: 9,552 schools (54,584 classrooms)
- Estimated costs according to the PDRF: 1806 US \$
 Million

2021: Progress

- Schools to be constructed (majorly) : 7553
- School reconstruction completed: 6,647
- On-going school reconstruction: 936











Challenges of School Reconstruction during Covid-19



- Fully lockdown (Travel restriction)
- Material transportation and Workforce problem
- > Diverse geography, difficult terrain
- Many and scattered sites in districts
- Challenges in monitoring of progress, quality and tracking of site engineers
- Monitoring of Build Back Better (Earthquake resilient) features
- Urgency of timely completion of Project
- Resident Engineer, Quality Control Engineer and management team are facing difficulties to attend the site physically
- Poor internet accessibility

Impact of Covid-19 in Project

- Progress slow down (decreased)
- Difficulties in physical monitoring and quality control in construction
- Fear among staffs and workers
- Marinating Covid response facilities in each site demanded additional cost



How these problems were overcome

- Maintaining SoP/Health and Safety protocol at all level
- Facilitating in material and workforce supply through Government Pass
- Use of virtual platform for sharing
- Virtual Monitoring from Situation Room (Photo Streaming Service)
- Utilization of Project Monitoring Information
 System (PMIS) in accessing and dissemination of project information



PMiS for <u>real time</u> progress monitoring, workforce tracking & <u>quality control</u> tracking <u>during</u> Covid -19 Pandemic Application of Project Monitoring Information System (PMIS)

How it works?

The system works on top to bottom and bottom to top approach



Workflow/ dataflow

The system works on top – down and bottom – up approach to collect field level real time progress and issues



Objectives

- Cloud based Project Monitoring System
- Mobile Apps for real-time progress tracking in diverse geography (O2O)
- A platform for complete information related to the project
- Tracking details project information
- > Quality control and HR tracking
- Virtual Monitoring in real time basis



Major Features of PMiS

- > Geographical Dashboard
- Mobile Apps for field level Data acquisition
- > Baseline Survey
- > Implementation Delay Alert
- Workforce lacking and Quality Alert
- > Workforce/HR Tracking
- > Quality Control Module
- CA and D ; Document Management
- Communication/Instruction



Reporting Delay

- Reporting Delay of Resident Engineer and Site Engineer.
- Auto alert of sites whose progress is not reported since more than 15 days.



Filter					
Select Project		Select CLPIU		Select District	
Disaster Resilience of Schools Project	~	CLPIU-Education	~	Ramechhap	~

List o	f Reporting Delay					
SN	Contract ID	Site Name	Site Engineer	Contact	Last Progress Date	 Days Count
1	DRSP/CLPlu/74/75-Ramechhap-01	24_Shree SS, Sikral			2021-03-25	119 Days
2	DRSP/CLPIU/076/77-Ramechhap-02	045_Surke Deurali SS		9851037555	2021-07-06	16 Days

E-Mail Alert

Quality, Safeguard and any Critical issues raised by RE & QCE using Apps will be auto-mail to all concerned persons

ase: 2018-04-03 / SHREE SHARADA MA VI / nirakarjoshi@gmail.com Nirakar Joshi District Contract Site Name Case Raised By Date Construction of 3 Schools Building Complex in kathmandu (EEAP/MOE/CLPIU/073/74-Kathmandu-04) SHREE SHARADA MA VI nirakarjoshi@gmail.com Nirakar Joshi 03 April 2018 Kathmandu Observations Action required Instructed to check with dsc for bar bending schedule and provide new design and corrective measures. ase Images ctivities Source Туре Quality Remarks Status Date Images Action Points Please discuss with DSC RE to maintain design compliance Report back one rectified Open 18 May 2018 system

Workforce tracking

- Tracking of required workforce and available workforce of each site will be updated by Site Engineer
- Monitor from the central level experts

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Select Project		Select Department		Select District	Se
-	*	Ministry of Urban Development and Buildin;	۳	*	
Select Year		Select Month		Action	
	*	June		Load Report Clear	

uman Resources Tracking Report

SN	District	Category	Name	Contractor	End		Nu	mber	of w	orkei	rs for	the	mont	h of											
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Human Resources Tracking Report

Home / Data Analysis / Human Resources Tracking Report

Filter						
Select Project	Select Department		Select District		Select Site	
Disaster Resilience of Schools Project	CLPIU-Education	~	Ramechhap	~	-	~
Select Year	Select Month		Zero count		Action	
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Human Resources Tracking Report

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Time Series

Time Series Construction Activities

- Site-wise Construction
 Activities can be observed
 with real time visual
 images/video at least in
 interval of 15days
- Reporting from SE and monitor from the central level experts



S-Curve

- S curve analysis Contract/School wise
- Auto generation of S-Curve based on site plan and progress submitted by RE/SE

Select Site

Scurve	Progress(RE)	Time Series(RE)	Time Series (ME
Site Progre	255		
ercentage	e Physical Progress	5	
	081_Balbodh SS - Cons	truction of 16 school buildin	g in Kathma
			Progra

PMIS Quality Case Alert

- 1. Quality Case Registered by RE Naresh Kausula on 4-May 2021
- 2. Instructed to SE and Workers
- 3. Mail Alert sent to all concerned
- 4. Rectified the Issue and close the case by Quality Control Engineer



District	Contract		5	Site Name	Case Raised By	/ Date
Cavrepalanchok	Retrofitting of 11 school building in Kav (DRSP/076/77-Retro-02)	replanchowk, KTm,BKT and Sindhupalchowk district under the supervision of DRSI	P F	R1-58_Jogeshwor S	Naresh Kasula RE_Kav	04 May 2021
bservations	Ac	tion required	Rem	narks		
	To	construct pocket beam	Imm	ediately to do		
ase Images						Edit Activ
ase Images						Edit Activi
ase Images ctivities jource Type	Quality	Remarks	Status	Date I	Images	Edit Activi Image Upload



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QA Case activity 🕨 Inbox ×

pmisalerts@pmis.nra.gov.np

to me, ganga, dtl_drsp, quantity.cost, diwatstha, yrpaudyalnra, ipk2028, nepal2020.zia, renaresh.drsp, quality Dear User,

This is to inform you regarding a recent activity done by ME for QA on **R1-58_Jogeshwor SS**,Kavrepalancl The case has been successfully closed by the Administrator/Officer with following comments:

Splint directly drilled in existing plinth beam. need pocket beam

Action Type : Compliance : Quality Progress :

Remarks :

Administrator PMIS DESK National Reconstruction Authority



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plementary drawing	Follow the supplementary drawing provided later.	Open	04 May 2021	
s instructed.	It is provided as instructed.	Close	07 July 2021	

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District	Contrac	ct			Site Name	Case Raised By	Date
Kavrepalancho	k Retrofitt	ing of 11 school building in Kavreplanchowk, KTm,BKT a	nd Sindhupalchowk district under the supervision of DRSP (DRSP/076/77-Retro-02)		R1-58_Jogeshwor SS	Naresh Kasula RE_Kav	04 May 202
Observations		Action required		Rema	rks		
0		To construct pocket	beam	Immed	diately to do		
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							Edit Activitie
Activities							
Source Typ	pe	Quality	Remarks Sta	atus	Date Im	ages Imag	e Upload
System Cor	mments		splint directly drilled in existing plinth beam. need pocket beam Op	ben	04 May 2021	Up	load Image
System Act	ion Points	Follow the supplementary drawing provided later.	Follow the supplementary drawing provided later. Op	en	04 May 2021	Up	load Image
System		It is provided as instructed.	It is provided as instructed.	ose	07 July 2021	Up	oad Image

Conclusions

- Covid is a new case for Nepal/World (many factors are still unknown)
- Preparedness and response from the Govt. were not adequate in the beginning but increased capacity at the later stage
- Implementation of SOP and site level preparedness and response, is challenging due to low level of awareness and internalization of the risk.
- Inter-agency co-ordination plays a vital role (local, district and central)
- Use of web-based technology such as PMIS is found very effective. It helps in progress monitoring, resources tracking and quality control in construction and sharing the information from Central to Local and vice versa.

Thank you