# **System Requirement Specification (SRS)**

e-PEMS - eDATS Integration

# Ministry of Finance Department of Public Accounts

# **Revision History**

Date	Version	Description	Author
11 August 2022 - 22 Nov 2022	1.0	First draft	Kinzang Norbu, Dy. Chief Finance Officer, DPA Shyam Kumar Rai, Sr. Finance Officer, DPA Sonam Tashi, Sr. Finance Officer, MoEA Samuel Pradhan, ICT Officer, MoF Phurpa Wangdi, ICT Officer, MoF Achut Nepal, ICT Officer, MoF Tshering Pem, Accounts Asst. Supreme Court Sonam Lhamo, Accounts Asst. Thimphu Dz.

### Introduction (About ePEMS, eDATS and Integration)

The Ministry of Finance with the view to strengthen the Public Financial Management developed a digital electronic Public Expenditure Management System (e-PEMS). ePEMS facilitates online accounting and payment systems for promoting cashless and digital payments in the country by improving the efficiency of its process, consistency, and quality. It operates in calibration with RMA's BIRT (Bhutan Inter-Bank Real Time Fund Transfer System) payment system, a platform which complements and supports the settlement of interbank transactions.

Similarly, in an effort to leverage the use of ICT technology developed a digital electronic Daily Allowance and Travel System (eDATS), an online travel authorization and claims system.

Following this, the Ministry has initiated integration between ePEMS and eDATS. Integrating between the two systems involves the process of uniting all virtual components into a single cohesive infrastructure to ensure that all the individual pieces of data stored work as a whole. Virtual components consist of all the data that is stored in software, applications and databases. The primary reason for integrating between ePEMS and eDATs is to enhance communication between the two systems that work together in harmony while processing the TADA claims by boosting productivity and enhancing the quality of day-to-day operations. System integration helps accelerate the outflow of information and cut back on operational costs.

# **Actions for Integration (Scope)**

- Payroll Department
- Registration of Employee
  - Non Employee (General Public)
  - Promotion
  - Demotion
  - Transfer
- Travel authorisation for advance & PI for advance payment
- Travel claim / Payment & PI for TA claim
- Reports
  - ➤ New reports in e-PEMS
  - > New reports in eDATS

# **Technical Specifications (e-PEMS & eDATS)**

eDATS: Built using laravel framework.

Language:php
Database:Mysql

Server: ubuntu Linux.

**e-PEMS**:Built on ASP.NET platform.

Language: c#
Database:Mysql

Server:window Server.

# Data synchronization e-PEMS and eDATS

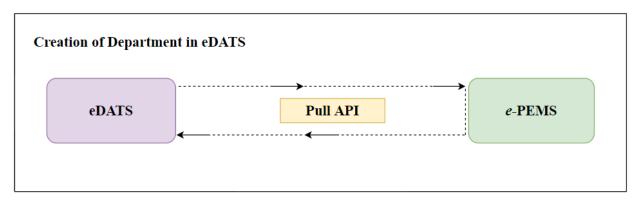
There should be data synchronization or mapping between e-PEMS and eDATS. This indo is for the current employee data which are in eDATS. Some of which are;

- 1. Payroll Department at ePEMS should be mapped to the Department in eDATS.
- 2. Employee details in ePEMS should match with the employees details in eDATS for the existing employees.

3.

### 1. Payroll Department

### Data Exchange Methodology



### e-PEMS (General Changes)

The existing ePEMS will be mapped to the eDATS. Only the new payroll departments in ePEMS needs to be mapped to eDATS. There will be multiple payroll departments in ePEMS as there is restriction of about 100 employees for disbursement of salary, where as in eDATS it is not. So multiple payroll departments can be mapped to one department in eDATS.

Payroll Department will be created in e-PEMS as normal but We are not going to push these
details to eDATS rather we are going to pull the data from ePEMS to the eDATS as
mentioned in the diagram above.

### Flow

1. Payroll Department: eDATS (consumption) will search the payroll department "Master Department" in ePEMS and check the existing data in eDATS. The payroll departments that are not mapped to eDATS will be pulled to eDATS. The data are payroll department code, administrative unit, administrative name, department/sector name, workcharge, Account number ID, the following data will pull through API by eDATS from e-PEMS Master Employee Table:

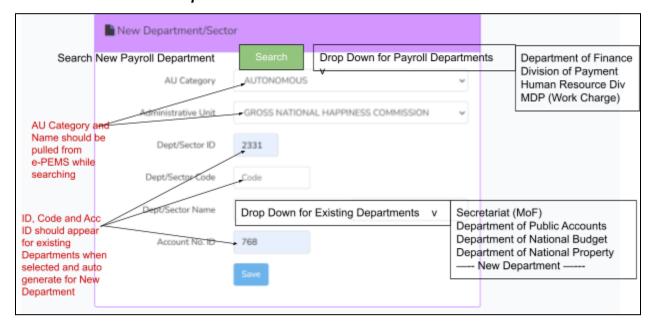
CID, Bank Account Number, Position Level, Position Title, EID, TPN, Employee Type, Payroll Department

### eDATS (General Changes)

- 1. Payroll Department: The Master Admin in eDATS should be able to search any new department added in ePEMS from the add new department screen.
- 2. The existing payroll department of ePEMS and eDATS will be mapped manually.

3. The user interface for the new payroll department is shown below.

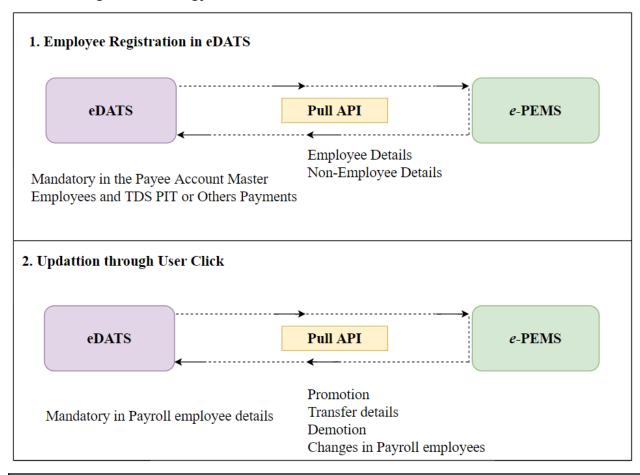
### User Interface for New Department in eDATS



- 1) Search Button: By Clicking on the search button, all payroll departments (Active only) should be pulled to eDATS. It should then check whether the payroll departments are mapped to the Departments in eDATS. Only unmapped payroll departments will be displayed in the drop down for payroll departments like in the third box in the UI above.
- 2) AU Category & AU Name: The AU Category and AU Name should be pulled from the e-PEMS while search for the payroll Department and accordingly displayed.
- 3) ID generation by eDATS: The Dept ID, Dept Sector code and Acc No ID may be generated as per eDATS.
- 4) Drop Down for Existing Departments: In the drop down menu for existing departments, the existing departments shall be displayed followed the option for creating new Department.
  - a) While Clicking the new Department option, the name for new department should be editable "Department of Finance".
  - b) Like sl. Above 3 above, IDs and code should be auto generated.

### 2. Registration of Employee

### Data Exchange Methodology



### e-PEMS (General Changes)

- 1. When a person is appointed in the civil service, his/her details like TPN, CID, EID, Bank Account Number have to be submitted to the Finance Section/Accounts Section for registration. The agencies will send requests to update in Payee Account Master in the e-PEMS system to DPA. After updating the Payee Account Master then agencies will add the employees in the payroll department respectively. We are not going to push these details to eDATS rather we are going to pull the data from ePEMS to the eDATS as mentioned in the diagram above.
- Non Public Employees: When non public claimees attend the Govt Workshop /Training / Seminars, his/her details like TPN, CID, EID, Bank Account Number have to be submitted to the Finance Section/Accounts Section for registration. The agencies will send requests to update in the Payee Account Master under TDS PIT or under Others Payment (without TPN)

- in the e-PEMS. We are not going to push these details to eDATS rather we are going to pull the data from ePEMS to the eDATS as mentioned in the diagram above.
- 3. Employee Details Update: The employee details like promotion, transfer, demotion all to be updated in e-PEMS. We are not going to push these details to eDATS rather we are going to pull the data from ePEMS to the eDATS as mentioned in the diagram above.

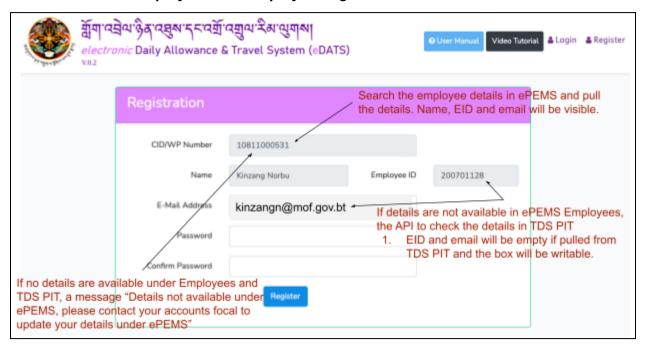
### Flow

- 1. Employee Registration : eDATS (consumption) the following data shall be pulled through API by eDATS from e-PEMS Master Employee Table:
  - CID, EID, TPN, Employee Name, Bank, Bank Branch, Bank Account Number, Position Level, Position Title,, Employee Type and Payroll Department.
- 2. Non Employee Registration : eDATS (consumption) the following data shall be pulled through API by eDATS from e-PEMS Master Employee Table or the ePEMS Payee Account Masters TDS PIT Table:
  - CID, TPN, Employee Name, Bank, Bank Branch and Bank Account Number.
- 3. Employee Details Update: In the eDATS screen, the employee details are displayed. The employee shall check his details and if the details are not updated, he shall have the details to update by click the option "Update"

### eDATS (General Changes)

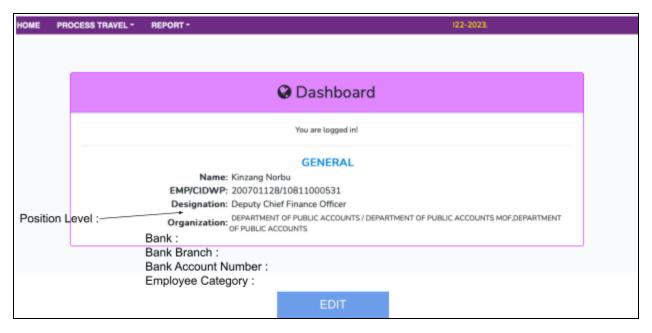
- Employee / Non Employee Registration: An employee shall apply for registration for the first time, system shall pull details from e-PEMS as per user input (CID). If the employee data is not available in the Master Table of e-PEMS (Pop up message-Employee is not available in e-PEMS)
- 4. Employee details display: The Position Level shall be displayed in addition to the existing information on the dashboard.
  - There shall be an update "button" on the user dashboard to update their data by fetching automatically from the Master Employee Table. This is when the user finds that their data is not updated (Promotion, Transfer, Demotion, etc.). There shall be message box "data updated". On the update button, the pull API shall be linked to the employee masters.

### User Interface for Employee / Non Employee Registration in eDATS



- 1) CID text box: By Clicking on the CID text box, it shall check / pull the following:
  - a) The system shall first check if the employee exists in the eDATS database and if so, a message "employee already registered" shall be displayed.
  - b) Second and thereafter the API will first search the employee details in the ePEMS and the relevant datas will be pulled. Name, EID and email will be displayed on the screen with the option for password.
  - c) If the employee details are not available under employee master in ePEMS, then the API shall check the TDS PIT masters and display Name only however other records will be pulled simultaneously. The EID and email shall be writable by the user.
  - d) The message "Details not available under ePEMS, please contact your accounts focal to update your details under ePEMS" shall be displayed if employee is unavailable under employee or TDS PIT.

User Interface for Employee Dashboard in eDATS



The Dashboard in the eDATS is proposed as the details of the employee, or we can call it the employee dashboard with the details that are visible to the eDATS user. We do not need much changes here except;

- 1) Position level: The position level is to be displayed.
- 2) Bank, Branch and account number: The Bank details like the name of the Bank, Branch and the Bank account no, are all pulled from the ePEMS. For the existing employees with no bank details, it can be empty.
- 3) Employee category: Employee Category can be pulled from the GPS / ePEMS. However for the TDS PIT category, it should be editable.

While clicking on the edit button, it should link to the employee details update page like mention below.

User Interface for Employee details update in eDATS

	Update Employee Detail	5		
	Employee Group	Public/Civil Servants under GPS	¢ E	DIT
	Employee Category	Civil Servant	¢	Jpdate from e-PEMS
	Employee Name	Kinzang Norbu	U	Jpdate from e-PEMS
	Employee Number	200701128		Jpdate from e-PEMS
	AU Category	Select ‡		Jpdate from e-PEMS
	Administrative Unit	Select ‡	Ų	Jpdate from e-PEMS
	Agency Name	DEPARTMENT OF PUBLIC ACCOUNTS MOF, DEPARTMENT OF	1	Jpdate from e-PEMS
	Position Title	Deputy Chief Finance Officer	•	Jpdate from e-PEMS
	Position Level	P2 SS1	•	Jpdate from e-PEMS
	CID/WP Number	10811000531	,	Jpdate from e-PEMS
Tax Payer Number (TPN)		KAP11111	U	pdate from e-PEMS
	Bank	Bank of Bhutan Ltd.	U	pdate from e-PEMS
Bank Branch		Thimphu Main Branch		pdate from e-PEMS
Bank Acc	ount Number	123456789		pdate from e-PEMS
E	Email address	kinzangn@mof.gov.bt	E	TIO

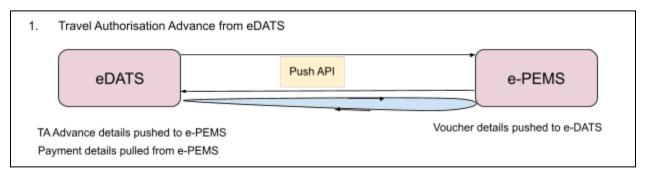
Do you want to change the details From : Kinzang Norbu Existing eDATS Data To : Kinzang T. Norbu Current e-PEMS Data Yes No

After clicking on the edit button, the user / employee shall update his employee details however it will only be possible through the API update from e-PEMS. This is where there is change in CID, EID, Employee category and even the name. While the employee group and the email is not available in the ePEMS, it will be an option for edit by the user himself / herself. The individual updates will happen are not joint, as there is various changes in the ePEMS due to promotion, demotion, transfer, re-mapping etc... All these changes in ePEMS is known by the employee, so in its best interest, it is left to the employees to update their details in eDATS.

The employee shall be alerted to change the details with the exiting info displayed from the eDATS and the available info from the e-PEMS. The option of saving the data or not shall vest with the employee.

### 3. Travel Authorisation for Advance & PI for Advance Payment

### Data Exchange Methodology



### e-PEMS (General Changes)

There shall be a temporary table for the pushed data from the ePEMS which shall be named *eDATStaadvance*. The push API will be pushing the data as and when it is verified after approval in the eDATS. The table shall contain the parameters TPN, CID, Name, Advance Amount and Purpose. Under the transaction category "advance payment", when the details are added, simultaneous with the party selection, then the advance amount shall be pulled from the temporary table. After the voucher is saved, the said detail can be updated as pulled and not available for further pull option. There shall also be an push API where the details of the voucher will be pushed to eDATS corresponding to the TA Advance.

### Flow

eDATS: eDATS will push the following information TPN, CID, Name, Advance Amount, Purpose, TAF Number to e-PEMS temporary table named *eDATStaadvance*. Each transaction or data pushed shall be against an ID generated serially.

e-PEMS: While selecting the party, the ePEMS shall display all the details not pulled till now against the party selected (if two or more advance details are available). The e-PEMS user shall have the option to select the advance amount from the details displayed. It shall then push the voucher details like VID, voucher date to the eDATS.

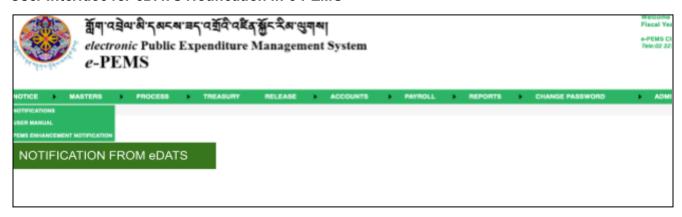
### eDATS (General Changes)

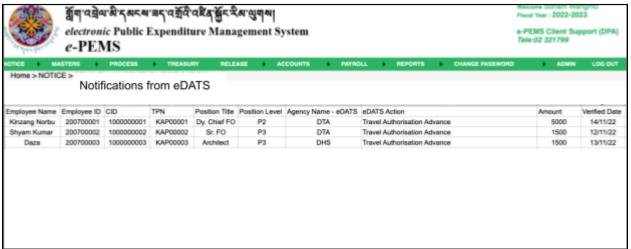
There shall be no specific changes required to be initiated at the eDATS however there shall be an push API when the TA advance is approved and verified.

Based on the VID information received from the ePEMS and stored in the eDATS, a schedular shall run every night to pull the PI details available and accordingly get updated in the eDATS from the

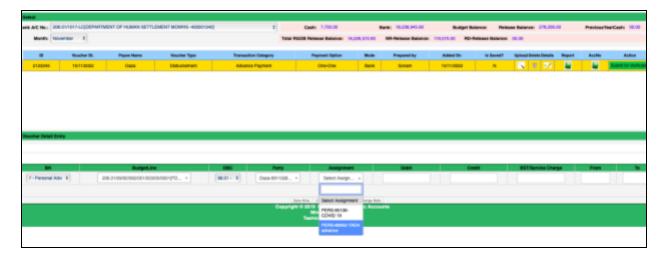
ePEMS.

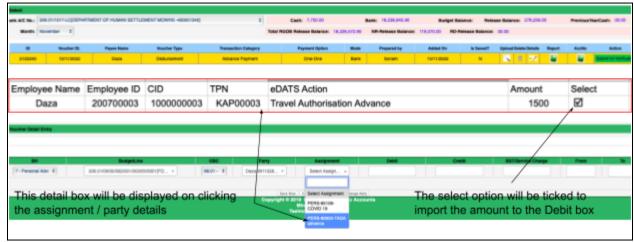
### User Interface for eDATS Notification in e-PEMS





There shall be a notification sub module under the notice module in the ePEMS. Here it will display the data sent from eDATS, currently TA Advance. The data sent from eDATS shall be stored in the temporary table and then it shall be pulled to this notification sub module. Once the data is pulled to the voucher, it shall be removed from this notification sub module but shall remain in the table.





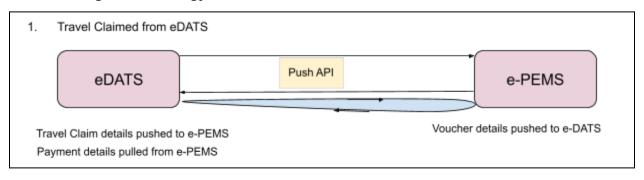
The voucher details will be prepared by way of Advance payment transaction category. The party details needs to be added / existing in the party masters mapped to the respective LC. object code 9c will not have link to the TA Advance. Only broadhead 7 personal advance will be linked to the TA Advance. On clicking the assignment, the details of the TA advance shall be displayed like in the UI above.

TRAVEL AUTHORIZATION FORM							
Name of Employee: Kinzang Norbu CIDWP No: 10811006531 Position Title: Deputy Chief Finance Officer Purpose of Travel: SRS development for Integra project		ation of the ZEST ePEMS under ICS	TPN: B	AP23775	Number: 41620220106061502 Date: 16-11-2022 Order Number: 457		
From	From		To		Helt		
Station	Dute	Station	Dute	Travel Mode			
THIMPHU	26/12/2021	PUNAKHA	26/12/2021	Private Car	PUNAKHA		
		Hult at PUNAKHA w.e.f.27	12/2021 to 6	7/02/2022			
PUNAKHA	08/01/2022	THIMPHU	08/01/2022	Private Car	THIMPHU		
Language Language	g Norbu dayee			Sonam Penjor Approving Authori	Advance permissible: Nu.12170		
Voucher / PI Code : 1212121 / Cash	(For Casi	h payment)					

The voucher details will be pushed to eDATS when it is submitted for verification in the e-PEMS. At the night, eDATS shall search the PI details via the voucher ID by running a schedular. Voucher detail and PI code shall be updated along the Travel authorisation against the TA number for reports.

### 4. Travel Claim / Payment & PI for TA Claim

### Data Exchange Methodology



### e-PEMS (General Changes)

There shall be a temporary table for the pushed data from the ePEMS which shall be named *eDATStaadvance*. The push API will be pushing the data as and when it is verified after approval in the eDATS. The table shall contain the parameters TPN, CID, Name, Advance Amount and Purpose. Under the transaction category "advance payment", when the details are added, simultaneous with the party selection, then the advance amount shall be pulled from the temporary table. After the voucher is saved, the said detail can be updated as pulled and not available for further pull option. There shall also be an push API where the details of the voucher will be pushed to eDATS corresponding to the TA Advance.

### Flow

eDATS: eDATS will push the following information TPN, CID, Name, Advance Amount, Purpose, TAF Number to e-PEMS temporary table named *eDATStaadvance*. Each transaction or data pushed shall be against an ID generated serially.

e-PEMS: While selecting the party, the ePEMS shall display all the details not pulled till now against the party selected (if two or more advance details are available). The e-PEMS user shall have the option to select the advance amount from the details displayed. It shall then push the voucher details like VID, voucher date to the eDATS.

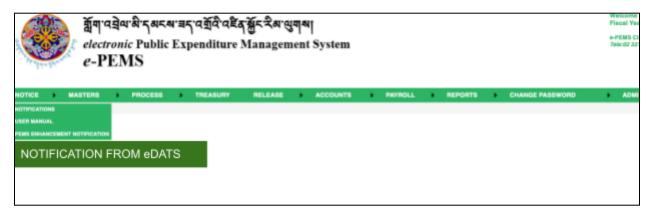
### eDATS (General Changes)

There shall be no specific changes required to be initiated at the eDATS however there shall be an push API when the TA advance is approved and verified.

Based on the VID information received from the ePEMS and stored in the eDATS, a schedular shall run every night to pull the PI details available and accordingly get updated in the eDATS from the

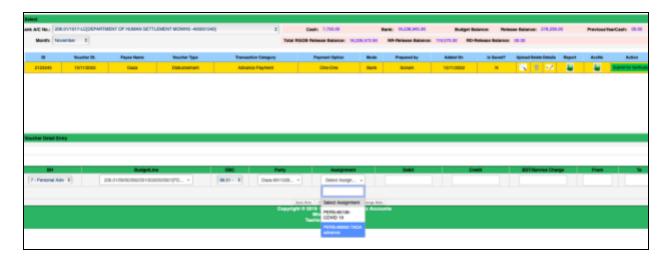
ePEMS.

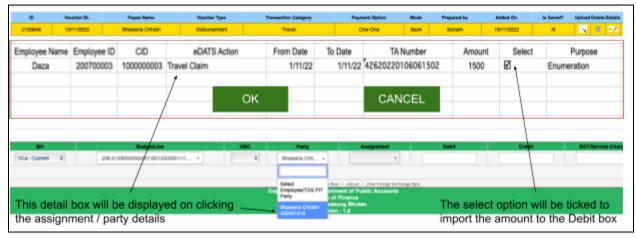
### User Interface for eDATS Notification in e-PEMS



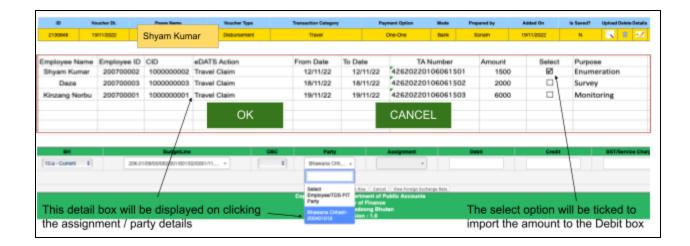


The notification sub module under the notice module in the ePEMS will display the data sent from eDATS TA Claim. The data sent from eDATS shall be stored in the temporary table and then it shall be pulled to this notification sub module. Once the data is pulled to the voucher, it shall be removed from this notification sub module but shall remain in the table.

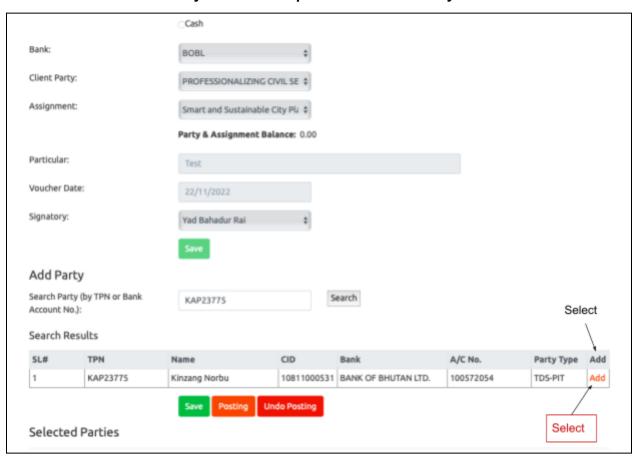


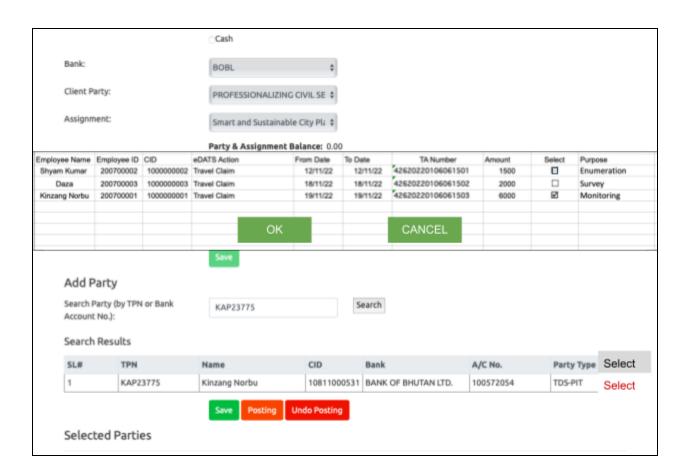


The voucher details will be prepared by way of Travel transaction category. The party details requirement remains the same, it needs to be added / existing in the party masters mapped to the respective LC. On clicking the assignment, the details of the TA advance shall be displayed like in the UI above. If there is advance adjustment, then you have to use one-one option only. There is also One - Many Option in the travel transaction category. A user cannot user this option when there is advance adjustment. Every thing remains the same, except that while clicking the assignment, here all the data that is pending in the notification module will appear. The accounts user has to carefully select the TA claims.



### User Interface for Travel Payment from Deposit Work One - Many module in e-PEMS





In the one to many deposit work module, it shall remain same until the party selection. When the party is searched and added, it shall display the party and instead of the "add" option, we shall have the select option and then moved to the new application for eDATS notification. There it will be selected and the details then will be added for the posting, including the travel dates.



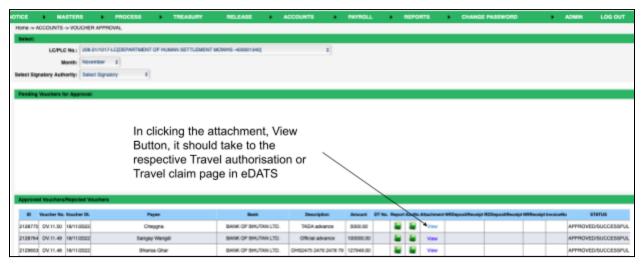
The voucher details will be pushed to eDATS when it is submitted for verification in the e-PEMS. At the night, eDATS shall search the PI details via the voucher ID by running a schedular. Voucher detail and PI code shall be updated along the Travel claim against the TA number for reports.

### 5. Reports

### a. Reports in e-PEMS

### i. Attachment Report

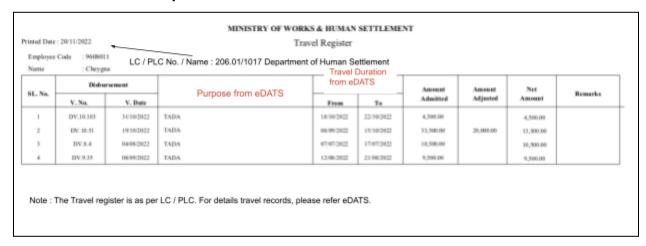
The idea here is that in the voucher details / Print voucher, while clicking the voucher and referring to the attachment, the respective travel authorisation form or travel claim form is displayed.





This attachment report should be available after the completion of the voucher Preparation, at voucher verification, voucher approval, at ePayment stage and PRINT voucher module.

### ii. Travel Report from e-PEMS



### b. Reports in eDATS

### i. Travel Authorisation Report

The travel authorisation report with advance payment / cash details is to be revised as mentioned in the Travel authorisation report earlier.

### ii. Travel Claim Report

The travel claim report with payment / cash details is to be revised as mentioned in the Travel claim report earlier.

### iii. Travel Register

The travel register currently is visible only to the employee. It shall be made visible to all system administrators as well. The travel register will have new details.



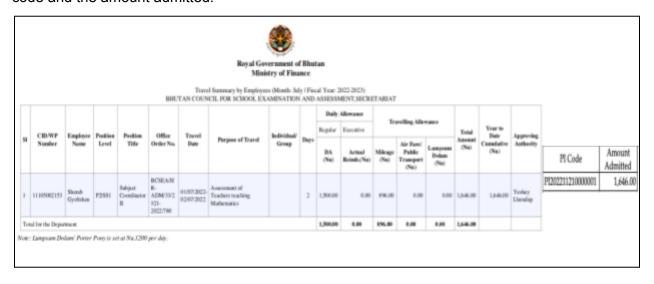
Name: Kinzang Norbu

CID/WP/No:10811000531
Designation:Deputy Chief Finance Officer

SL.	Purpose	Dute	Duys	Amount Admitted	Advance	Net Amount	PICode	Amount Admitted
1	SRS development for Integration of the ZEST ePEMS under ICS project	26/12/2021- 08/01/2022	14	13,522.00	0.00	13,522.00	PI202211210000001	13,522/-
2	development of documentation system consultation with Bumthang Cluster	24/10/2021- 30/10/2021	7	10,500.00	0.00	10,500.00	PI202211210000002	10,500/-
3	Resource person for ePEMS Training for auditors at PDC from 6-10 Sept 2021	05/09/2021- 11/09/2021	7	10,500.00	0.00	10,500.00	Cash	10,500/-
4	workshop on the review of PFM reform inititiatives	31/07/2021- 04/08/2021	5	5,478.00	0.00	5,478.00	PI202211210000003	5,478/-
Total (Accumulated per financial year)			33	40,000.00	0.00	40,000.00		

# iv. Travel Statement by employee

Travel statement by employee is monthly. It would be very nice if we could add the PI code and the amount admitted.



# v. Travel Statement by Agency

Travel statement by employee is monthly. It would be very nice if we could add the PI code and the amount admitted.

