FIRMS DATA MANAGEMENT PROTOCOL

2022

Overall guidance
1. Lobzang Dorji, Director,DoFPS
2. Sonam Tobgay,Chief Forestry Officer,FRMD

Working Group
1. Jamyang Choden,Sr. Forestry Officer, FRMD
2. Choney Wangmo, Forest Ranger, Divisional Forest Office, Trashigang
3. Ugyen Tshering, Sr. Forest Ranger, FRMD
4. Lhab Tshering, Sr. Forest Officer, FRMD

Inputs by:
1. Chief Forestry Officers, Functional Divisions, Divisional Forest Offices, Park Offices
2. Data Managers
3. FRMDians

Cover Design: Jamyang Choden, Sr. Forest Officer, FRMD

Contents

LIST OF FIGURES

LIST OF TABLES

1. Introduction

Department of Forests Park and Services has a data base known as Forest Information Reporting and Monitoring System (FIRMS). Prior to FIRMS, there was no centralized information and data collection system for the Department of Forests and Park Services. Information and data were collected in fragments. Field offices under the Department collected and maintained their own data and information. In 2006, an offline database system known as Forest Information Database (FID) for the Department was developed by the Policy Planning Division under the Ministry of Agriculture and Forests (MoAF). There was also parallel system such as Community Forests Information Management Database System (CFIMD), Bhutan Forests and Wildlife Enforcement Database (BhuFED) to cite few. FID is a Microsoft access-based database operated by Data managers consisting of two user interface systems based at FRMD and Divisional level. Information collected by field offices were offline. Hence, often the data were redundant, outdated and not updated regularly.

Therefore, in order to integrate all these fragmented information collection processes into one centralized system, an online reporting system known as Forest Information Reporting and Monitoring System (FIRMS) was developed in 2017. This also provided opportunity for real time data input, server-based storage, collection of more exhaustive data and also information and data sharing through a single source. FIRMS is currently housed in the Forest Resources Management Division (FRMD), which is the focal office responsible for managing information. Enhancement of FIRMS was carried in 2019 where the system upgrade was carried out and migrated to the Government Data Centre.

Department has a large data repository stored in the FIRMS. Data collected and stored in the FIRMS database system is being sought by different researchers, academicians, policy makers, individuals and organizations not just within the Department of Forests and Park Services but by those several individuals and organizations outside the Department. At the moment, there is no proper practice of storing, processing, organizing and using FIRMS data in the most secure, efficient and cost-effective way, which is also defined as the data management. Data management is critical to help provide accurate information, optimize the use of data within the bounds of policy and regulations to make decisions and take actions which will bring maximum benefit to individuals or organizations. For successful management of data, there should be certain sets of rules which will address the activities of users/administrators, guide users on information entry, access, storage, security and privacy within the policies of an organization. There is a requirement for the Department to develop a FIRMS data management document so that there are standard guidelines and procedures for FIRMS data management and sharing. Having a data management protocol will ensure systematic management, streamline procedure and data security and also spell out clear roles and responsibilities of data managers at different levels. It will also ensure the data provided to individuals and organizations for their consumption is consistent and is of good quality. Therefore, the data management protocol is being developed.

2. The objectives of this protocol;

1. Ensure systematic management of the data entered in FIRMS
2. Streamline procedure for data sharing
3. Develop clear roles and responsibilities for data managers

3. Introduction to the FIRMS User:

Department has three types of FIRMS user viz administrator, sub-administrator and data managers. The main responsibility of data manager is to enter data based on respective jurisdictions, while a sub-administrator is authorized to view and validate program-based information entered by data managers. Administrator has a admin right and can access and download national data for publication.

3.1. Data Manager:

Department has forestry staffs based at Check post, Beat office, Range Offices, Park and Divisions as data managers. Data managers are allowed to access, input, edit data, download information based on their own jurisdiction. In the past, the role of data manager has been extended to data entry in the FIRMS but now , data managers will take up the role of data validation, data entry monitoring and data analysis. Recently, the Department has also handed over data entry of integrated check posts in the country to the Royal Bhutan Police.
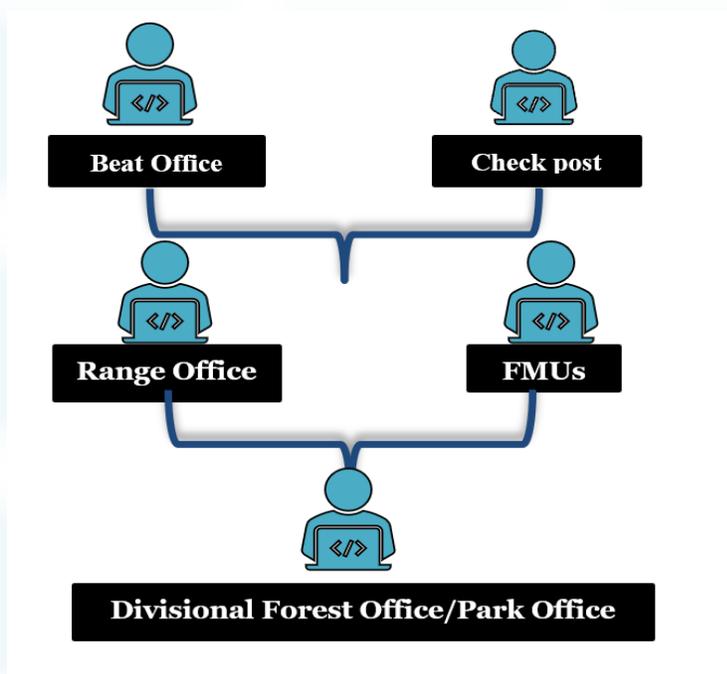
Figure 1: Data Managers under DoFPS

3.2. Sub-Administrator

Sub-administrator role is a new role created for the Data manager at the Functional Divisions. He/She can view and validate data entered by field offices on program basis but will not have data edit or download option. Sub-administrator will be provided an option of data entry in the FIRMS based on the needs of the Department and system enhancement works.
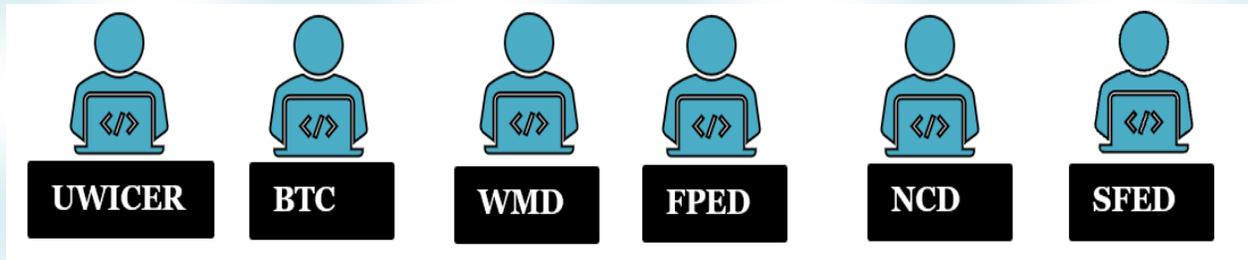
Figure 2: Data managers (sub administrator) at Functional Divisions

3.3. Administrator

Data manager of the headquarter is the overall administrator of the system. He/she can access national data entered by data mangers of Divisions/Parks.Forest Resources Management Divisions houses the national database. He/she has access and permission to view, download and process the data for the whole country. He/she also can create users, control access to modules and edit master information.
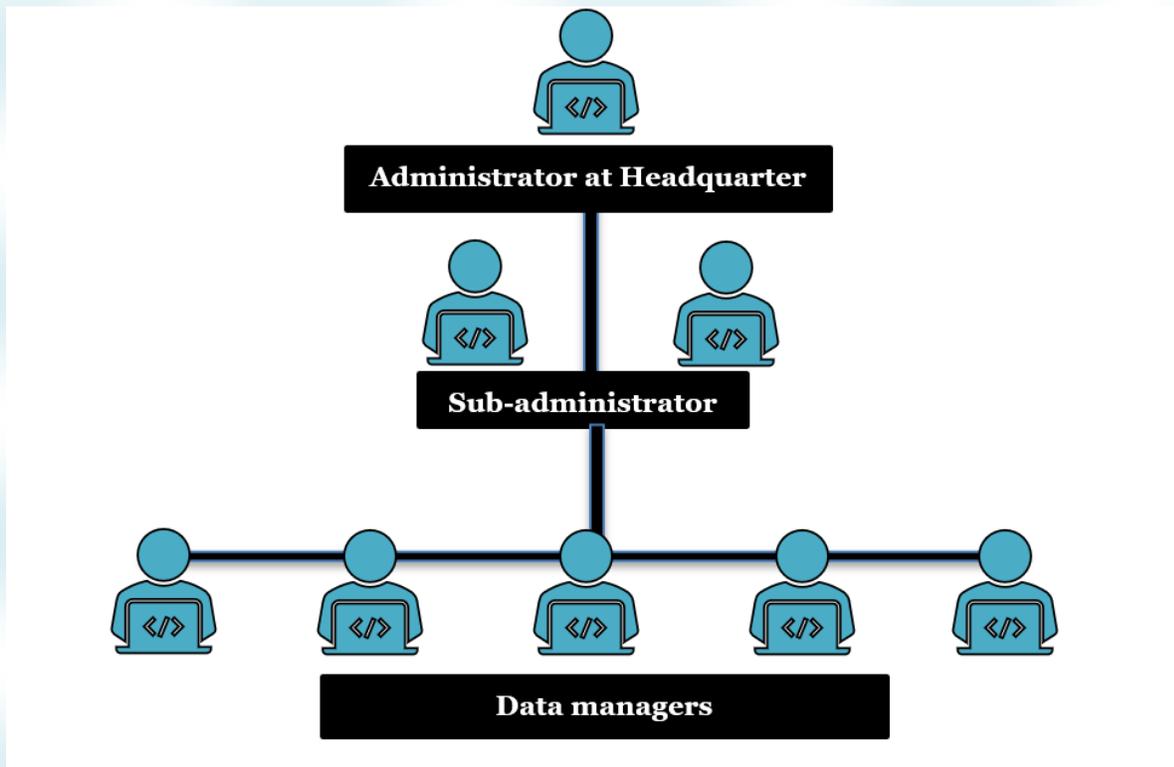
Figure 3: Administrator (FRMD)

4. Components of FIRMS

 FIRMS has following components listed below. Based on the future enhancement and requirements of Department, these components of FIRMS will change. An administrator has access to all component whereas data mangers in field offices has access to Modules, Check post

and Forest Offence. Sub-administrator will have program-based access for validating information.

1. Dashboard
2. Settings
3. Masters
4. Administration
5. Modules
6. Check post
7. Forest Offence
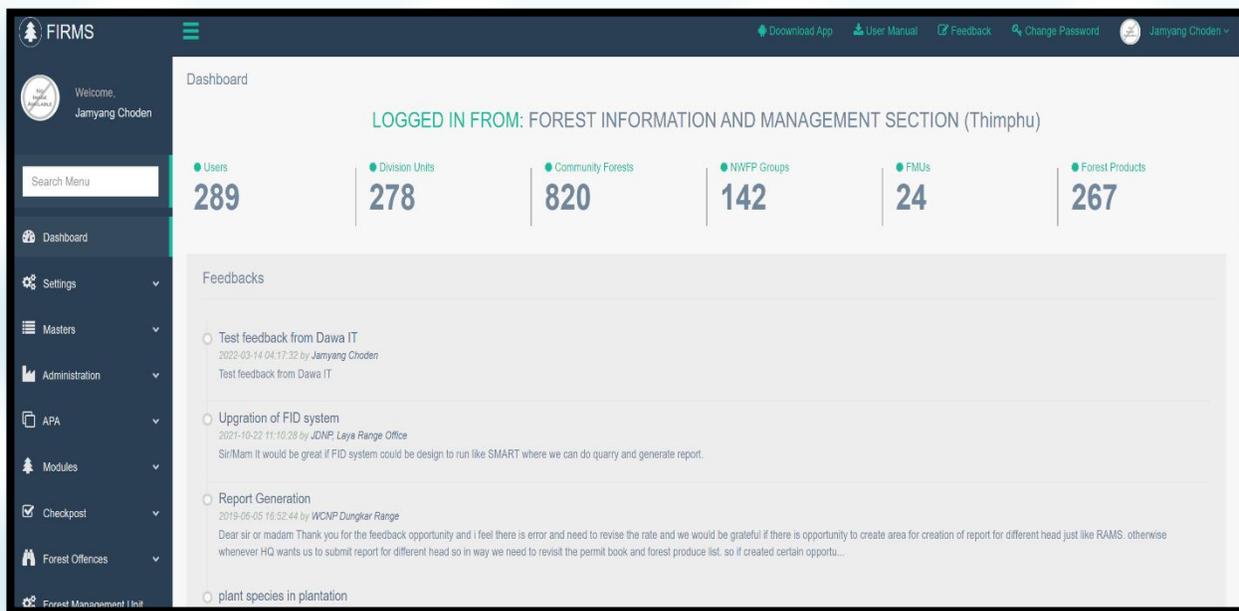
Figure 4: FIRMS user interphase

4.1. Modules:

Currently 17 modules present in the system as given in the table below. These modules will change based on the system enhancement works in future.

Table 1: Topics for data entry under the heading "Modules" for data entry

LFMA	Timber allotment (Rural Use)	Timber allotment (Commercial Use)	Removal of trees (private land)	FMUs	Non wood Forest Product
NWFP group	Nursery	Forestry Clearance	Forest Fire	Fee Collection	Human Wildlife Conflict
Plantations	Community Forestry	Private Forestry	Crop depredation	Electric fence	

4.2. Forest Check Post

Forest Check Post has 5 sub-modules as given in the table below. User can add new application, filter information, view, edit and download information. Data entry for the check post module has been handed over to Royal Bhutan Police with introduction of integrated check post in the country.

Table 2: Topics under the heading "Forest Check post" for data entry

Transit of forest product	Transit of Non-Wood Forest Product	Transit of Finished Forest Product	Track Forest Product	Track NWFP

4.3. Forest Offences

Forest offence apprehended by Department is capture under this module. There are 6 sub-modules as given in the table below:

Table 3: Topics under the heading Forest Offence" for data entry

Illegal Timber	Timber Misuse	Poaching & Wildlife Crime	Fishing & Aquatic Life	Non-Wood Offence	Land Related Offence

4.4. Common functionalities present in all modules:

Data managers can carry out following functionalities in the FIRMS:
1. Adding new application
2 .Editing and viewing information
3. Deleting information
4 .Using filter feature
5. Downloading data
6. Entering Feedbacks
7. Downloading Manual

1. **Adding new application**

Step 1: Suppose a data manager is to fill information regarding Local Forest Management Area (LFMA). He/she is required to first click on "Modules" and then on "LFMA".
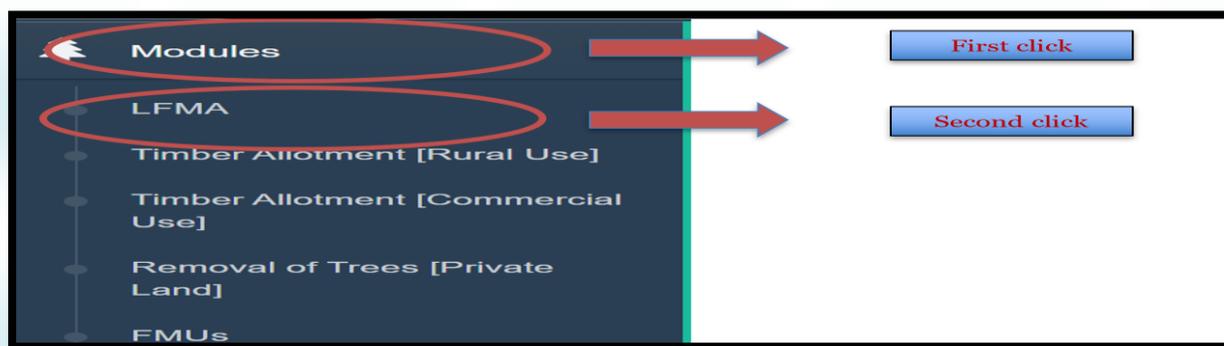
Figure 5: Step 1 of adding new information in the FIRMS

Step 2: In the top right-hand corner of page, there is a option titled "add local forest management area" to enter new information on LFMA.
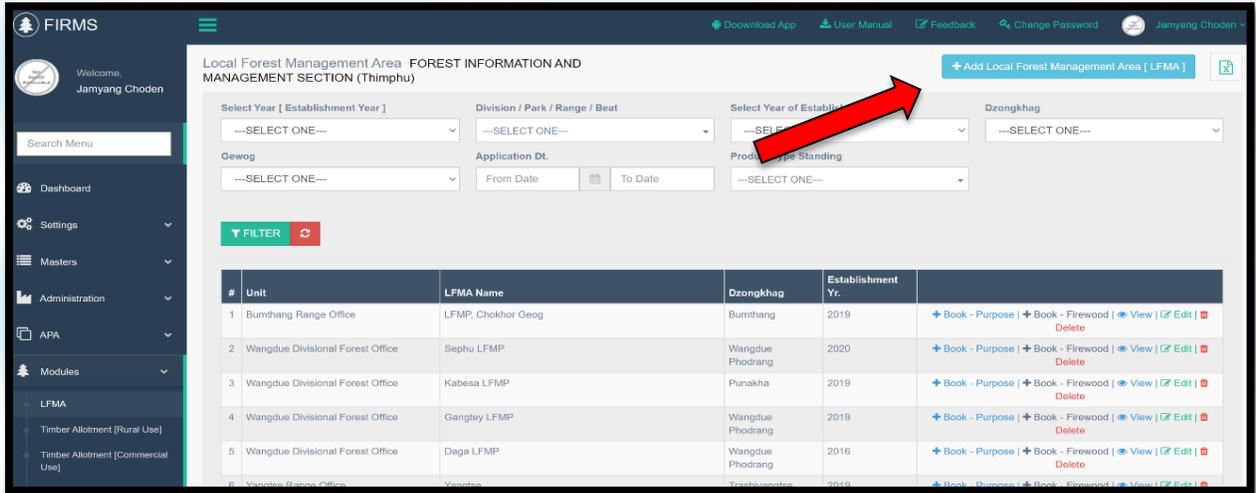
Figure 6: Step 2 of adding new information in the FIRMS

Step 3: The data manager will be welcomed with this screen. Here, he/she can enter data as per various available fields and press submit button.

2. Viewing/editing and deleting data
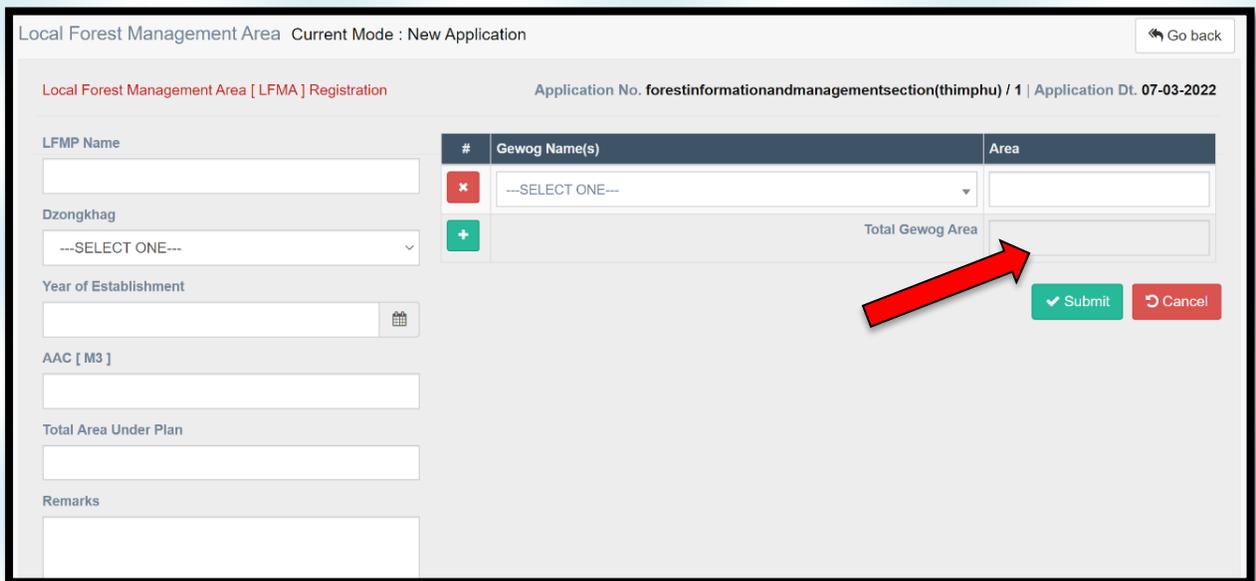
Figure 7: Step 3 of adding new information in the FIRMS

Viewing, editing and downloading of FIRMS data can be carried by following procedures as shown in the picture below. Once new application is submitted, data manager can view information by clicking on the view button. To correct information, edit button is to be used. If data is entered multiple times, delete option is to be used.
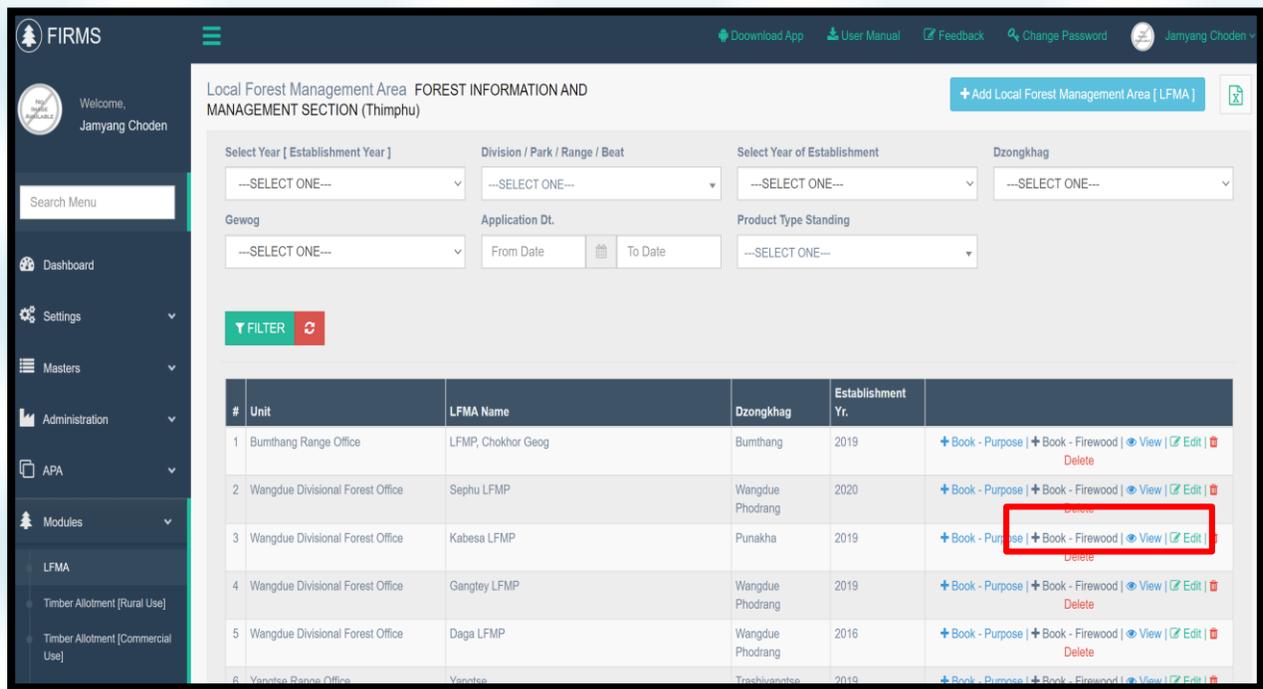
Figure 8: Viewing, editing and deletion information in the FIRMS

3. Filtering and downloading data in FIRMS.

Step 1: For searching past data, data manager can use the filter option. He/she can search by choosing multiple filtering options such as place, year, application date, dzongkhag,gewogs, etc.
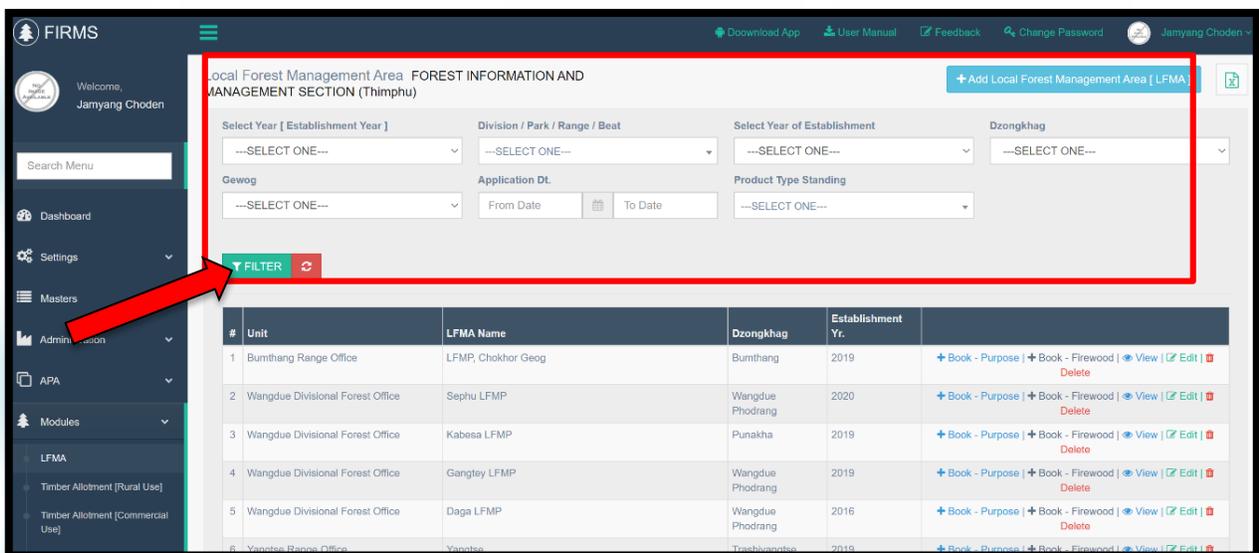
Figure 9: Step 1 : Filtering data in the FIRMS

Step 2: After filtering information, he/she can press X marked document in the top right corner of user interphase. Data can be downloaded in excel (.xls) format.For example, if the data manager

11

is to download LFMA created in year 2021.He/she can filter by entering a year in the "select year (establishment year)" box , and download information by clicking on the download button**.**
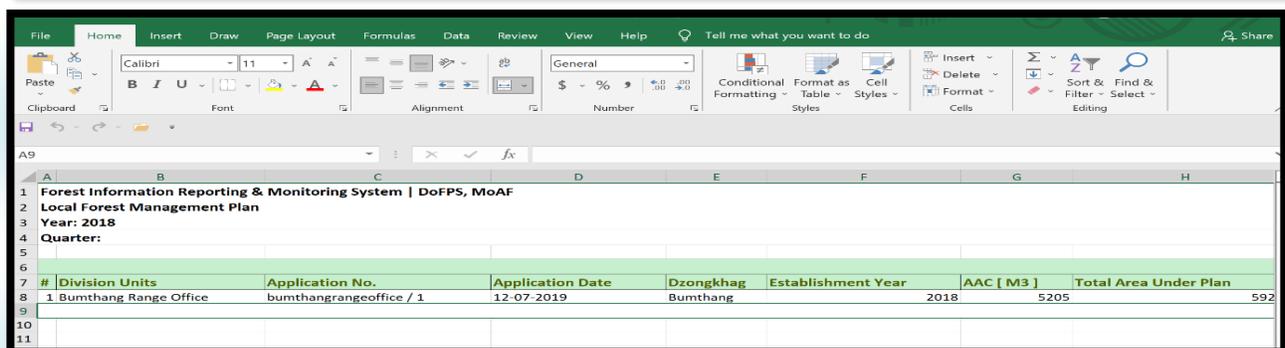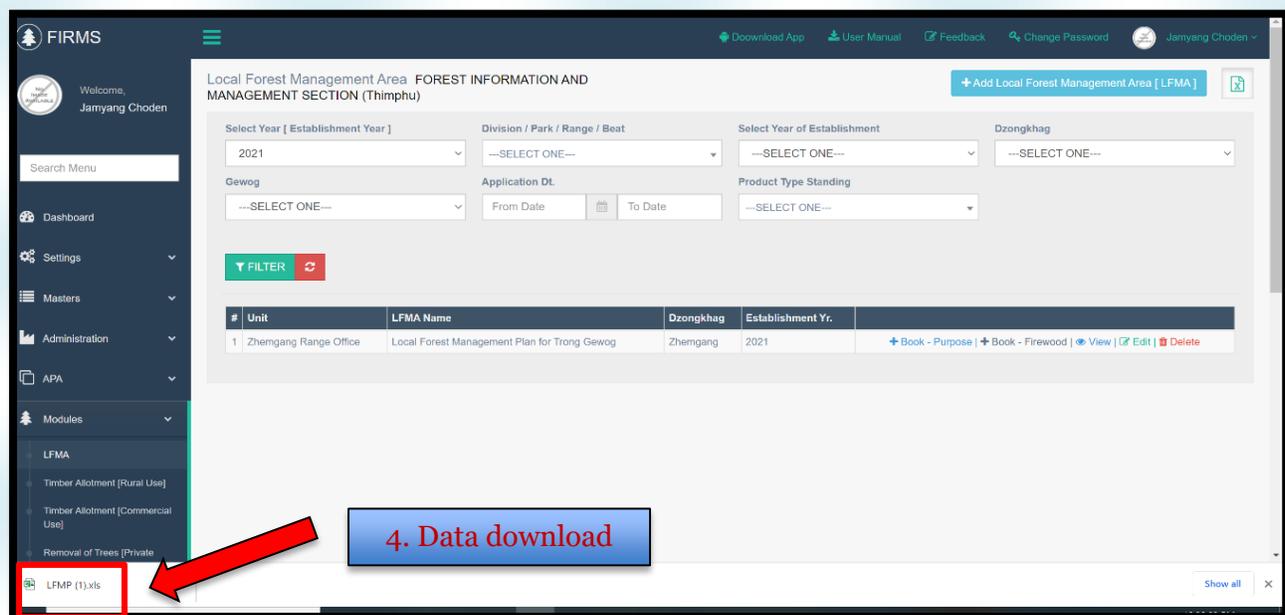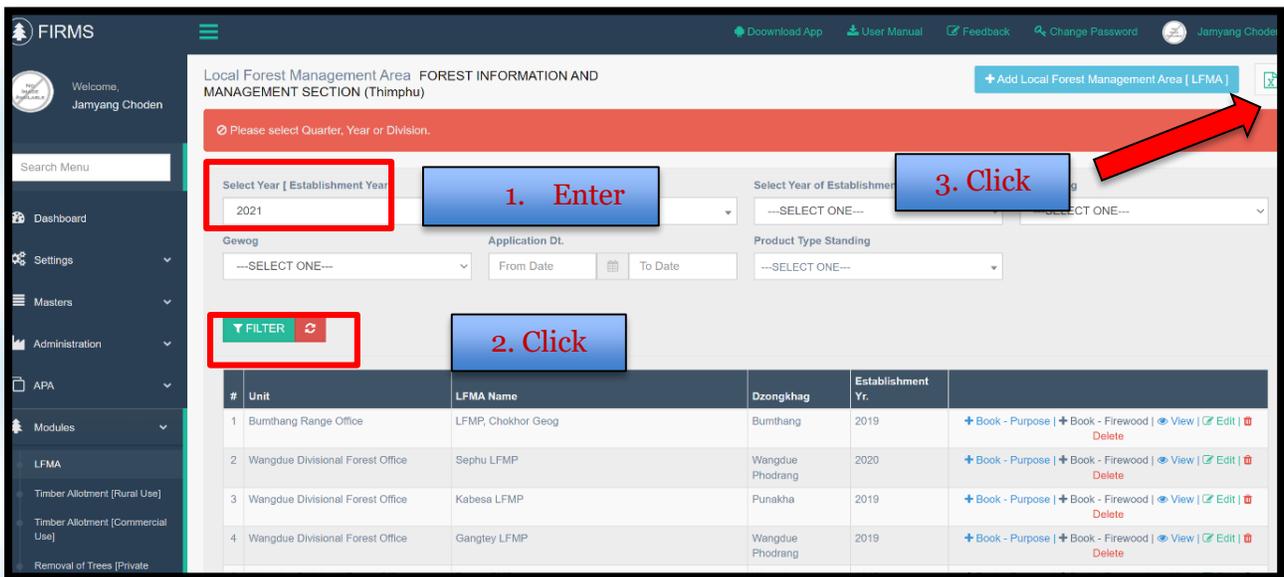
Figure 10: Step 2: Downloading data from the FIRMS

4. Feedbacks

Datamanagers can click on the feedback button given below for entering issues pertaining to the FIRMS as given in the figure below.Once the data is entered, the feedback will reach to head quarter admin user interphas for resolving issue.
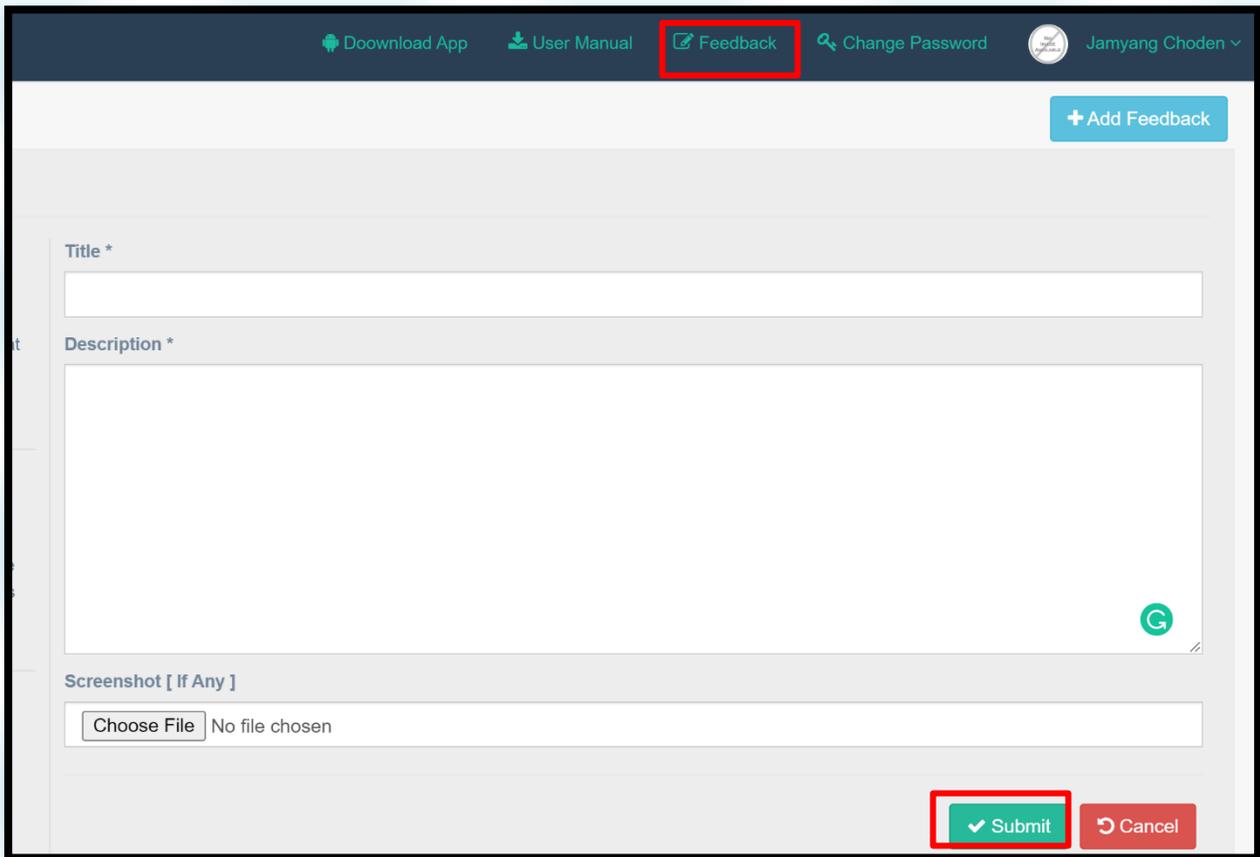
Figure 11: Feedback form

5. Downloading of manual:

FIRMS user manual can be downloaded as per the given figure below. The manual has information on the data entry module, formats and the relevant procedures for the data entry.This module will be updated as per the enhancement of the FIRMS.
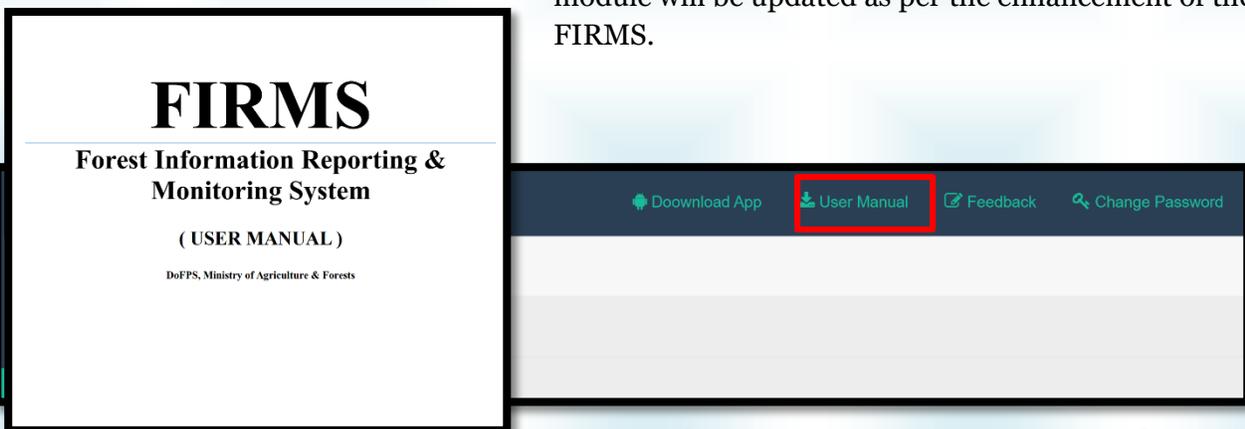
Figure 12: FIRMS USER Manual

5. Information Flow

FIRMS is hosted in the server housed at the Government Data Centre (GDC) in Thimphu IT Park. The data flow initially commences from field data manager at forest check post/forest beat office/FMU/Range offices level. Data managers at the Divisions/Parks also input data which originates from their office. Parallelly, they monitor, cleanse and analyze for their own use or purposes in the respective offices. Functional Divisions valid program based data which are entered in the FIRMS by field offices. Finally, all the data is accessed by the national data manager at FRMD. The national data is periodically cleansed and analyzed to be shared and disseminated to different data consumers. The whole data is cleansed and analyzed and published which is disseminated in the forms of reports, publications or through online platforms (DoFPS website). This information is used for making informed policy decisions by the Department and other agencies. It is also used by academicians, scholars, researchers, individuals and organizations funding agencies, Civil Society Organizations (CSOs) etc for their reports, publications and other publications
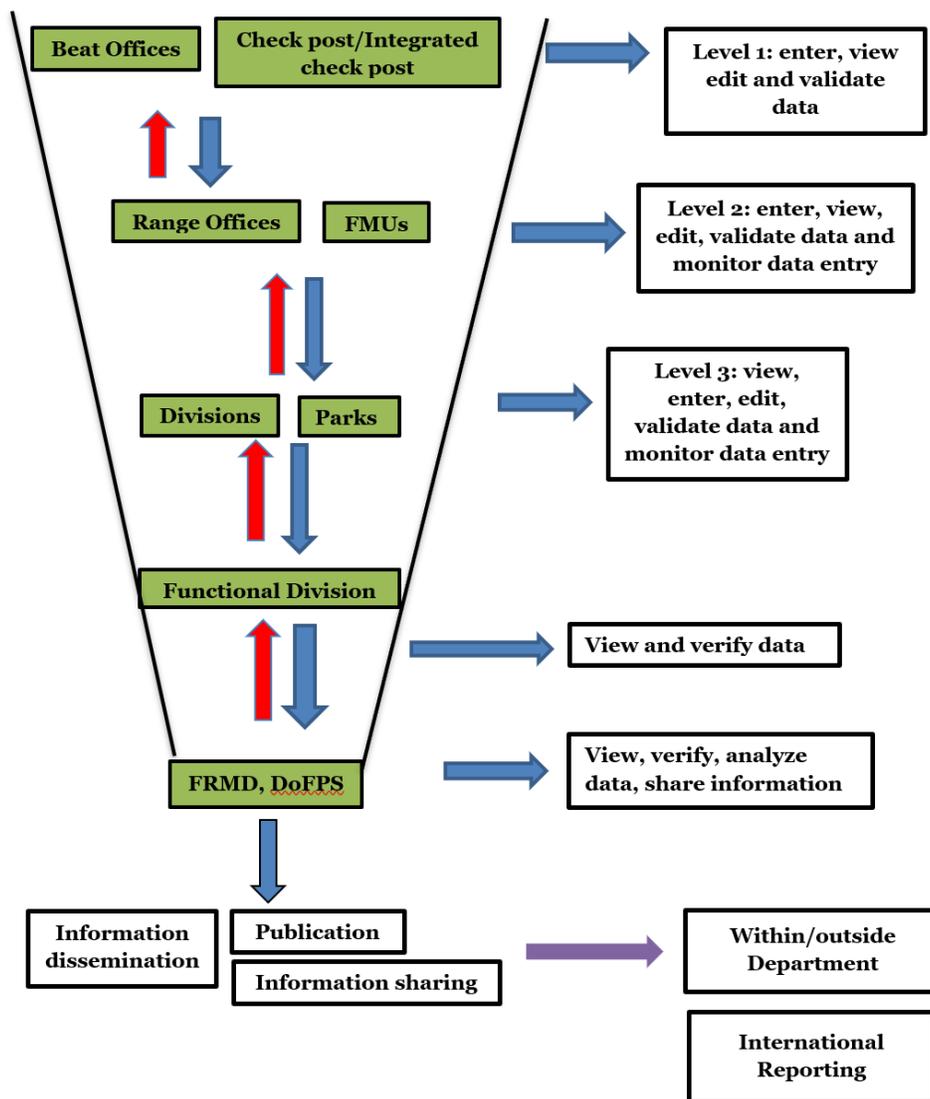
Figure 13: FIRMS Information Flow

6. Data Management

6.1. Access

Access to FIRMS information will be based on jurisdiction. Data entered by Beat offices will be visible in the Range Office and Division/Park office's user interphase while the information entered by Division/Park will not be visible in the Beat offices/Range Offices user interphase. Sub administrator can access program-based module for verifying information. However, edit and download option will not be provided. Administrator can access national data which can be downloaded for analyzing and publishing information through a single window to anyone who applies for FIRMS information. Sub-administrator will be given accessed as per the table given below:

Table 4: Name modules to be accessed by Functional Division Data Managers

Sl. No.	Name of Office	Name of modules
1	**Forest Protection and Enforcement Division (FPED)**	Forest offence, Forest fire, Forestry clearance, fee collection, Check post, Power chain, NWFP
2	**Social Forestry and Extension Division (SFED)**	Plantation, nursery, NWFP group, NWFP, Community Forestry, private forestry, Agro forestry
3	**Nature Conservation Division (NCD)**	Wildlife rescues and rehabilitation, Park Permit, Electric fencing, HWC, FC (Park FC), Biodiversity, Crop depredation
4	**Watershed Management Division.**	Ramsar, PES, Wetland, Watershed, Watersourc
5	**Bhutan Tiger Centre (BTC)**	Biodiversity
6	**Ugyen Wangchuck Institute for Conservation and Environmental Research (UWICER)**	Fee (research fee)
7	**Forest Resources Management Division (FRMD)**	All modules

6.1.a. Login

User can access FIRMS at the user log in interface i.e. http://firms.dofps.gov.bt. A User can log in to the system through a registered email and password. Department provides user credentials to the data manager upon receiving formal request from respective offices.

Figure 14: **FIRMS log in interphase**

6.1.b. User Credential Norms

1. Office wise permanent FIRMS user credential will be created e.g., officenamefirms@gmail.com
2. Custodian of the user credential is both the in charge and the data managers
3. Data managers should protect user credentials by resetting password after receiving credentials link in the registered email.
4. User credentials should be handed over to the new data manger taking over the role

6.1.c. How to change password after receiving user credentials?

FIRMS user should reset password after receiving credentials link in the registered email. He/she will have to log in to the system. In the user interphase at the top right corner of the dashboard, there is a menu "Change Password". He/she will have to click this menu, fill in details and change password. Changing password will secure data and protect from un-authorized use by forestry staffs.
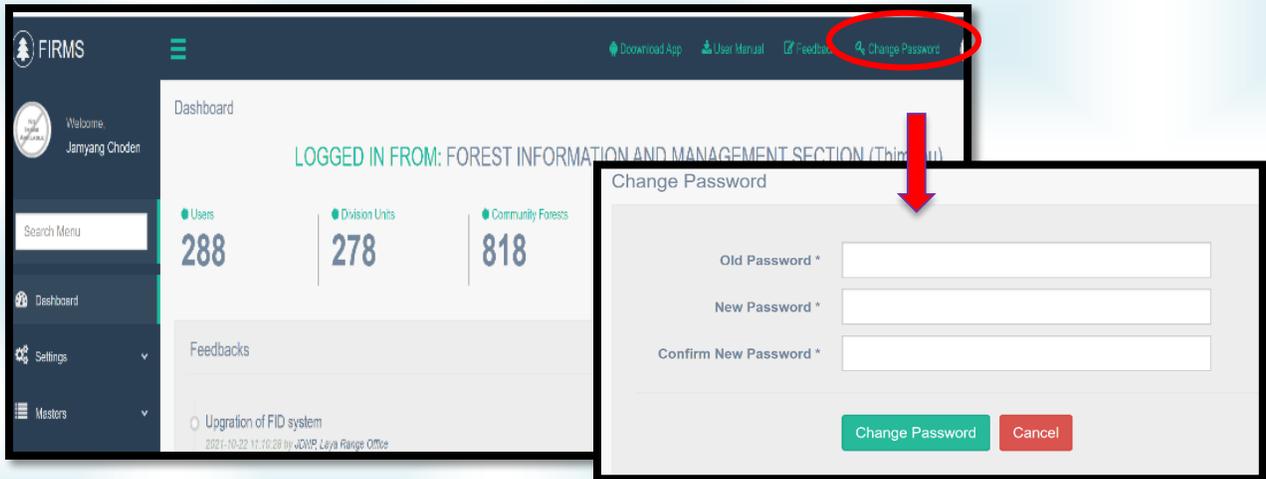
Figure 15: Procedure to change passwords

6.1.d. How to retrieve a new password?

To retrieve a new password for FIRMS, He/she can click on the" forgot password" option in the FIRMS log in page. A reset link will be sent to registered email for availing new password. Pictorial details are given below:

16

Figure 16: Procedure to retrieve password

6.2. Data entry

Data entry happens at three levels (level 1, level 2, and level 3)

- Level 1: Data managers at Beat office and Check post/Integrated Check post. For the integrated check post, entry of data for the check post module has been handed over to the Royal Bhutan Police (RBP)..
- Level 2: Data manager at Range Office, FMUs
- Level 3: Divisional Forest Office and Park Offices
- Data manager at Functional Divisions will enter based on the needs of Department.

Table 5: Details of modules to be entered by Functional Divisions

Sl. No.	Name of Modules	Who will enter data	Document referred for data entry
1	Fee Collection (Research Permit)	UWICER	Research application and approval documents
2	Fee Collection (Fishing Permit)	FPED to enter information on the fishing permit if the applicant applies for national level fishing sites	Fishing permit
2	Forest Offence	FPED to enter information for forest offence relating to involvement of forestry staffs which has been directly reported to the Department	Money receipt, compounding sheet

- In case of issues such as internet fluctuation or network, concerned data managers at Divisions/Park offices will ensure that the data entry is assisted by other offices through the official credentials of office who are not able to enter data in the FIRMS.
- Module wise entry of information by different data managers and reference documents are shown in the table given below:

Table 6: Details of modules for data entry

Sl. No.	Name of Modules	Who will enter data	Document referred for data entry
1	Community Forestry	Beat office. Range office to enter data where there is no Beat office.	CF plan, record keeping books
2	Private Forestry	Beat office. Range office to enter data where there is no Beat office.	Private forest plan (more than 5 acre), ownership certificate, management Prescription (less than 5 acre). Information from SMART

3	**NWFP group**	Beat office. Range office to enter data where there is no Beat office.	NWFP plan, record keeping books.
4	**Nursery**	Beat office. Range office to enter data where there is no Beat office.	Nursery journal, nursery records
5	**Forestry Clearance**	Divisions/Parks/Range Offices	FC, Field report, SDSS, OFS
6	**Forest Fire**	Divisions/Parks	Forest fire form A, B, etc
7	**Fee Collection**	Beat office and Range Office	Permit fee (ITMO, COSTDMO), ecotourism (park permit), export fee (export permit), export service charge, fighting permit,
8	**Human Wildlife Conflict**	Beat office and Range Office	Field report, SMART information use
9	**Crop depredation**	Beat office and Range Office	Field report, SMART information use
10	**LFMA**	Beat office and Range Office	LFMA plan, utilization plan
11	**Timber allotment (rural use)**	Beat office and Range Office	System generated permit currently. GFPM. Marking tree measurement details, smart. COSTDMO
12	**Timber allotment (commercial use)**	Beat office and Range office	Approval no, permit no. Marking tree measurement details, smart. COSTDMO, ITMO
13	**Removal of trees (private land)**	Beat office and Range office	Approval no, G2C permit. GFPMO, marking list
14	**FMUs**	FMU	FMU plan, ITMO, COSTDMO, marking list
15	**Non wood Forest Product**	Beat office and Range office	GFPMO, Export permit or import permit
16	**Plantations**	Division/Parks, Range office and Beat office	Plantation journal (Technical sanction document)
17	**Electric fence**	Beat office and Range office	Field report, project document
18	**Transit of forest product**	Check post. If there is Internet issue, concerned Range Office and Division will enter data via check post account	Permits (ITMO, GFPMO, Export permit, Import permit), Register

19	**Transit of Non-Wood Forest Product**	Check post. If there is Internet issue, concerned Range Office and Division will enter data via check post account	Permits (ITMO, GFPMO, Export permit, Import permit), Register
20	**Transit of Finished Forest Product**	Check post. If there is Internet issue, concerned Range Office and Division will enter data via check post account	Permits (ITMO, GFPMO, Export permit, Import permit), Register ,
21	**Illegal Timber**	Range office/ Division/Park	Money receipt, compounding sheet
22	**Timber Misuse**	Range office/ Division/Park	Money receipt, compounding sheet
23	**Poaching & Wildlife Crime**	Range office/ Division/Park	Money receipt, compounding sheet
24	**Fishing & Aquatic Life**	Range office/ Division/Park	Money receipt, compounding sheet
25	**Non-Wood Offence**	Range office/ Division/Park	Money receipt, compounding sheet
26	**Land Related Offence**	Range office/ Division/Park	Money receipt, compounding sheet
27	**Forest Fire offence**	Range office/ Division/Park	Money receipt, compounding sheet
28	**Protected Areas**	Park offices	Management plan
29	**Biological corridors,**	Division offices	Management plan
30	**RAMSAR sites**	Division office	Management plan
31	**Wetlands,**	Division office	Management plan
32	**Payment for Environmental Services (PES),**	Division office	Management plan
33	**Wildlife rescue and rehabilitation,**	Divisions/Parks	Field report
34	**Wood-based Industries,**	Beat office to enter data. Range office where there is no Beat office.	Field report
35	**Power chainsaw,**	Range office/ Divisions/Park level	Field report
36	**Issuance of park permit,**	Park, NCD	Permit
37	**Office information**	Functional division, Divisions/Park offices	Administrative record
38	**APA**	Divisions/Parks/FDs	APA document
39	**Biodiversity**	Divisions/Parks	Biodiversity survey and publication

40	Project information	Divisions/Parks/FD	Project documents
41	Watershed	Divisions/Parks	Field report

6.3. Data validation

Data validation is one of the important component of data handling be it the task of data collection, data analysis, publishing document, presenting facts and figures or making data-based decisions. If the data is entered is not accurate from the start, there desired information will not be reliable. Therefore, data verification is important. Data validation may seem to slow the pace of work but it will generate the best possible result if it is taken good care by respective data manager.

6.3.a. Data quality check

Data entered in the FIRMS must be of good quality. A data is said to be a quality data if it is accurate, complete, consistent, timely, reliable, valuable and interpretable. Therefore, entering a good quality data is important for generation of good information. Data quality is guided by attributes listed below which every data manager should monitor.

Accurate

Complete

Consistent

Every information entered in FIRMS

Timely

Reliable

Valuable

Interpretable
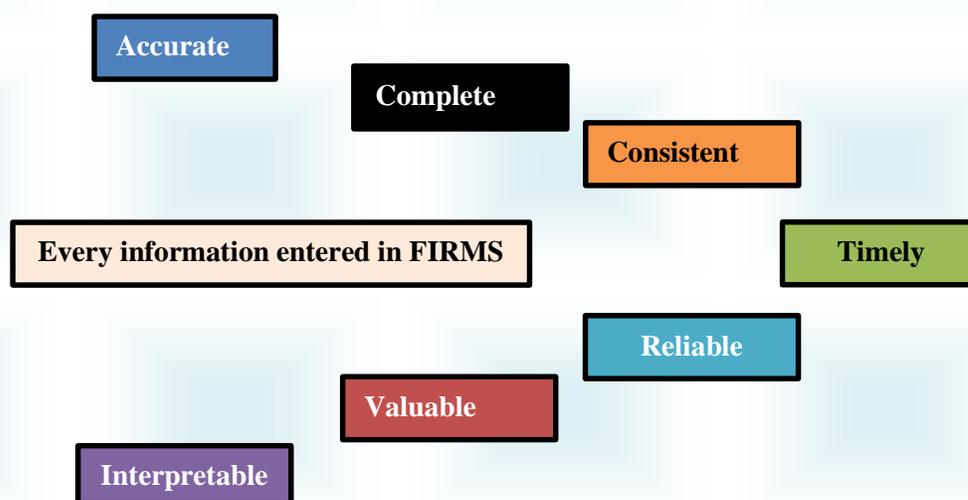
Figure 17: Requirements of good data quality

Data duplication can be avoided by:
- Having clarity on the objectives of each module
- Having clarity on the type of data to be entered in the system for each module.
- Knowing what documents to refer for each module
- Providing training/capacity building to data managers

Data in completeness can be checked by following means:
System assisted validation:

1. FIRMS will limit entry of information by setting
* Range check, (text typing rang)
* Letters (A-Z) check (caps lock)
* Numbers check (limit to number)
* Date (easy date selection format)
* Time check (time range)
* Check digit (digit typing range)
2. Entry of missing data for the mandatory fields are alerted by the system

Every data entered in the FIRMS should be correctly entered. Data managers should mandatorily enter following information:
* Quantity
* Unit
* Royalty type
* Royalty rate
* Royalty
* Product type
* Species
* Product Form
* Fine, compensation and reward
* Permit name
* Permit number

Royalty rate details is to be referred from Royalty Rates of Forest Produce, 2006. The documents has details of commercial and rural royalty for timber and NWFP. Conversion factor is also given for reference.

6.3.b. Data validation process

While entering valid data on the real time basis is responsibilities of everyone ensuring timely entry of data is important. Data managers will check data submitted by their sub-offices and ensure the correctness of unit of measurement, quantity, area, uniformity, figures, raw data, etc. In addition, if there are outliers or any unusual data, the data manager clarifies and accordingly rectifies with the data managers of their sub-offices. Principally following is done:

1. Data entered by data manager, Beat Offices and check post is checked and verified by the data focal of Range Offices or FMUs
2. Data entered and submitted by data manager of Range Offices and FMUs is checked and verified by data focal of Divisions/Parks
3. Data entered by data manager of Divisions/Parks is monitored by data manager of Functional Divisions,
4. Data entered and submitted by the data manager of Division/Parks/Functional Divisions is finally validated for publication by the Department focal off
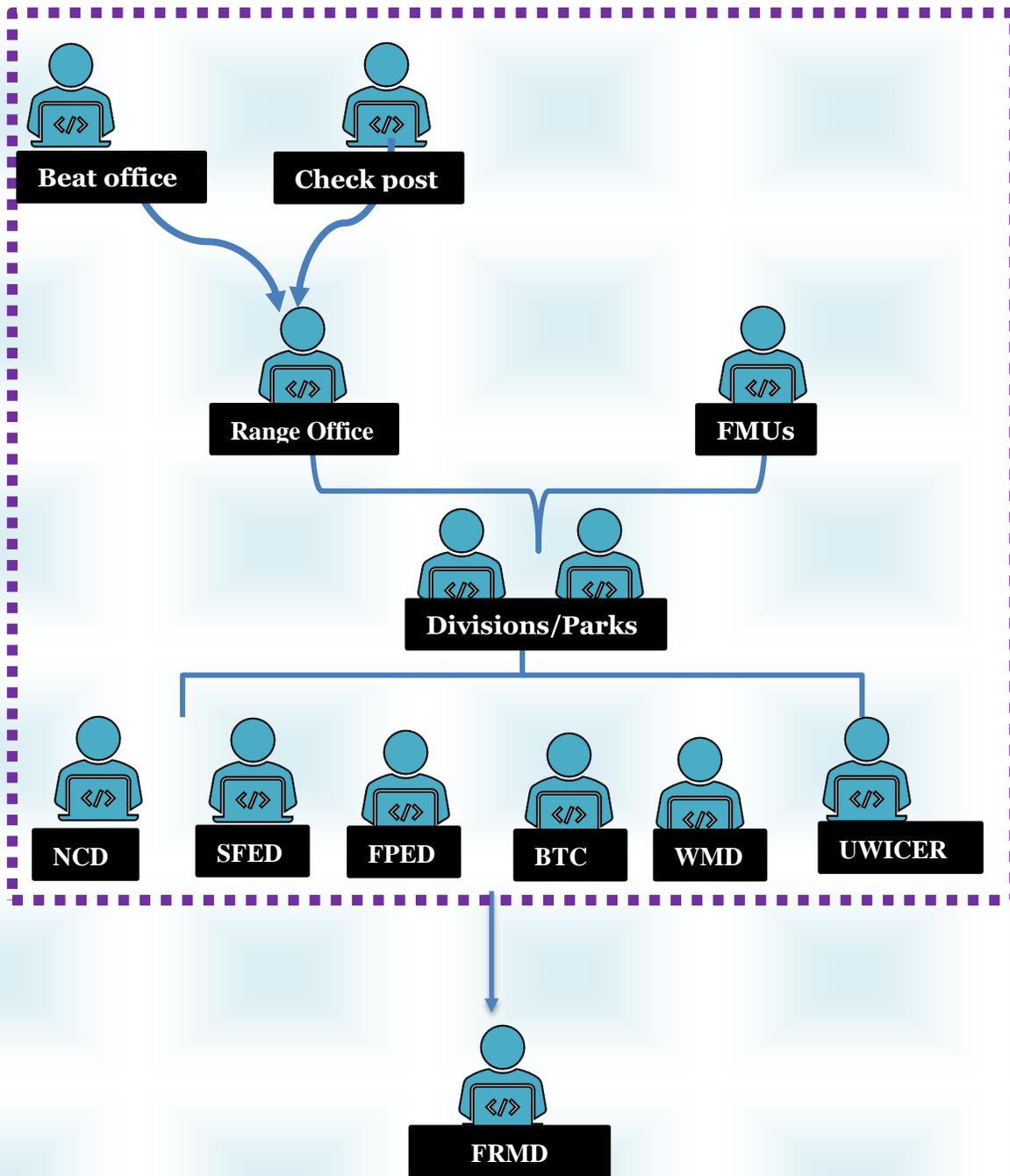
Figure 18: Data entry monitoring

6.3.c. Data validation schedule

1. Data validation is done on daily, monthly and annual basis by FIRMS user. The moment any data manager submits information in the system, the information is considered by

default a validated information. Since data manager enters real time information, data is said to be validated by concerned data manager on the daily basis.

2. RBP at integrated check post will ensure entry of valid, complete and timely data for the Check post module in the FIRMS on daily basis. However, respective data managers at Range offices and Divisions/Parks will also monitoring of data entry by the RBP and provide technical support to them.

3. Data validation is done monthly whereby respective data managers of Division/Park Offices will validate data entered by sub offices on the first week of every month for analysis. Data managers will present information to FRMD based on the format developed by FRMD on the 2nd week of every month via virtual meetings.

4. Annual validation of information for the Departmental publication, following schedule is to be followed by data managers

Table 7: Annual data validation schedule

Offices	Time Frame to complete data validation	Monitored by
Beat Office/RBP	1st to 10th January of subsequent year	Range Office/FMUs
Range Office/FMUs	11th to 20th January of subsequent year	Divisions/Parks
Divisions/Parks	20th to 30th January of subsequent year	Functional data focal
Functional Divisions	1st to 10th February of subsequent year	Department data focal

6.4. Data security:

Data security is the process/practice of protecting data from unauthorized use and purposes which leads to incorrect exposure, erasure, or corrupted data. The main threats of data loss or corruptions are attack by hackers for stealing or destroying data, computer viruses attack , unauthorized access of data by employees, spyware threats leading to stealing of data, hardware or software malfunctions and disasters such as fire/earthquakes/floods.Therefore, an organization should ensure protection of data by adopting various safeguard technologies/techniques such as administrative access control, physical hardware safety, data backups, encryption of files, handing taking modality , software safety ,etc. FIRMS Data can be protected by following methods given below:

6.4.a. Controlling access and data share:

1. **User credential protection:** All offices are assigned with unique user credentials which should be confidential and disclose to anyone. Data managers will enter information using the office credentials and enter name in each entry sheet present in the FIRMS.

2. **User activity monitoring:** Admin will monitor user activity of respective offices such as user login, data entry, data edit, data download and time spent entering data in the FIRMS.

3. **Securing access of FIRMS:** In order to secure the access of FIRMS, data manager is to follow following rules:
   a) A data focal should not provide access to one's user credentials unless
      - He/she hands over charge to the new focal
      - He/she is on leave
      - He/she is out of station for providing forestry services, attending trainings, workshops or meetings or carrying out national services
   b) He/she should not share data downloaded from FIRMS to anyone within or outside the Department or for commercial or educational purposes
   c) Sharing of data should be as per the sharing protocol in the Document.

6.4.b. Storing and backing up data

Data storage is the act of storing data in a secure location for easy access and use. Data Backup is the practice of retaining multiple copies of data in a secure multiple storage location. Good data storage and backup is important to protect data from losses due to file damage and corruption, hardware failure, virus attack or damage due to natural disasters and easy recovery, retrieval and recollect data or redo cleaning or analysis.

1. **Online backup:** FIRMS database is stored and backed up in the Government Data Centre (GDC). FIRMS database was migrated to GDC in 2019.
2. **Offline backup:** Data managers can back up information in the work station. Data downloaded and analysed in the work station should be transferred to the external drive to protect data during hardware and software fail caused due to computer virus, spywares, hackers or natural disasters such as fire, floods/earthquakes
3. **Monthly backup:** Monthly download of data is to be done for monthly reporting in the given format:

Step 1; Creating and naming folder: The folder name should be FIRMS_data_name of office year (e.g., FIRMS_databackup_Thimphu_DFO_2021)
Step 2: Creating and naming sub folder based on month: The file name should be name of office-month-year (e.g., Thimphu_DFO_Jan_2021)
Step 3: Creating and naming sub folder based on module: The file name should be name of office-month-year-name of module (e.g., Thimphu-DFO-2021-Plantation)
Step 4: Excel sheets to be protected

Figure 19: Naming format for storing the FIRMS data

6.4.c. Password encryption of files:

Data manager is to encrypt files with password. List of passwords for each file can be kept for reference. These files and password are to be handed over to the new focal in case there is change of data manager.
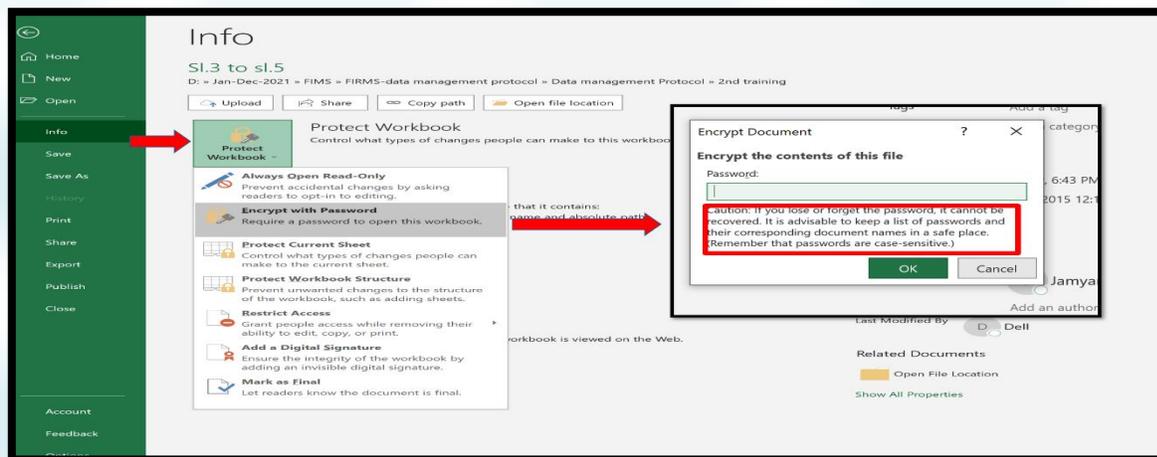
Figure 20: Encryption of password in the excel sheet

6.5.d. Implementing FIRMS handing-taking modality

1. Upon change of the data manager at Division/Park/Functional Divisions, the **respective CFO shall;**
   a) Share information to the data focal office of the Department regarding the change of data manager regarding the change of data manager by providing following information in the official letter.

```
    Name of official handing over the data manager role:
    • Designation:
    • Mobile Number:
    • Office name:
    • Email ID:
    • Duration (year): From............to ............

    Name of new data manager:
    • Designation:
    • Mobile Number:
    • Office name:
    • Email ID:
    • Date of handing taking:
```

Figure 21: Content in the official letter

b) ensure that the new data manager is adequately trained on the data management and usage of FIRMS system,
c) ensure the proper handing-taking of user credentials, roles and data backup

2. Upon change of the data manager at Beat Offices/Range Offices/FMUs the **respective ROs/FMU in charge should:**
   a) Inform CFO on the change of data manager at BO/Ros/FMUs
   b) A proper handing-taking mechanism should be developed and implemented by respective Divisions/Parks data focal.

6.4.e. Using security software;

Respective offices should ensure the protection of a system from the web-based threats by purchasing and using anti-virus, anti-spyware and fires walls software. This security software need to be periodically updated as there could be new threats created every day.

6.4.f. Biometrics;

Biometrics is a form of user authentication method where a user can use a physical characteristic such as finger prints, face recognitions and voice recognition. This is a relatively new technology but can be introduced for the FIRMS as a primary method for user authentication in future.

6.5. FIRMS accountability:

Entering a good quality data in the FIRMS and securing its data is a collective responsibility of both the data managers and respective managers. Concerned official heading offices should be

aware of the type of data flowing out of their respective jurisdictions. All Chief Forestry Officers, Range Officers, Forest Management Unit In charges, Check post/Beat Office In charges must ensure that the data managers enter a valid, complete and timely data in the FIRMS. Similarly, all CFOS under Functional Divisions should ensure that respective data managers monitor the programme-based data received in the FIRMS and validate information. Head of Department will overall ensure that the information shared to various users is valid and shared timely. FIRMS success is everyone's responsibility and the accountability should be shared equally as given in the Diagram below:

FMU in charge

CFO

Data manager

Beat Officer

Range Officer

RBP

CFO, Focal office

CFO, Functional Offices

Data manager, Focal office

Data manager, Functional Division

Head, DoFPS
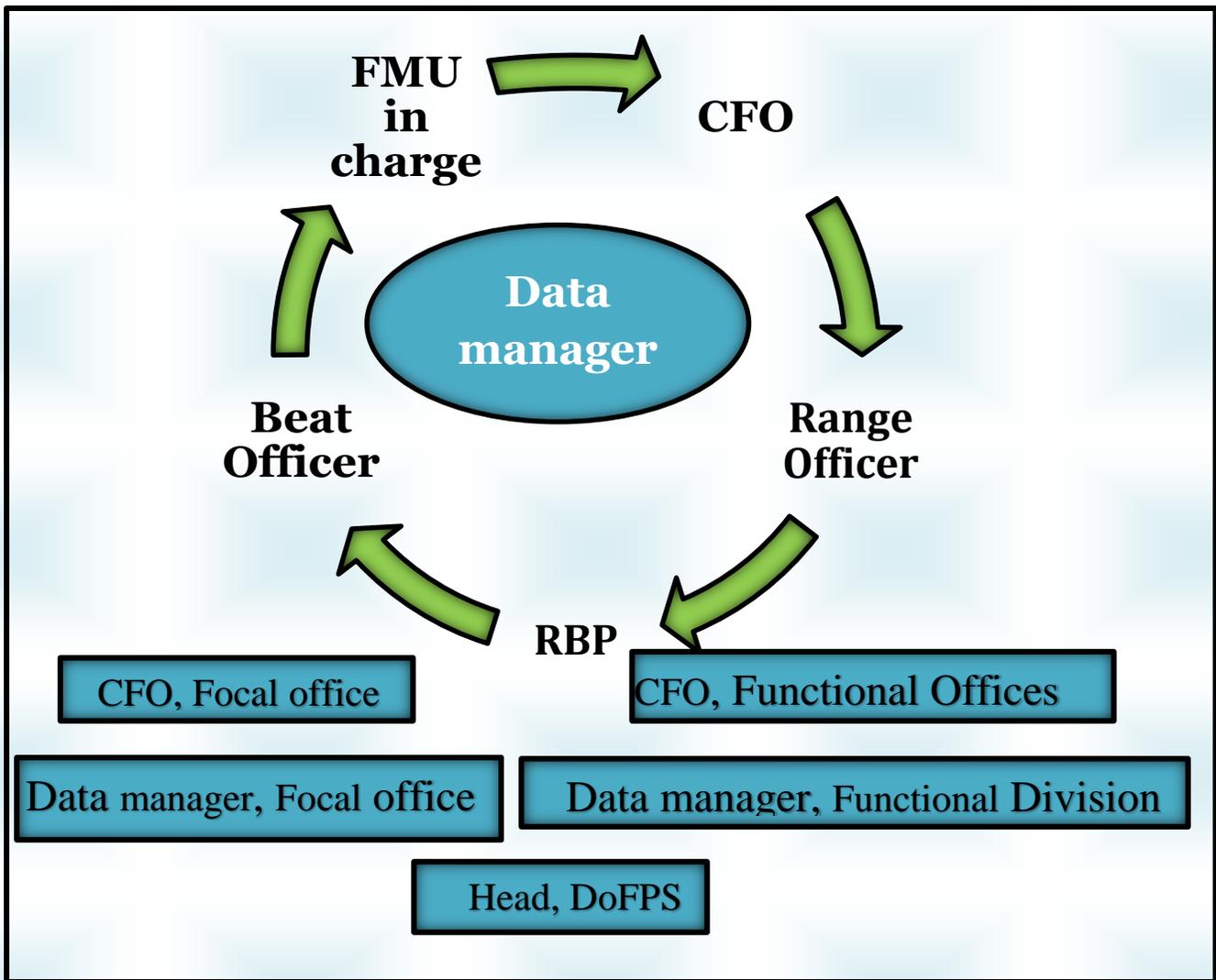
Figure 22: FIRMS accountability

7. Roles and responsibilities of Data managers

Table 8: Role of Data Managers at Beat Offices/Check posts/Integrated Check post

Sl. No.	Data managers at Beat office	Data manager at Check post/Integrated Checkpost
1	Collect, enter and timely submission of good quality data on real time* basis. Good quality data means, data entered should be reliable, accurate, consistent, comparable, complete and interpretable	Collect, enter and timely submission of good quality data on real time* basis. Good quality data means, data entered should be reliable, accurate, consistent, comparable, complete and interpretable.
2	Maintain analysed FIRMS information for the respective jurisdiction	Maintain data on check post module
3	Validate data entered in the system on daily, monthly and annual basis	Validate data entered in the system on daily, monthly and annual basis
4	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management.	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management
5	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.
6	Hand over user credentials, and associated responsibilities to the incoming data manager.	Hand over user credentials, and associated responsibilities to the incoming data manager.
7	Ensure data security, back up and protection	Ensure data security, back up and protection
8	Seek technical support from data managers of based at Range offices and Divisions/Parks regarding data entry in the FIRMS	Seek technical support from data managers of based at Range offices and Divisions/Parks regarding data entry in the FIRMS

* Real time data entry means entry of data within one working week

Table 9: Role of Data Managers at Range Officers/FMUs

Sl. No.	Data managers at Range office	Data manager at FMU
1	Collect, enter and timely submission of good quality data on real time* basis. Good quality data means, data entered should be reliable, accurate, consistent, comparable, complete and interpretable	Collect, enter and timely submission of good quality data on real time* basis. Good quality data means, data entered should be reliable, accurate, consistent, comparable, complete and interpretable
2	Maintain analysed FIRMS information for the respective jurisdiction	Maintain analysed FIRMS information for the respective jurisdiction
3	Validate data entered in the system on daily, monthly and annual basis	Validate data entered in the system on daily, monthly and annual basis

4	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management.	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management
5	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.
6	Hand over user credentials, and associated responsibilities to the incoming data manager.	Hand over user credentials, and associated responsibilities to the incoming data manager.
7	Ensure data security, back up and protection	Ensure data security, back up and protection
8	Seek technical support from data managers of based at Range offices and Divisions/Parks regarding data entry in the FIRMS	Seek technical support from data managers of based at Range offices and Divisions/Parks regarding data entry in the FIRMS
9	Monitor timely entry of data submission by data managers at Beat office and Check post	

Table 10: Role of Data Managers at Divisions/Parks and Functional Divisions

Sl. No.	Data managers at Divisions/Parks	Data manager at Functional Divisions
1	Collect, enter and timely submission of good quality data on real time* basis. Good quality data means, data entered should be reliable, accurate, consistent, comparable, complete and interpretable	View program-based data and ensure entry of the correct data into the system
2	Maintain analysed FIRMS information for the respective jurisdiction	Validate information entered by the data manager of field offices based on the data validation schedule mentioned in the FIRMS data management protocol
3	Validate data entered in the system on daily, monthly and annual basis	Remind data managers to enter data on a regular basis.
4	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management.	Provide feed backs specific to the modules which are accessible
5	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.	Hand over user credentials, and associated responsibilities to the incoming data manager.
6	Hand over user credentials, and associated responsibilities to the incoming data manager.	Ensure data security, back up and protection

7	Ensure data security, back up and protection	Provide timely suggestions/feedbacks for improvement of FIRMS or regarding data management
8	Provide capacity building/training to the data managers of Beat office/Range Office/FMUs/Check post	Maintain, compile and furnish additional data related to certain modules which is not captured in the FIRMS.
9	Ensure timely entry of data on real time basis by data managers of Range Office, Beat Office, FMUs and Check post	Hand over user credentials, and associated responsibilities to the incoming data manager.
10	Ensure data entered by sub office data managers are transparent, accurate, consistent, comparable and complete	Ensure data security, back up and protection
11	Analyse data on monthly basis for reporting to FRMD	Seek technical support from data managers of based at Divisions regarding data entry in the FIRMS
12	Ensure validation of data entered by sub offices on daily , monthly and annual basis.	

Table 11: Role of Data Managers at Department Focal Office

Sl. No.	Data managers at Department focal office
1	Monitor data entered by data managers at Divisions/Park
2	Cleanse and analyze data upon receiving the validated data
3	Compile and publish annual reports/publications
4	Ensure timely entry of valid data by field offices
5	Share FIRMS data/published information as per the data sharing procedure in the FIRMS data sharing protocol.
6	Ensure data security, back up and protection
7	Maintain and enhance FIRMS as and when required.
8	Provide technical support/back stopping to the data managers.
9	Provide capacity building and training to the data managers.
10	Coordinate with agencies for data related activities
11	Provide FIRMS user credentials.
12	Validate information entered by the data manager of field offices based on the data validation schedule mentioned in the FIRMS data management protocol

8.Roles and responsibilities of in charge/managers

Table 12: Role of HOD/CFOs/In charges at Check post/FMUs/Range Offices/Beat Offices

Sl. No.	Check post/Beat office/FMUs/Range officer
1	Ensure timely entry of good quality data by data manager. Good quality data means, data should be reliable, accurate, consistent, comparable, complete interpretable
2	Ensure timely cleansing and submission of reports to the Divisions/Parks
3	Ensure proper handing over of data, user credentials and responsibilities upon transfer of the data manager.
4	Provide support to the data managers in terms of capacity buildings/trainings
Sl. No.	**Chief Forestry Officer**
1	Ensure timely entry of good quality data by data manager. Good quality data means, data should be reliable, accurate, consistent, comparable, complete interpretable
2	Ensure timely cleansing and submission of reports to the Department
3	Provide necessary infrastructure to the data managers
4	Make data-based decisions.
5	Ensure proper handing over of data, user credentials and responsibilities upon transfer of the data manager
6	Provide support to the data managers in terms of capacity buildings/trainings
7	Ensure proper data security and back up of respective offices.
8	Take ownership of data quality collected and submitted to the Department and data users through the system.
Sl. No.	**Head of Department**
1	Provide overall guidance, direction and advice on FIRMS
2	Approve changes in the FIRMS system as and when required
3	Make data and evidence-based policy decisions
4	Authorize and authenticate the sharing of data to users outside Department and International forums.
5	Provide support regarding the capacity buildings/trainings/infrastructures/FIRMS enhancement

9. Data Sharing

1. Any government agencies seeking FIRMS data shall write to Director and get approval from the Director
2. Concerned offices seeking FIRMS data for the international reporting by the Department, he/she shall seek approval of the Head of Department.

3. All officials in the Department seeking to use FIRMS data for official purpose shall write to CFO, FRMD. In case for auditing purpose, concerned offices can use FIRMS data by informing formally to FRMD.
4. Any individual, agency and organizations inside/outside the Department seeking to make use of data for study/research/publication should apply based on **Annexure 1(A)** to the Head of Department for approval.
5. The applicant shall sign an undertaking agreement as per the **Annexure 1(B)**
6. Concerned individuals or agencies seeking to use the FIRMS data shall acknowledge the source of data in any type of publications or documents.

For official use only

Letter no: DoFPS/FRMD/FIMS/4(b)/…. /   Date: …………………

Approved ☐
    Rejected ☐

(Signature)
Name…………………………
Designation ………………
Date: …………………………

Annexure 1(A) Request Letter

To
The Head of Department,
Department of Forests and Park Services,
Ministry of Agriculture and Forests, Thimphu.

Sub: Request for (cleansed raw data ☐   /raw data of published document   ☐

Dear Sir/Madam,

I...bearing CID/work Permit.....................................
Working as (profession)... for (Agency) ....
Would like request you to kindly share the data which will be specifically used for (purpose)
....

Name of data , ...
Data Period (e.g., 2005 to 2010)   ....
 Type of   data required: name of module

I shall submit a letter of understanding to the Department assuring that, I shall fully abide by the terms and conditions as laid out in the protocol.

Yours sincerely,

Signature: ....
Name: ....
Date: ....
Contact no................................
Email i.d....................................

Annexure 1 (B) Letter of Undertaking

I.. bearing CID...working as (profession).. For (Agency) .... would use data......................... for (purpose).. Based on following terms and conditions

1. Any data housed with the Department of Forests and Park Services will be the property of the Royal Government of Bhutan.
2. The DoFPS shall reserve the right to approve or reject data without assigning any reason
3. Any agency or individual with whom the data has been shared by DoFPS will not further
4. Share the data with third party users.
5. Under any circumstances, the cleansed data   ta provided by DoFPS shall not be altered
6. Any agency or individual using the data from DoFPS will appropriately acknowledge the
7. Department for the use of data.
8. The data should be used 'fairly and lawfully' for the stated purpose and shall and only in accordance to the terms and conditions listed in the undertaking letter.   \
9. The individual or benefactor of data shall share the final output/report with the
10. Department.
11. The data may be shared with non-nationals, provided the use of data involves the
12. Collaboration with Bhutanese counterparts.

Declaration

I....................................... bearing CID/work permit.......................................declare that I, hereby abide by the above terms and conditions for the use of data provided by DoFPS and declare that the information provided is true. I will be liable for any actions as per existing laws if I fail to comply with the specified terms and conditions

Legal stamp
Signature: ....
Name: ....
Date: ....
    Attach a copy of CID/work permit:

Forest Resource Management Division
Department of Forests and Park Services
Ministry of Agriculture and Forests
Thimphu : Bhutan
Phone: +975-02-327723