USER MANUAL FOR THE HYBRID COMMUNITY-BASED MONITORING SYSTEM (HCMS)

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Contents

1. INTRODUCTION .................................................................................................................. 1
   Limitations of the HCMS ............................................................................................... 1

2. COMPONENTS OF THE HCMS .......................................................................................... 1

3. HOW TO INSTALL THE MOBILE APPLICATION ......................................................... 2
   Step 1. Download the mobile application .................................................................. 2
   Step 2. Install the mobile application on your Android phone ............................. 3
   Step 3. Create a user account ................................................................................. 4

4. NOTICE BOARD .............................................................................................................. 5

5. HOW TO REGISTER TREES ON THE MOBILE APPLICATION .................................... 7
   Step 1. Create a farmer profile ................................................................................. 7
   Step 2. Complete information about the farm ......................................................... 11
   Step 3. Collect coordinates of farm boundaries ...................................................... 12
   Step 4. Complete information about the tree ......................................................... 13
   Step 5. Complete the Declaration .......................................................................... 14

6. HOW TO VIEW TREE REGISTRATIONS ........................................................................ 16

7. HOW TO USE THE MOBILE APPLICATION FOR LANDSCAPE MONITORING ...... 17
   Adding a farmer to the database .............................................................................. 18
   Monitoring the distribution and status of tree seedlings .................................... 19
   Monitoring the delivery and status of alternative livelihood interventions ........... 22
   Monitoring the delivery of training ........................................................................ 25
   Monitoring private sector engagement .................................................................. 27

8. THE HCMS PORTAL ....................................................................................................... 28

9. THE DASHBOARD ........................................................................................................... 28
   Access to the HCMS platform ................................................................................. 28
   The Report .................................................................................................................. 30
   Tree Details ............................................................................................................... 30
   Farmer Details ........................................................................................................... 31
   Maps ............................................................................................................................ 31
   Tree Species Gallery ................................................................................................. 32

10. USING THE HMCS PLATFORM FOR BIOMASS MONITORING .................................. 32

11. USING THE HMCS PLATFORM FOR LAND COVER MONITORING .......................... 33
   Access the HCMS LULC page ................................................................................ 34
Compare change in LULC between two specific years ........................................ 35
Investigate how LULC has changed overtime in a selected area ....................... 36
Investigate how a specific LULC class has changed overtime ........................... 37
12. USING THE HMCS PLATFORM FOR LAND MONITORING ......................... 38
13. USING THE HMCS PLATFORM FOR SEEDLING MONITORING .................. 38
1. INTRODUCTION

This user manual has been created as part of the Tech4Communities: Hybrid Community-based Monitoring system (HCMS) project. The project seeks to create a hybrid “remote” and “on the ground” monitoring and evaluation programme to support data gathering and management at a landscape level.

The project is a collaboration between four organisations led by the Rainforest Alliance and comprising the Sefwi Wiawso Landscape Management Board, Olam Ghana Limited, and The Sefwi Wiawso Municipal Assembly. The system was designed with extensive consultation with local communities in the Sui River landscape, Western North region of Ghana.

This user manual aims to assist users on how to use the HCMS platform to collect and visualise data collected.

Limitations of the HCMS

As this is a pilot project, the system is built for the Sui River landscape and it has been customised to fit the needs and purposes of that landscape. For instance, it has pre-populated information such as the names of regions and districts within the landscape. It is therefore expected that some changes will need to be made to use the system in other locations.

2. COMPONENTS OF THE HCMS

There are three components to the HCMS, described below:

❖ **Mobile application**: The mobile application of the HCMS leverages on geographic information system (GIS), satellite technology and community systems to collect data regarding tree registration, deforestation monitoring, climate smart agriculture, among others. Currently, the mobile application supports the collection tree registration data and monitoring landscape activities. The intended users of the app are both producers and Landscape Management Boards (LMBs).

❖ **Web application**: An online platform where landscapes can monitor their land cover against some land use activities. It utilises the power of Google Earth Engine and combines the optical (LANDSAT) and Synthetic Aperture Radar (Sentinel-1) images to produce poignant Land use land cover (LULC) information covering the landscape. The intended users of the web application are mostly the LMBs.

❖ **Data hub**: A component of the HCMS is the Data hub. This is the repository where all data sets collected are saved and displayed. It consists of the maps, dashboards, reporting with regards to tree registration. Additionally, its also consist of data with regards to trainings being held on the landscape, additional livelihoods, gender dynamics, deforestation monitoring and verifications, among other indicators across the landscape.
3. HOW TO INSTALL THE MOBILE APPLICATION

The first step to using the application is installing it in your mobile device and creating a user account.

**Step 1. Download the mobile application**

The mobile application is currently only available for Android devices.

To download the application from your desktop, go to the HCMS portal at [www.hcmsportal.com](http://www.hcmsportal.com)

Navigate to the bottom of the page and click on the ‘Click to Download’ button. This will download the HCMS apk file to your computer. You can then copy the apk file to your phone using a USB or Bluetooth transfer.

If you have internet access on your mobile, you can download the app directly from the website. Just go to [www.hcmsportal.com](http://www.hcmsportal.com) and click on ‘Click to Download’.
**Step 2. Install the mobile application on your Android phone**

Once the apk is on your phone, it is ready to be installed!
Navigate to the folder where you saved the apk file.

Select the HCMS apk and install the app on your phone (Kindly allow permissions on your settings if prompted by your phone).

Once installed, go to your menu on your phone and open the HCMS mobile app.

Select the HCMS apk and install the app on your phone (Kindly allow permissions on your settings if prompted by your phone)

Once installed, go to your menu on your phone and open the HCMS mobile app.

**Step 3: Sign-up and sign-in as a first-time user**
Open the HCMS mobile app from your menu and a login screen appears

If you’re a new user, kindly create an account, by clicking on ‘register’.

Complete the form which appears after clicking 'register' to and click on 'CREATE ACCOUNT' to create an account.
Step 3. Create a user account

Open the HCMS mobile app from your menu and a login screen appears.

If you’re a new user, kindly create an account by clicking on ‘REGISTER’.

Fill out the details (first name, surname, phone number, email, and password).

Then please click on ‘CREATE ACCOUNT’. Next time you want to sign into the app, please just enter your phone number and the password you selected.
4. NOTICE BOARD

This feature contains all relevant news, notices, updates and any and all other information related to the HCMS. It will also host updates on training workshops and software update information. It has Two sections, The first section is for news and articles, the other section is designed for Trainings and Workshops.

**News/Articles** –
All HCMS related news and articles goes here.

**Trainings / Workshops** – All information on training and workshop goes here.
The badge displayed on the app is the Reward Mechanism feature, the colour of the badge changes based on the number of trees registered by farmer.

During tree registration, the View Tree Species option allows you to view a photo of popular trees. This is helpful in situations when a user is unsure of the tree species during registration.
5. HOW TO REGISTER TREES ON THE MOBILE APPLICATION

One of the uses of the mobile application is the ability to register trees. You can register trees either as an individual farmer or as a group or company. This manual shows the steps for registering trees as an individual farmer, but the steps are similar for registering trees as a group or company. Please contact the Rainforest Alliance if you need any assistance.

Step 1. Create a farmer profile

After signing into the app, you will see options to choose between 'Tree Registration' or 'Landscape Monitoring'.

Tap on the plus icon at the extreme right of the register tree section.

It will direct you to a new page where you can register trees.

Click 'view registered trees' button in the middle section to see trees that you have already registered.

Please select 'Register Trees'.

Once 'Register Trees' has been selected, a new page is opened allowing you to register trees for individual/farmers/developer or to register trees for a company/group. Select 'Farmer/Developer/Individual' option to register trees belonging to a farmer or an
individual, or 'Group/Company' if the trees belong to a group or company. For the purposes of demonstration, kindly select 'Farmer/Developer/Individual' option.

The selection of the 'Farmer/Developer/Individual' Option will open a new page as shown below.

This screen allows you to provide the contact of a farmer if the farmer is already registered on the app. This is to ensure that a registered farmer do not have to go through the farmer registration process again when they are already registered. The farmers registration details will be retrieved using the provided and valid contact.

After typing in the contact of the registered farmer, click 'Next' to continue with the tree registration process.

For first time farmers, please click 'new farmer' to begin the farmer and tree registration process.
The selection of the ‘New farmer’ Option will open a new window allowing you to enter the farmer's details. It includes the farmer's name, address, date of birth, contact details, as well as the passport picture of the farmer. Additional information such as the next of kin details is also required. Kindly complete all fields in this section and tap on 'Next' at the bottom of the page as shown below.
**Options to 'Save and Skip' or 'Skip':**

The farmer profile must be complete before any trees can be registered. However, if some of the information is not readily available, the app provides the option to skip this section, or save some of the information to continue filling the form later.

To save some of the information and fill in any gaps later, please enter the details you can and then tap on the three vertical dots on the top right corner of the screen. Select 'Save and Skip' from the dropdown list that appears.

To skip the entire section altogether without saving any of the information, please click on the 'Skip' at the bottom of the page.
Step 2. Complete information about the farm

The next section ushers you into capturing Tree Farm Information.

It is worth mentioning that this section is largely closed ended and options have been in-built into the app for easy selection by tapping on the dropdown button beside fields. Due to the focus of this app being on the Sui River Landscape, most of the pre-populated information is specific to the landscape.

This section collects information on:

* The location of the farm (political region, forest district, community)
* Ownership (Traditional Authority (TA)/Stool/Family the farm/land belongs to)
* MMDAs (select the corresponding District or Municipal Assembly)
* Type of establishment the farmer is undertaken¹.

Tap on ‘Next’ when you are done selecting the options. ‘Save and Skip’ or ‘Skip’ if you

¹ The app allows for 6 types of establishments:

**Woodlot**: a restricted or demarcated area of woodland usually privately maintained as a source of fuelwood, logs, and lumber in small-scale production

**Sacred grove**: community-owned forestland of diverse ecosystems including trees that rural communities protected as abodes of deities and are of special religious importance to a particular culture

**Fallow**: trees planted on land with natural growth without agricultural production

**Commercial plantation**: Trees planted in an ordered spacing/rows for high volume production of logs/lumber with the primary purpose of commercial wood production

**Naturally occurring**: a stand of trees grown from natural seed fall or sprouting

**Planted**: a forest established by man through planting seedlings or seeds of exotic or native species characterised by straight lines and even-aged stands of trees
need to but you will need to fill in this section before you can register trees.

**Step 3. Collect coordinates of farm boundaries**

To collect coordinates of the boundaries of the farm, it is necessary to walk along the boundary and collect the coordinates at regular intervals and at vertices/corners.

In Ghana, the Forestry Commission allows a maximum GPS margin of error of 3m. The app will show the GPS Accuracy at the top of the screen. Please ensure this number is under 3m when collecting coordinates.

To collect coordinates, tap on the ‘Pick Coordinates’ button. You can delete coordinates by checking the box next to the coordinate and tapping on ‘Delete Coordinates’ to remove that line. You can select and delete multiple lines at the same time.

Once all the coordinates of boundaries have been collected, tap on the ‘Next’ button. ‘Save and Skip’ or ‘Skip’ if you need to but you will need to fill in this section before you can register trees.
Step 4. Complete information about the tree

The next page collects information for one specific tree by selecting the options from the dropdown lists. You will need to fill out the form for every tree you want to register. When collecting the coordinates for the tree, be mindful that the GPS Accuracy must be under 3m. A message will appear to confirm the coordinates have been saved. Once it disappears, please tap on the '+' button to add your data to the database.

Tap on 'Done' when you have finished entering details for every tree you wish to register. 'Save and Skip' or 'Skip' if you need to but you will need to fill in this section before you can register trees.
Step 5. Complete the Declaration

The app requires you to endorse the data you have provided by entering your signature or thumbprint, and the signature or thumbprint of a witness. This declaration is the final step in the process of registering a tree.

To register your signature or thumbprint, tap on the camera symbol on the screen in the 'Farmer/Group/Company Signature/Thumbprint'. You will be given the choice to either 1) take a photo of your signature or thumbprint on a piece of paper, 2) use a photo from your phone’s image gallery, or 3) sign on your phone’s screen. You will need to enter your name and phone number below your signature/thumbprint.

Please ask your witness to follow the same steps in the ‘Witness Signature / Thumbprint’ section.

Once you have completed both sections, tap on ‘Finish’. If you have internet data, you can send the registration right away. Or choose ‘Send later’ to send it when you have internet connection.
If it is not possible to complete both sections at the same time, the app will recognise that some of the information is missing and will give you the option to save the information and continue later.

To save the information, kindly tap on the ‘Save and Close’ at the bottom of the screen. Tap on ‘Save’ in the message that appears.

You do not need to be connected to the internet to save the information you have entered.

Please remember that you will not be able to register trees until all the information in the 5 steps of this process is complete. If you have used the ‘Save and Close’ or ‘Save and Skip’ or ‘Skip’ options in any of these steps, you will need to complete the missing information before you can submit the registration. To do so, please follow the steps in the next section of this manual.

Equally, if you have completed the tree registration but chose to ‘Send later’, you can complete the process by following instructions in the next section.
6. HOW TO VIEW TREE REGISTRATIONS

In the home screen of the app, tap on ‘Tree Registration’ and then ‘View Registered Trees’ to see the list of the tree registrations you have completed or are in the process of completing.

To complete a tree registration you were working on, please find the incomplete submission on the list and tap on ‘Tap to complete’. It will open the tree registration and you can follow the steps in section 4 of this manual to finish the submission.

To send a completed tree registration that you could not send before, please find it on the list and tap on ‘Please tap to resend’. It will open the tree registration and you can send it to the database if you are connected to the internet.

The list will also include the tree registrations that you have submitted before. These will show the submission date instead of ‘Tap to complete’ or ‘Please tap to resend’. You can open those tree registrations too to view the registration details.

If all mandatory fields are completed and but data could not be sent to the data repository due to internet access, you can follow the same process and tap on the ‘Please tap on resend’ to send the completed registration process to the data repository.
7. HOW TO USE THE MOBILE APPLICATION FOR LANDSCAPE MONITORING

The mobile application was also designed to support Landscape Management Boards (LMBs) to collect data on landscape activities that are important for achieving the LMBs’ socioeconomic and environmental objectives. Therefore, the intended users of the landscape monitoring functionality of the mobile app are the Landscape Management Board, not the farmers themselves.

There are four types of activities that the mobile app is currently designed to monitor:

- Distribution and status of tree seedlings
- Delivery and status of alternative livelihood interventions
- Delivery of training
- Private sector engagement

The first three activities on the list are monitored by farmer, while the engagement with the private sector is designed to track the engagement of the LMB with different types of private sector actors and in different sectors.

It will be necessary to create a database of farmers to monitor the first three activities. The next section explains how farmer details can be added.

To use the landscape monitoring functionality of the mobile app, sign into the app and tap on ‘Landscape Monitoring’. From there, you’ll be able to add farmer details and select which activity you want to monitor.
Adding a farmer to the database

Kindly select the 'Add farmer +' button on the top right corner to add a farmer to the database.

In completing the farmers details, critical attention should be given to the phone number provided by the farmer. That is because that number is the basis on which the farmers database is built. A farmer will be asked to provide his/her phone number every time he/she is visited to check on delivery or status of an activity.

Once a farmer’s details have been completed kindly tap on the 'Next' button to add the details to the farmers database.
Monitoring the distribution and status of tree seedlings

The tree seedling monitoring segment allows you to monitor tree seedlings which are being distributed. It helps track who tree seedlings have been distributed to, the number of tree seedlings distributed, where seedlings have been planted, among others. It also allows you to carry out monitoring visits to people you distributed tree seedlings to and monitor the survival rate of trees planted.

To monitor the distribution and status of tree seedlings, tap on ‘Seedling monitoring’. You will be asked to enter the date in which the visit is being conducted as well as the phone number of the farmer. (If the farmer is not yet in the database, please follow the instructions in the previous section).

Tap on ‘Next’ after entering the date and the farmer’s phone number.
Please then fill in the details on the tree seedlings:

Tap on ‘Next’ after the entering the details. If you can’t complete all the information, please select ‘Save and Skip’ by tapping on the 3 dots in the top right corner of the screen.

You will then be asked to provide information on the area in which the seedlings were planted. Tap on ‘Finish’ after the entering the details. After tapping the ‘Finish’ button a pop-up appears allowing you to send the data collected to the data repository or to send later if you don’t have internet access.
In the subsequent visits, the platform assumes that you are there to monitor the tree seedlings which you monitored during the previous visit. You are therefore not required to fill out as much information as you provided in the first visit.

To monitor progress on the seedlings, tap on ‘Seedlings monitoring’, then enter the date of the visit and the farmer’s phone number. This will be enough to make sure that you are updating the previous record on those seedlings. You will be asked to enter the quantity of seedlings that survived, and the number of trees registered since your earlier visit.

Tap the 'Finish' button once you have completed all fields in this section. You will have the option to ‘Send later’ if you are not connected to the internet.
Monitoring the delivery and status of alternative livelihood interventions

The alternative livelihood segment seeks to track alternative livelihood interventions which are taken place on the landscape. It helps track which type of alternative livelihood taking place on the landscape be it piggery farming, snail farming, vegetable cultivation, among others.

To monitor the delivery and status of alternative livelihoods activities, tap on ‘Alternative Livelihood’ and enter the date of the visit and the farmer’s phone number. (If the farmer is not registered in the database, follow the instructions earlier in the manual). Tap on ‘Next’ when you’re finished.

You can then complete the activity details of the alternative livelihoods being implemented. Select the type of activity (e.g., snail rearing or bee keeping), the trainer organisation which trained the farmer on the selected alternative livelihood, and the date the livelihood operation started. Tap on the 'Next' button to continue.
Then you can fill in the investment details, including initial amount invested, amount of money raised after a certain period, amount contributed to the LMB, and activity which the generated income supported within that period.

Kindly tap on the 'Finish' button once all fields in this section have been completed.

A message will appear asking you whether you have internet data. If you are connected to the internet and you want to submit the data right away, tap on ‘Send with internet’. If you prefer to send it at a later stage, press 'Send later'.
In the subsequent visits, the platform assumes that you are there to monitor the alternative livelihood activity which you monitored during the previous visit. You are therefore not required to fill out all the fields you completed during the first visit.

To monitor progress on the alternative livelihood activity, tap on ‘Alternative Livelihood’, then enter the date of the visit and the farmer’s phone number. This will be enough to make sure that you are updating the previous record on that activity. You will then be asked to select how long it has been since the previous visit (6 months, 1 year, 2 years), the amount earned from the activity during that time, and the amount contributed to the LMB.

Tap the 'Finish' button once you have completed all fields in this section. You will have the option to ‘Send later’ if you prefer.
Monitoring the delivery of training

Trainings are important for landscape integrity. They help landscape actors learn new methodologies, technologies, and trends on how to improve their farming practices, business activities and general wellbeing. The mobile application of the HCMS helps LMBs to collect data on the delivery of training in the landscape, which in turn helps identify training needs.

To collect data on trainings, tap on ‘Training log’ and then enter the details of the training event being organised (identify the community, the topic of the training, the date and duration of the training, and the person delivering it). Tap on ‘Next’ when done.

Then you will be able to record who participated in the training. First, select the community where the training took place. This will show a list of all the farmers from that community that are registered in the farmer database. Tap on the boxes next to the names of every farmer that participated in the training. If one of the participants is not on the list, you will need to add that farmer to the database following the instructions provided earlier in this manual.

Once you’re done, tap on ‘Finish’. You can choose to save the information and ‘Send later’ if you’re connected to the internet.
The next section after tapping the 'Next' button allows you to add participants who attended the training session. To do this, kindly select the community a participating farmer is coming from. This allows you to see all registered farmers in that community when you in the 'Select Farmer' box. Farmers who participate in the training session can therefore be added to the participants list. Participating farmers should therefore be registered before they can be added as training participants. Kindly tap on the 'Finish' button once all training participants have been added.
Monitoring private sector engagement

For private sector engagement, Click on the Private Sector Engagement, on the next page, Enter the LBB type, and select the Engagement type. This can be either private sector engagement or financial sector engagement. Click 'next' after providing the necessary details in the form. You will also be required to provide details on the engagement in the next page.

After tapping 'Finish', the registration for the private sector is completed and data saved.
8. THE HCMS PORTAL

A component of the HCMS is the Data hub / HCMS portal. This is the repository where all data sets collected are saved and displayed. It consists of the maps, dashboards, reporting with regards to tree registration. Additionally, it also consists of data with regards to trainings being held on the landscape, additional livelihoods, gender dynamics, deforestation monitoring and verifications, among other indicators across the landscape. The portal also contains other very useful functionalities such as biomass measurement, land use/land cover classification.

9. THE DASHBOARD

Access to the HCMS platform
Access to the LULC platform on HCMS can be found here hcmsportal.com. The following screen should appear.

Navigate to the menu bar and click on the 'ENTER DASHBOARD' button
A login screen can will appear after clicking the 'ENTER DASHBOARD' button. Kindly login with the login credentials you have received as shown below.

After logging in successfully, you will be greeted with the HCMS Main dashboard. This dashboard contains presents statistics on all the activities of the mobile application. Some of the statistics and visualisation on the dashboard are, farm distribution, farm distribution by gender, farm distribution by community, total registered trees. Average Age of planted trees, Average farm size. Etc.
The Report

The report section on the dashboard can be assessed by clicking on report under tree registration on the left sidebar. This page contains all information on tree registration. The table on the page contains biodata on all farmers registered on the application. This table is basically the backend or the data management table for all the data taken using the mobile application with respect to tree and farmer registration. Vital bio-data such as Name, Gender, Address, Contact, Community, Date of Submission etc. of farmers are presented in the table.

Tree Details

After clicking the 3 vertical dots, you can either select tree details or farmer details. The tree details page has information on the trees registered on the application for each farmer. The section shows the boundary of the registered farm and the placement of each registered tree on the farm.
Farmer Details
This section contains detail information on each registered farmer on each row in the previous table. The form on the page contains all information on a registered farmer as taken from the field using the mobile application.

Maps
The map section contains a map of all the farms registered so far on the application. The black dots are polygons / boundary of every registered farm in the project area. This section is accessed by clicking Map under tree registration menu on the side bar.
**Tree Species Gallery**

This section contains photos of popular species taken during tree registration. A photo classification functionality on the mobile application allows farmers to take pictures on trees during registration. This menu catalogues all the photos taken by farmers. This section serves as a lookup for farmers who may not have any knowledge on a particular tree species when registering trees. This also serves as a back check for the tree classification done on the field.

10. **USING THE HMCS PLATFORM FOR BIOMASS MONITORING**

This section contains information on biomass in the area of interest. This feature provide vital information to users on the biomass of a given area.
11. USING THE HMCS PLATFORM FOR LAND COVER MONITORING

The HCMS online platform supports the LMBs efforts to monitor their land cover against some land use activities. It utilises the power of Google Earth Engine and combines different types of satellite images to produce poignant information on Land Use Land Cover (LULC) in the selected landscape, from 2015 to the present.

In developing the LULC monitoring system, critical attention was paid to the scale and purpose of the system, which in turn informed the selection of the satellite imagery. Landsat 8 optical images were combined with Sentinel-1 images to support LULC classification in areas with significant cloud cover. Sentinel-1 is a Synthetic Aperture Radar (SAR) designed to get imagery in all weather conditions, but Landsat images sometimes provide better feature resolution of the surface.

After careful consideration and observation of the LULC across the landscape, the following classification scheme was used for the exercise:

<table>
<thead>
<tr>
<th>LULC Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed Canopy Forest (CCF)</td>
<td>The closed canopy forest constitutes primary and secondary woody vegetation stands of 1m minimum mapping unit with more than 60% crown canopy and with 5m height. The CCF class is mainly found within the forest reserves and protected areas.</td>
</tr>
<tr>
<td>Open Canopy Forest (OCF)</td>
<td>The open canopy forest class represents degraded forests as resulting mainly from logging activities, usually with crown cover between 15% and 60%. The area also covers riverine vegetation usually outside the reserve and protected area.</td>
</tr>
<tr>
<td>Full sun cocoa / Mono Cocoa (MCC)</td>
<td>Full sun cocoa represents monoculture cocoa farms with minimum or no upper canopy natural or planted timber trees within.</td>
</tr>
<tr>
<td>Agroforestry Cocoa (AFC)</td>
<td>The Agroforestry cocoa also referred to as the shaded cocoa system represents cocoa farms with natural or planted trees incorporated and creates a relatively closed canopy system with double</td>
</tr>
<tr>
<td>Cropland</td>
<td>These include food crops mainly plantain, rice in wetlands, maize, cassava etc. They also consist of grasslands and shrub vegetation. It also includes lands in transition from either fallow or forests to agricultural lands. They are mostly lands with the vegetation cleared and awaiting the right season or stage for crops to be planted. Also included cocoa rehabilitation sites where old cocoa farms have been cut and the lands has been put under crop mainly plantain or under preparation for plantain at the time of field visits.</td>
</tr>
<tr>
<td>Bare Lands (BL)</td>
<td>These include human-settlement areas and built surface. They also consist of bare surfaces, mined areas, etc.</td>
</tr>
<tr>
<td>Streams / Rivers (SR)</td>
<td>Streams and rivers and open surface water bodies usually in the wetlands</td>
</tr>
</tbody>
</table>
Access the HCMS LULC page

To access the HCMS LULC page, go to www.hcmsportal.com and select on ‘Enter Dashboard’ on the menu bar.

Please enter your login details (username and password) in the login screen that appears. Once the login credentials have been authenticated, you will see a dashboard with menu on the left-hand side. Kindly click on ‘LandUse LandCover’ from that menu (shown below with a red square).
This will open the LULC page, which displays the land cover in the Sui River landscape. The legend at the bottom left corner of the screen shows the seven LULC classes previously explained in this manual. The map can be zoomed in or out with the ‘+’ or ‘-’ sign respectively on the top left corner. (Or you can use the scroll on your mouse if you have one). The right-hand pane allows you to select the years.

**Compare change in LULC between two specific years**

The LULC page enables you to see how LULC has changed in the Sui River landscape between any two years in the period 2015 to 2022. Enter the initial and final years in the query pane at the right-hand side of the screen, then click ‘FILTER’. A graph will appear showing the total area for each LULC class in the selected years.
Investigate how LULC has changed overtime in a selected area

Much as it is great to have a general view of the entire landscape, you might want to perform analysis on a particular area. You can do that by drawing a rectangle or a polygon. Either way, you must first select the period you want to analyse by entering an initial year (Query 1) and a final year (Query 2) in the query pane as before.

1) To draw a rectangle:

Click on the ‘Draw a rectangle’ icon on the left-hand side of the screen. You can re-size the rectangle as needed by clicking on the white corners/vertices and dragging them to a new position. When you are done, select ‘Finish’ on the menu bar that pops up next to the ‘Draw a rectangle’ button. The platform will then compute the area coverage of each of the LULC classes within your area of interest. You can also ‘cancel’ the rectangle you have created.

2) To draw a polygon:

This is a good option if you want to focus on an area that is not right-angled. Click on the ‘Draw a polygon’ icon. Your cursor will turn into a white cross, and you can click on as many points as needed on your screen to create a polygon. When you are done, select ‘Finish’ on the menu bar that pops up next to the ‘Draw a polygon’ button. The platform will then compute the area coverage of each of the LULC classes within your area of interest. You can ‘cancel’ the polygon you have created, or ‘Delete last point’.

An area of interest drawn using a draw polygon feature
Investigate how a specific LULC class has changed overtime

To see how a specific LULC class has changed overtime, click on ‘TIME SERIES’ in the query pane on the right hand side of the screen. This will open the Timeseries Computation graph where you can select the period of analysis and the LULC class (or classes) that you would like to investigate. Click on ‘RUN ANALYSIS’ when you are satisfied with the options you selected. The platform will then compute your query.

In the example below, the LULC classes selected are Cropland, MocoCocoa, and Forest. The period selected for analysis is between 2018 and 2021. The resulting graph shows that the area of Cropland has decreased during that period and that Forest cover has increased.
12. USING THE HMCS PLATFORM FOR LAND MONITORING

The land monitoring dashboard presents summary on farmers. Some statistics on the dashboard include, Number of train farmers and their distribution by gender, age proportion. It also contains statistics of seedlings and seedling distribution to farmers.

13. USING THE HMCS PLATFORM FOR SEEDLING MONITORING

The seedling monitoring section contains table on the farmers and the statistics of seedlings distributed to farmers. This table is a record of progress on farmers in nurturing the seedlings distributed to them.
The tree vertical dots at the extreme end of the table contains the list of species given to each farmer in each row of the table. A click of each species contains information taken on the particular species from the field / visit.