Dr. Sarawut Ninsawat
RS&GIS, SET
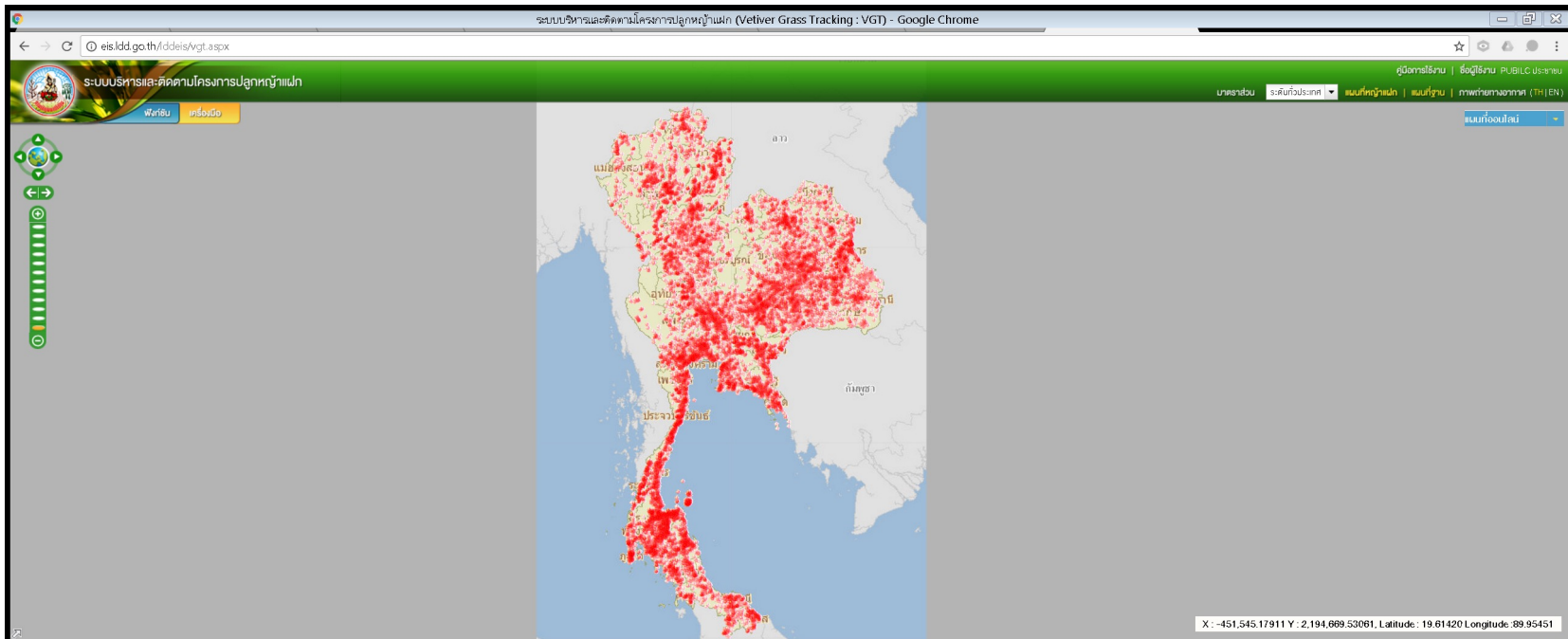Asian Institute of Technology (AIT)

INTERNATIONAL VETIVER GRASS TRACKING SYSTEM (iVGT)

ICV-7
29 May - 1 June 2023

VGT Monitoring and management vetiver grass planting

- VGT was developed by Land Development Department to monitor and mange the vetiver grass planting

- However, only vetiver grass planting sites in Thailand were recorded and the main purpose is for monitoring work progress.

The Vetiver Network International (TVNI) group

Main Features of Mobile Application

01 Show the site's location on online map with different symbols

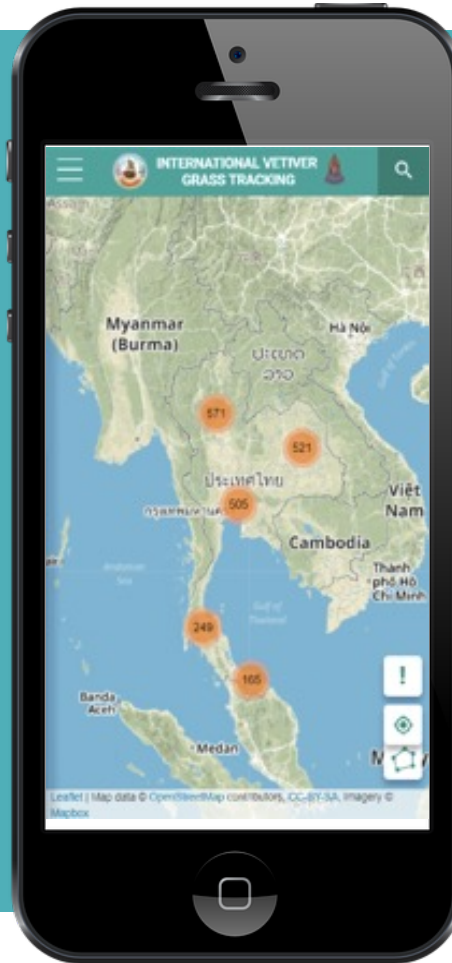**02** Map Controls
Zoom in, Zoom out and Pan

03 Base Maps
Bing map, Open Street Map

04 Information sharing on social media
Facebook

05 Geolocation for searching

06 Searching with site name, location and administrative boundary

07 Filtering with vetiver grass type, planting pattern, number of plant and application

Main Features of Web Application

01 **Web Browsers**
Google Chrome, Internet Explorer, Mozilla Firefox

02 **Map Controls**
Zoom in, Zoom out and Pan

03 **Base Maps**
Bing map, Open Street Map

04 **Information sharing on social media**
Facebook

05 **Vetiver grass site info**
Show the site's location on online map with different symbols

06 **Searching** with site name, location and administrative boundary

Main Features of Web Application

07 — **Filtering** with vetiver grass type, planting pattern, number of plant and application

08 — **Geolocation** for searching

09 — **Authentication with social account** (FB, Gmail, Microsoft account)

10 — **Role-based access control** Admin, Representative, PI, Staff, and surveyor

11 — **Data management** Add, edit, and delete vetiver grass sites

12 — **Analysis Tools** Summary table or chart

6

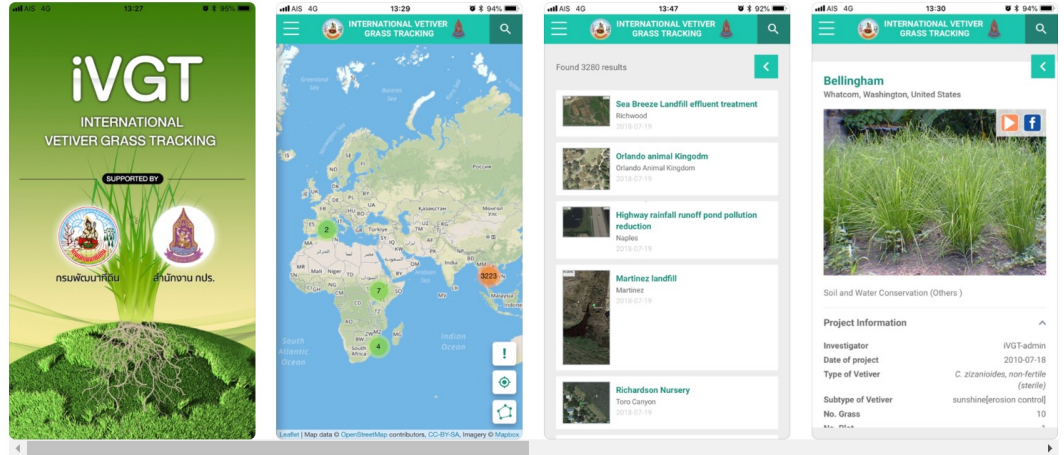This app is only available on the App Store for iOS devices.
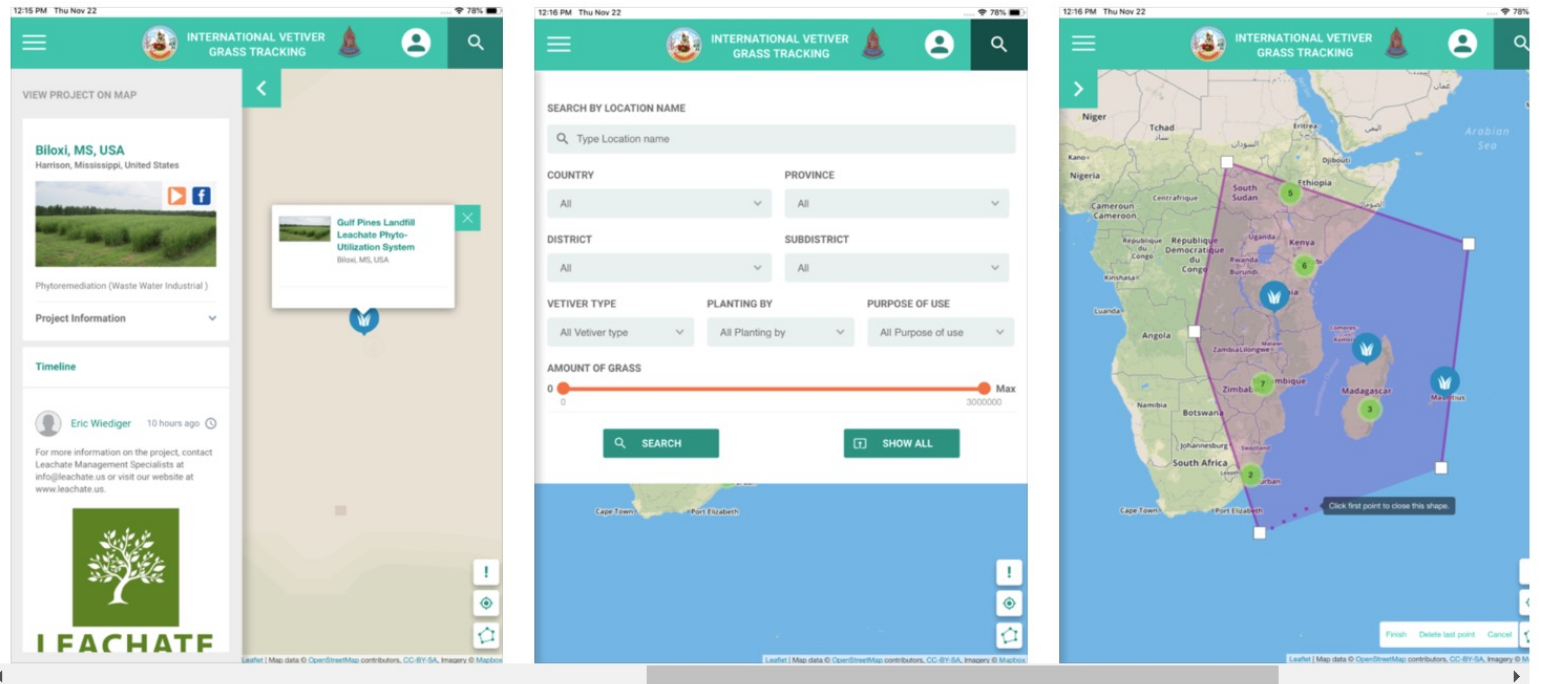
iVGT 4+

Land Development Department

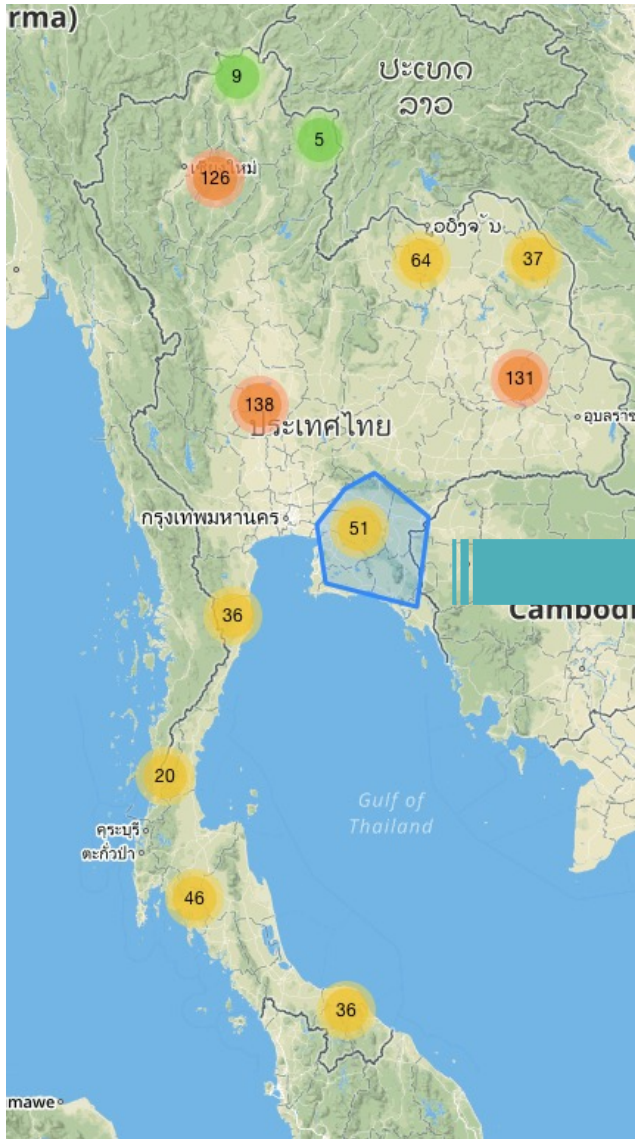★★★★★ 5.0, 1 Rating

Free

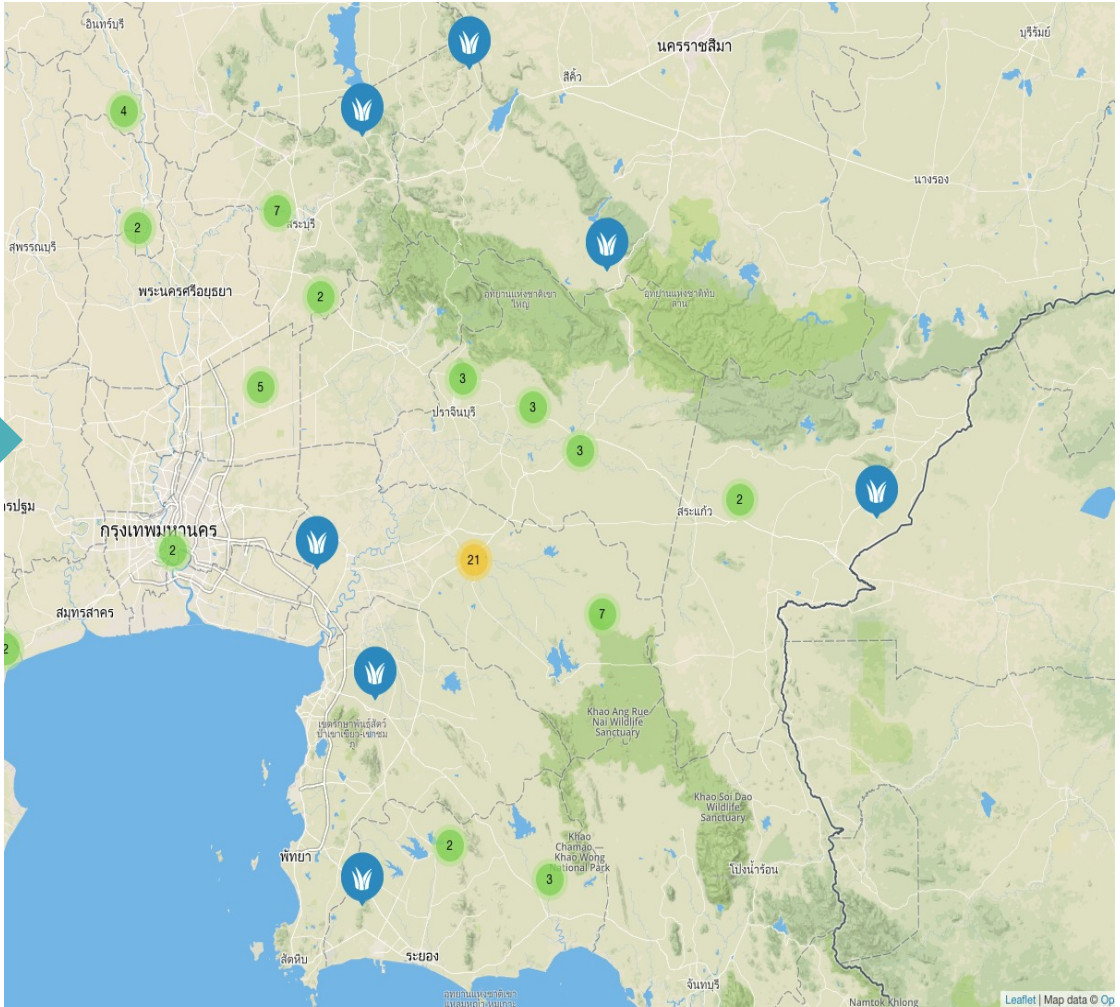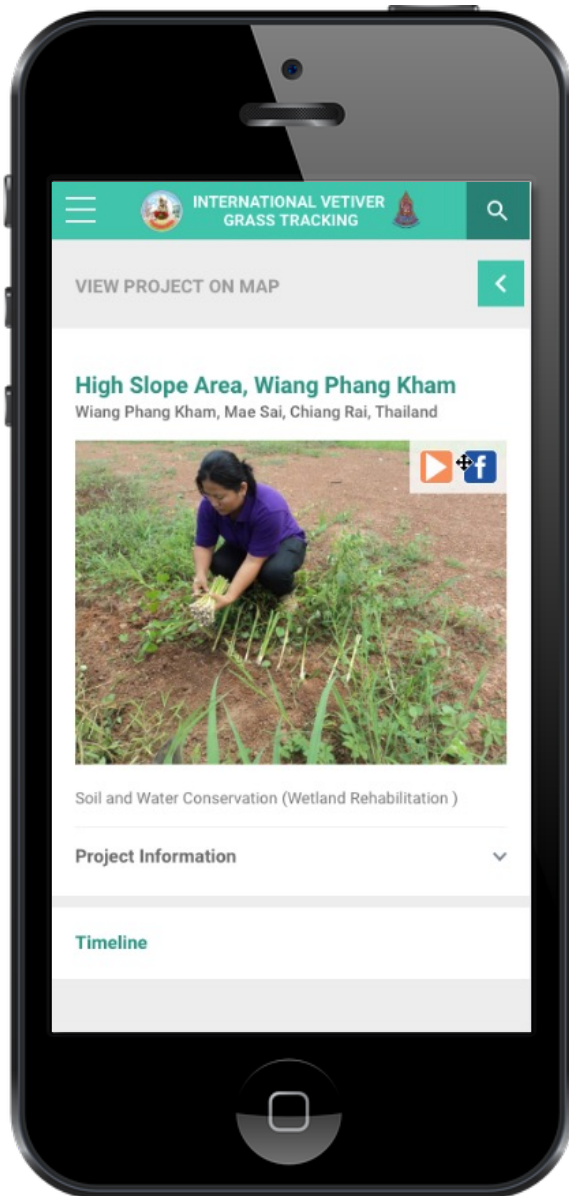## Screenshots   iPhone   iPad

Screenshots   iPhone   iPad

Application Elements

Marker Clustering

Showing the detail of the vetiver grass project

Location Name
Purpose of use
Project Manager
Date of project
Type of Vetiver
Subtype of Vetiver
Number of Vetiver Grass
Number of Plot

Showing project information

Users can watch the video by clicking

Timeline: show progress contents

Vetiver grass planting site

Vetiver grass planting site

Vetiver grass planting site

Beach near Ifira Island
Ifira, Shefa, Vanuatu
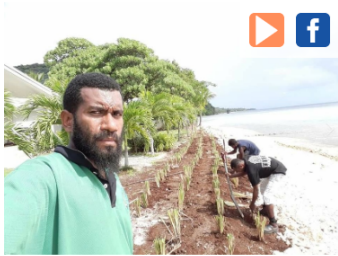
Disaster Mitigation (Others)

Project Information ⌄

Timeline
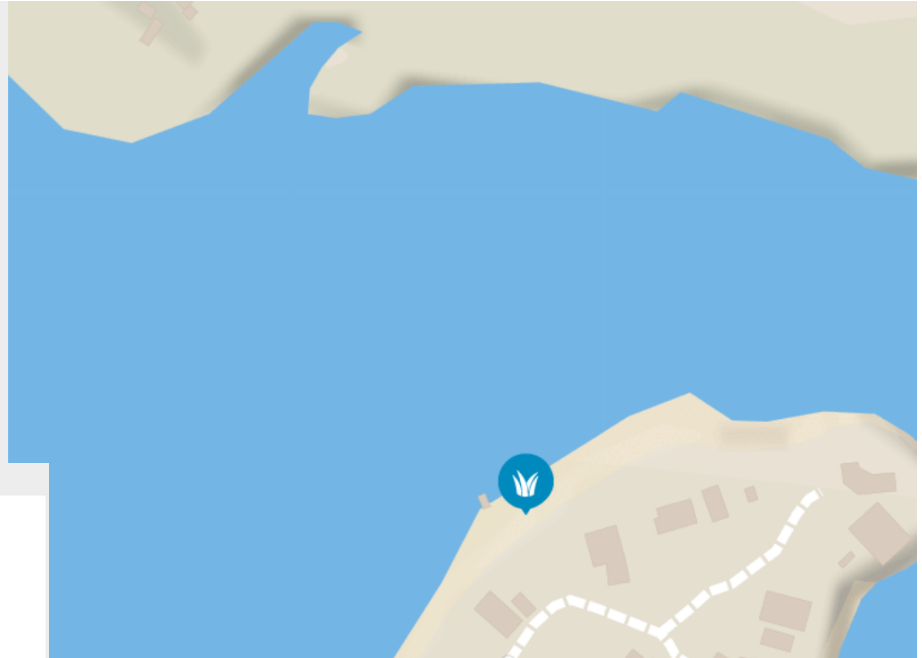
Tantec Leather Ltd.
An Tây, B?n Cát, Bình Duong, Vietnam

Saigon Tan Tec

Phytoremediation (Contaminated Land: Industrial)

Project Information ⌄

North of Saint Joseph
Saint-Joseph, Saint-Pierre, Reunion

Other Uses (Aromatic Oil)

Project Information ⌄

Richard Grimshaw   approximately 6 months ago 🕐

Vetiver handicraft and vetiver oil still near Saint Joseph, Reunion

Thailand	3194
India	32
China	26
Australia	21
Vietnam	21
Kenya	20
United States	19
Brazil	16
Myanmar (Burma)	14
Malawi	14
Ethiopia	13
Philippines	11
Zimbabwe	11
Congo	8
Papua New Guinea	8
Sri Lanka	7
Japan	7
Uganda	7
Zambia	7
Laos	6
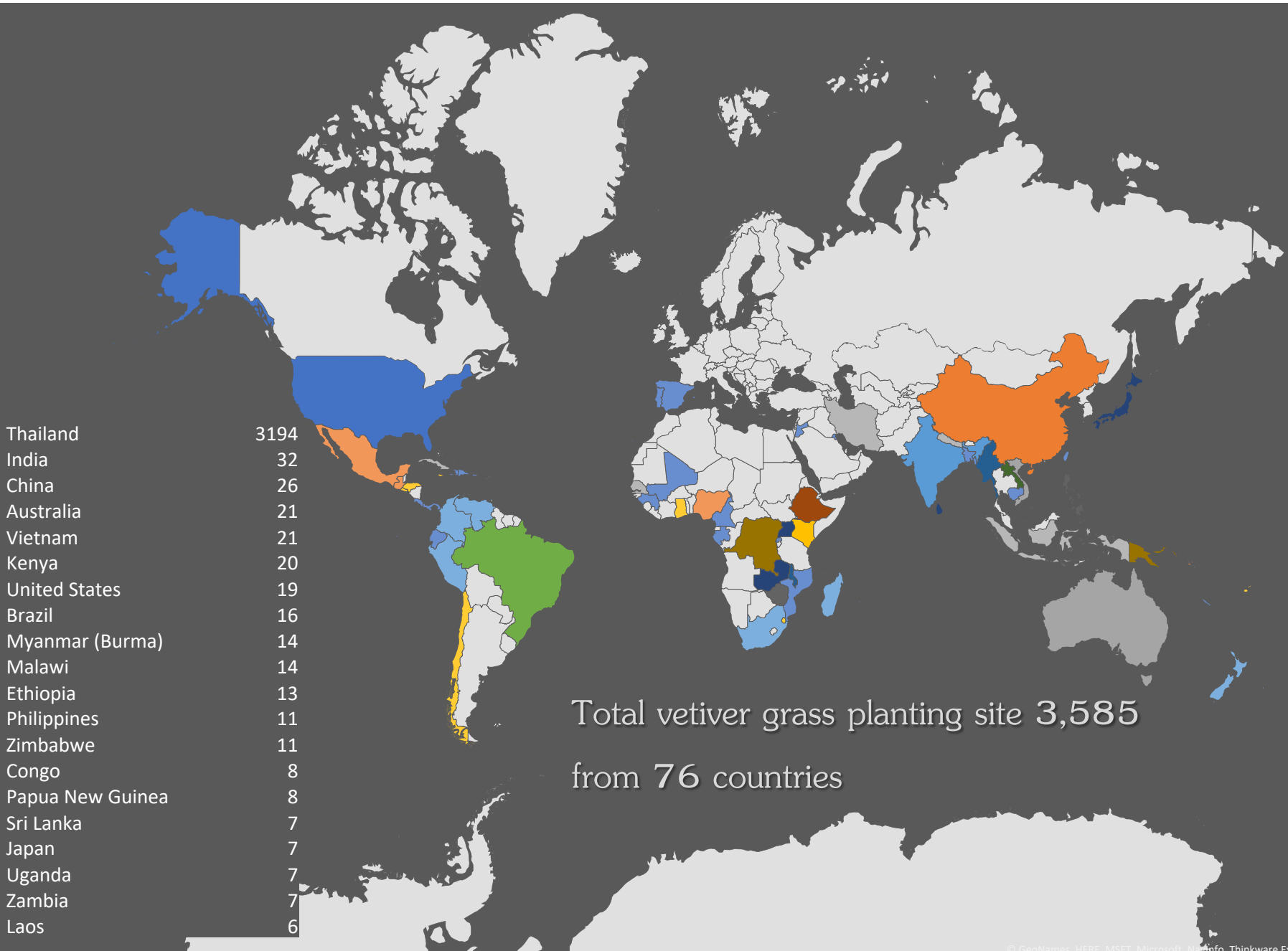
Total vetiver grass planting site 3,585

from 76 countries

Powered by Bing
© GeoNames, HERE, MSFT, Microsoft, NavInfo, Thinkware Extract, Wikipedia

Post to Facebook
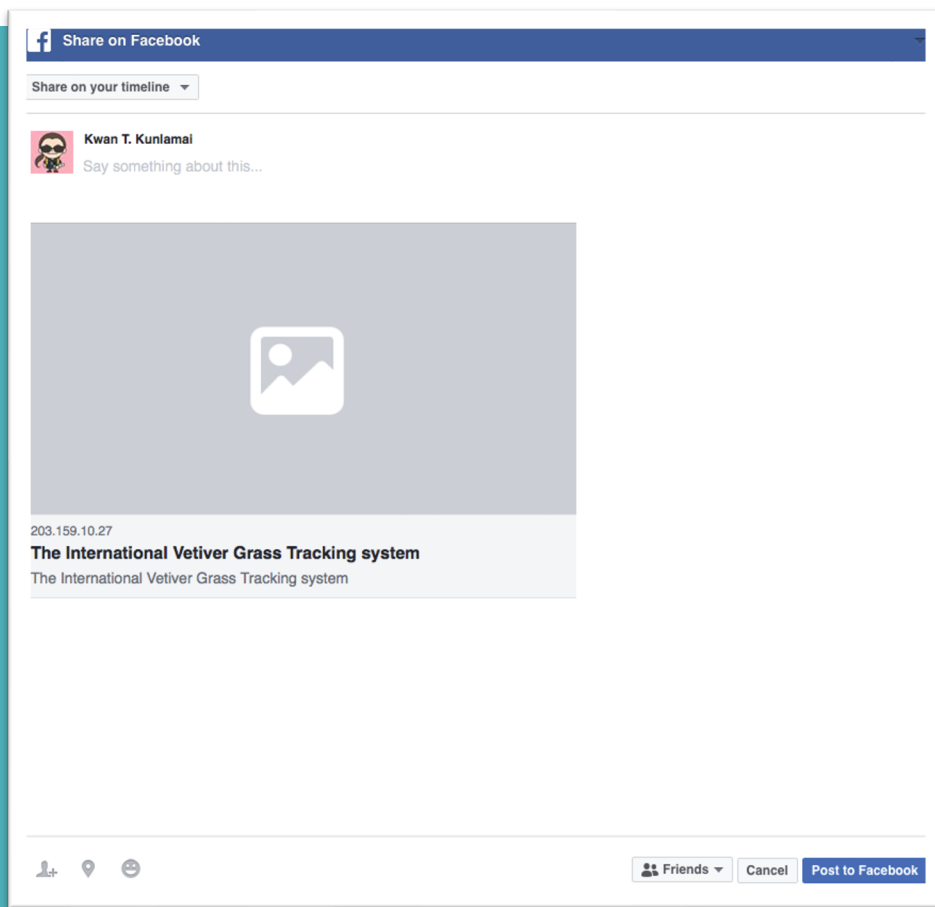
Users can share the information of the vetiver site on Facebook.

Sharing the project information can be operated by click on

Changing the symbol the vetiver site

Users can change the classification of the project with the following conditions

1) Vetiver Type
2) Purpose of Use
3) Planting type

SHOW BY

- ● Vetiver Type
- ○ Purpose of Use
- ○ Plant

Planting type

- Water Source Area, Canals Ways
- Road Shoulder Area
- Planting in row between the trees or crops row
- High Slope Area
- Others

Purpose type

- Agriculture
- Aquaculture
- Bioengineering
- Biomass
- Disaster Mitigation
- Phytoremediation
- Propagation
- Soil and Water Conservation
- Other Uses

Vetiver type

- C. nigritana
- C. nemorails
- C. zizanioides, fertile (viable seed)
- C. zizanioides, non-fertile (sterile)

Changing Online Base map

Open-source map data

1) Topography map (OSM)
2) Topography map (Bing Maps)
3) Satellite map (Bing Maps)
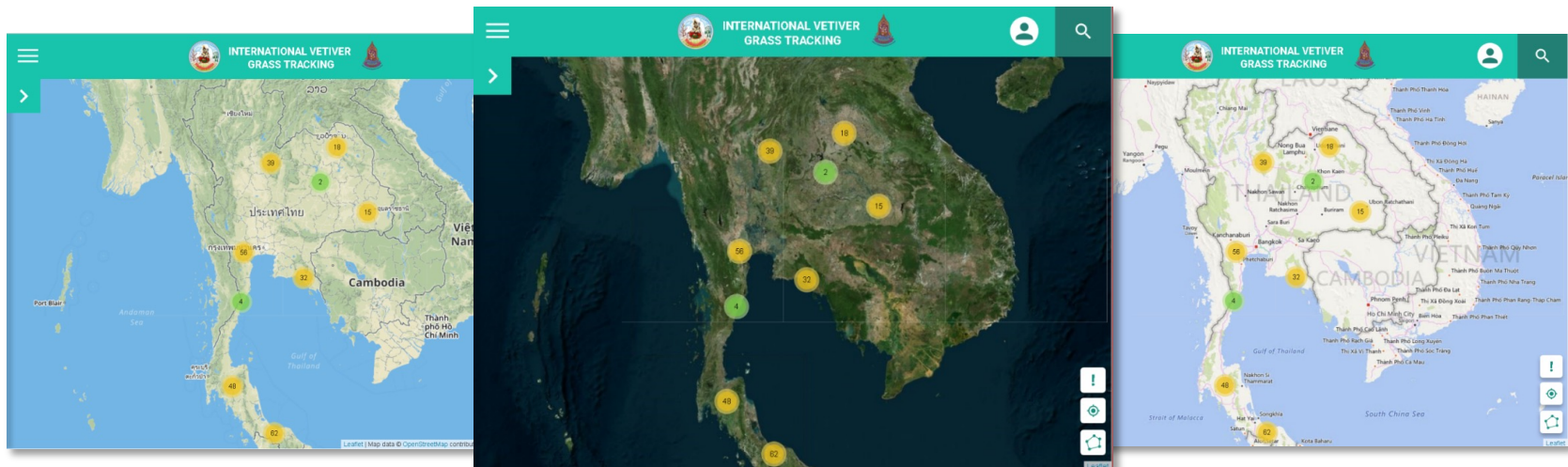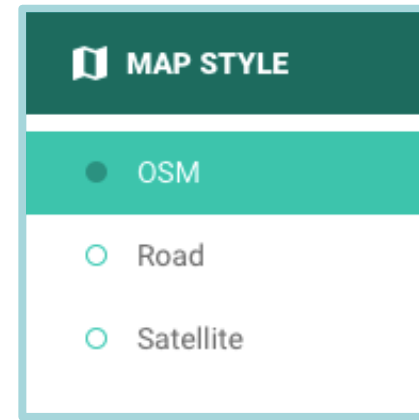
Searching

Searching for Vetiver Grass Projects

01 Search by vetiver project name

02 Search by administrative district

03 Search by user's current location

04 Search by drawing a polygon

Search by vetiver project name

SEARCH BY LOCATION NAME

🔍 Khlon

Bo **Khlon**g Charoen Mo 12

Boriwen **Khlon**g San Chao Pho (**Khlon**g Lumnam Yom - Nan)

Boriwen **Khlon**g San Chao Pho (**Khlon**g Lumnam Yom - Nan)

Boriwen Rim **Khlong**

01

Searching
TYPING LOCATION NAME

🔍

User can search for vetiver project planting from vetiver project name by typing the desired location name *more than 3 letters*, Lists of suggested location will be shown as the user specified.

Search by administrative district

02 Searching ADMINISTRATIVE 🔍

User can search for a vetiver grass sites from the project location by specifying the national administrative boundaries, province, district, and local level.

FOR EXAMPLE

To search for vetiver project in Thailand, Mueang district, Kanchanaburi, then start the search by pressing the button.

Filter conditions

User can select a specific vetiver grass sites by selecting additional conditions

PURPOSE OF USE

✓ All Purpose of use
Agriculture
Aquaculture
Bioengineering
Biomass
Disaster Mitigation
Phytoremediation
Propagation
Soil and Water Conservation
Other Uses

Purpose of Use

VETIVER TYPE

✓ All Vetiver type
C. nigritana
C. nemoralis
C. zizanioides, fertile (viable seed)
C. zizanioides, non-fertile (sterile)

Vetiver Type

PLANTING BY

✓ All Planting by
Water Source Area, Canals Ways
Road Shoulder Area
Planting in row between the trees or crops row
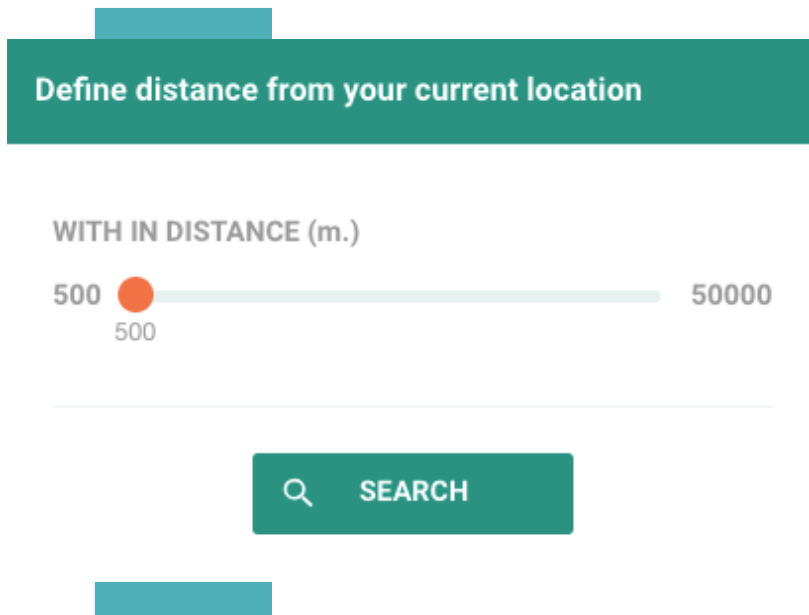High Slope Area
Others

Planting Type

AMOUNT OF GRASS

0
0

Max
10000000

Amount of Grass

Search by user's current location

03 **Searching**
CURRENT LOCATION 🔍

To define the distance from the current location of the user, the search range can be set from 500 to 50,000 meters from the user current location.

Define distance from your current location

WITH IN DISTANCE (m.)

500 ——●————————————— 50000
500

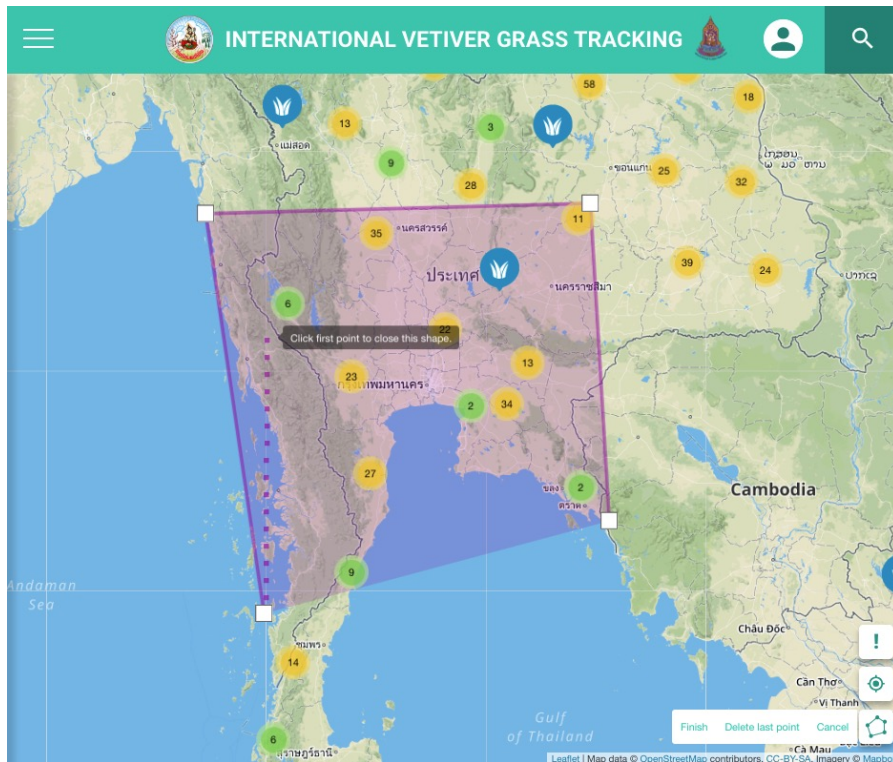🔍 **SEARCH**

◎ Get the current user location

👤 The current user location

For a computer, the user's location is predicted by the IP addresses that are connected at that time. Therefore, the accuracy of the position may not be precisely.

In the case of using this web browser with Chrome browser, it must only connect with protocol "https". According to the Chrome browser security requirements.

Search by drawing a polygon

04 **Searching**
DRAWING POLYGON 🔍

Users can use drawing polygon tool to find projects that locate in the specified area

Analysis Tool

Users can analyze data of vetiver grass sites according to the search with the criteria specified by type and usage.

SUMMARY TABLE

Summary table of Vetiver project

CSV	Excel	Print

Type	Amount
Soil and Water Conservation	217,585,098
Propagation	19,004,300
Other Uses	15,629,200
Others	13,295,580

Showing 1 to 4 of 4 entries

Chart of
Number of grasses

Group by
Purpose of project

REDRAW

PIE CHART

Summary chart of Vetiver project

Summary chart of Vetiver project

Others
Other Uses
Propagation

Print chart
Download PNG image
Download JPEG image
Download PDF document
Download SVG vector image

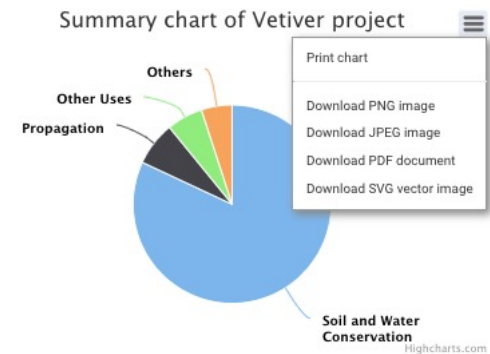Soil and Water Conservation

Highcharts.com

Chart of
Number of grasses

Group by
Purpose of project

REDRAW

Role-based access control

The permissions to perform certain operations are assigned to specific roles.
Members are assigned particular roles, and through those role assignments
acquire the permissions needed to perform particular system functions

01 **System Administrator**
System Administrator who have an obligation to manage user information and permissions.

02 **Country Representative**
Country representatives have an obligation to manage the user data in the responsible area

03 **Project Investigator**
Registered user and response to some project

04 **Staff**
Registered user who register to manage data which is an approved project

05 **Surveyor**
Registered users who survey in various field and be accepted to import data from many areas.
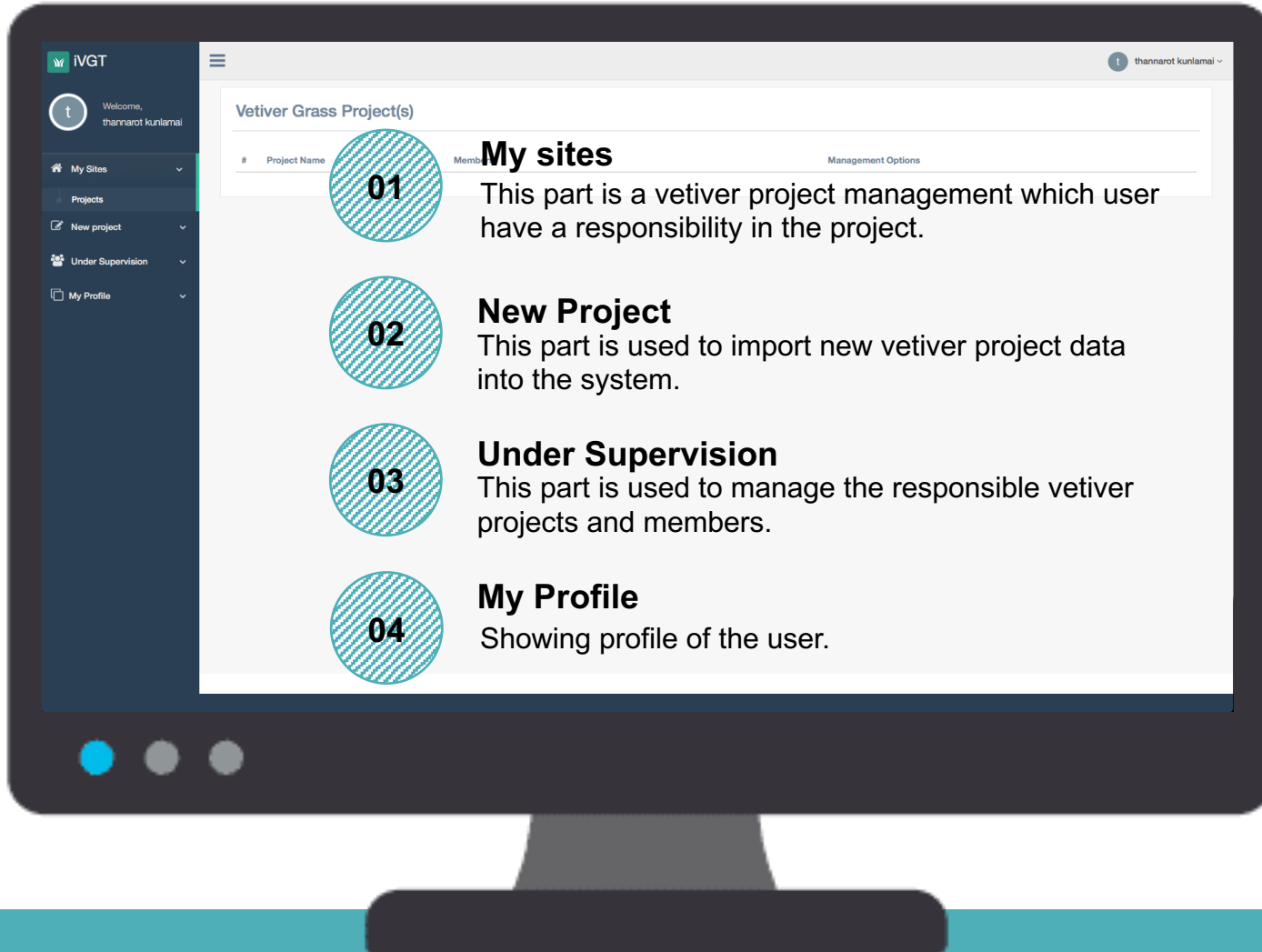
06 **Public Users**
No registration required

New Vetiver Grass Project

Users who are authorized and verified with social account will find that the profile image and account name of the user is displayed on the upper right corner and the left side of the screen.

My sites
This part is a vetiver project management which user have a responsibility in the project.

New Project
This part is used to import new vetiver project data into the system.

Under Supervision
This part is used to manage the responsible vetiver projects and members.

My Profile
Showing profile of the user.

New Vetiver Grass Project

To input new project, it is limited to Administration, Representative and Project Investigator for adding new projects.

New Vetiver Grass Project

Identify the **location** of the vetiver project, there are 2 ways to give the location of vetiver site. After identify the position in the map, the administrative information will be input.

01 To click on the place maker icon on the top right corner of the map . Then, click on the map to set the desired position.
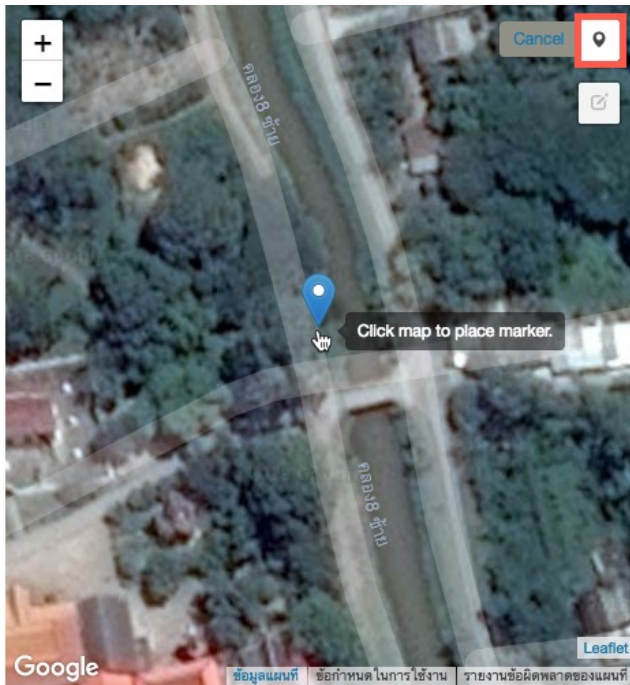
02 Users can specify the location of the vetiver project by filling the Latitude and Longitude

New Vetiver Grass Project

Require Data
- Project Name
- Main Purpose of use
- Sub-purpose of use
- Planting Pattern
- Planting Date
- Species of Vetiver Grass
- Vetiver variety
- Number of Plant
- Number of Plot

Optional Data/Media
- Images
- Video

In addition, users who has a supervised staff can choose a staff and managed in the future by click on the staff list from select staffs.

General Infomation

Field	Value
Project Name	The vetiver grass project for soil erosion control
Main Purpose	Soil and Water Conservation
Sub-Purpose	On Farm Erosion Control
Planting Pattern	Water source area or Water reservoir align
Date	2018-06-14
Species of Vetiver Grass	C. zizanioides, non-fertile (sterile)
Sub-Species of Vetiver Grass	SongKhla 3
Number of Plant	50000
Number of Plot	1

Select image to upload   Choose File No file chosen   Image caption

Select video to upload   Choose File No file chosen   Video caption

Assign staffs to work on the project   Select staffs

Submit   Reset   Cancel

New Vetiver Grass Project

After user click submit button, the vetiver site will be added to the iVGT database. On the vetiver grass site page, you can find the vetiver sites that you added.

Vetiver Grass Data Management

Add progress content

To support the monitoring of the vetiver planting project. The user can add a description with photos. The maximum number of photos is 3 pictures.

Vetiver Grass Data Management

Edit vetiver site information

The user can edit the project information by selecting the project and modifying the information you want such as project location, project name, etc.

Vetiver Sites & Member Management

Member Management

This section will be the main part in the management of registered user rights by clicking Under Supervision. The number in the bracket behind Request is the number of users waiting for approval.

Vetiver Sites & Member Management

To approve a staff request

In the approval request for the staff, if the project investigators has their own under supervised project. They can identify the project to the staff to response for updating the project information. It is possible to assign more than one project to one staff member.

Vetiver Sites & Member Management

Project Under Supervision Management

The administrator able to handle all projects. The Representative can only manage the projects in the country of their responsibility

Vetiver Sites & Member Management

<div style="background: teal; color: white;">

To delete Representative & Project Investigators

</div>

In case, there are vetiver projects and members are under supervision of a representative or a project investigator. The administrator have to assign the projects and members to new representative/ PI.

Conclusions

- iVGT was successfully service to the communities
  - 48 users from 28 countries
  - more than 4,000 vetiver grass planting site were recorded.

- Due to recent change of term of usage and technical implementation, authentication system which used the 3rd API is failed.

- The new features and bug fix are considered and improved soon.

- The mobile application will be discontinued since the responsive web design was implemented and reduce the budget for maintenance the update of mobile application.

THANK YOU