Doctoral School in Informatics for Climate Change

Project on Data Management Techniques I 2020 – 2021

Development of an Interactive Web Mapping platform app on WASCAL presence in West Africa

BOUBAKAR Zourkalaini

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Figure

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Web App: WASCAL Presence in West Africa
Version: 4.0 (September 2021)
Author: Zourkalaini Boubakar

Web Application User's guide

1. Description of the Web App
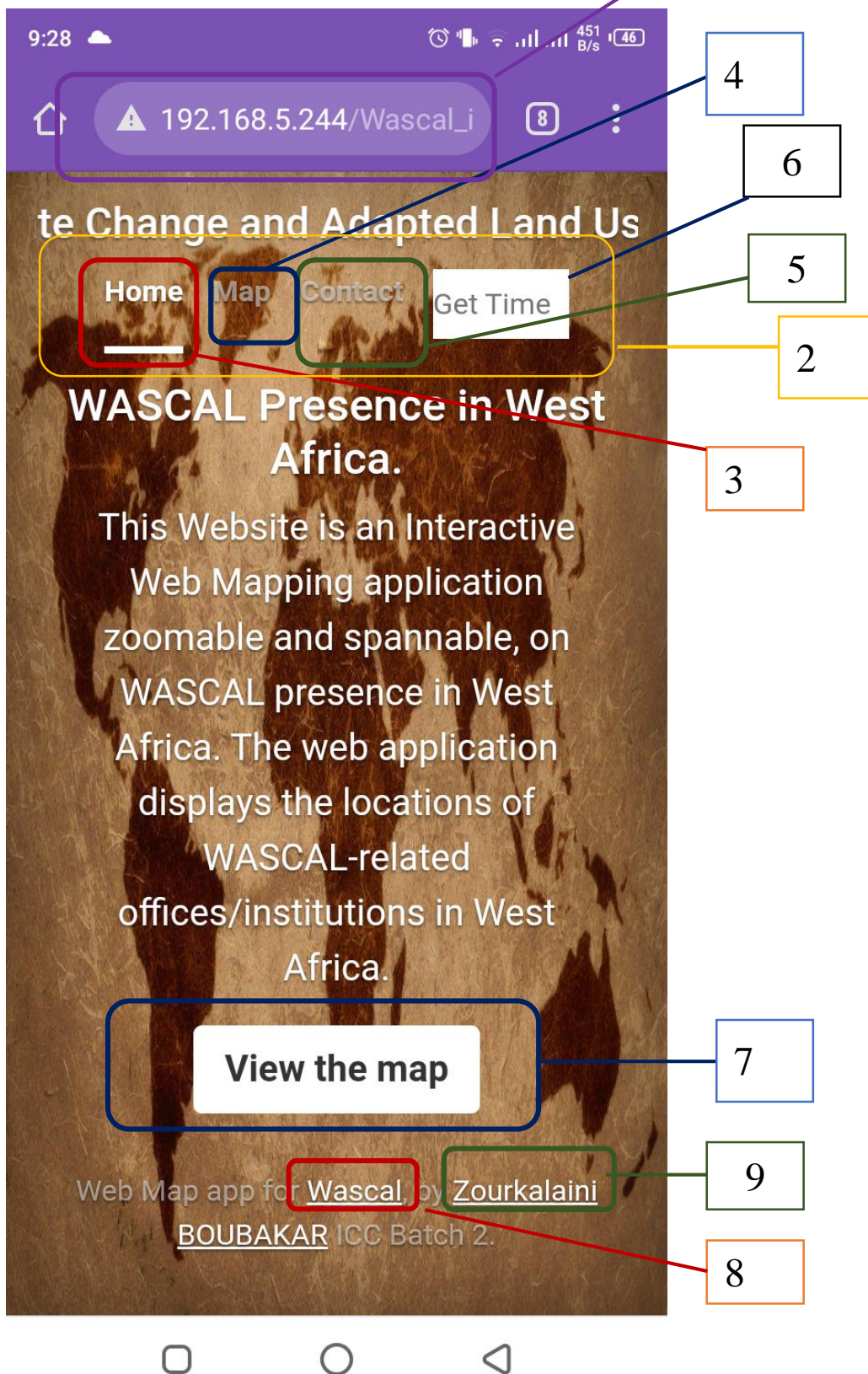
WASCAL Presence in West Africa is a responsive web application meaning that it works on any web browser from any device. The figure above shows the user interface of the web map application.

1: It is the web link of the web application (see installation section for more information).

2: The bar menu showing the different pages and sub-pages of the web map application.

3: The home page (current page on the image)

4: The mapping interface that displays all features related to mapping.

5: The contact page that displays information about the web map owner.

6: A button that displays the current time, both analogical and numerical time.

7: Same as (4), displays the mapping interface of the web application.

8: A link to redirect the user to WASCAL web page (Wascal.org)

9: A link to send an email to the developer of the web application.

2. Features of the web Application

2.1 Home page

The home page is the first page that will appear when user enter the web link into a web browser. This page displays the general information about the web application.

2.2 Map page

As shows the figure below, it is the page that shows mapping interface.
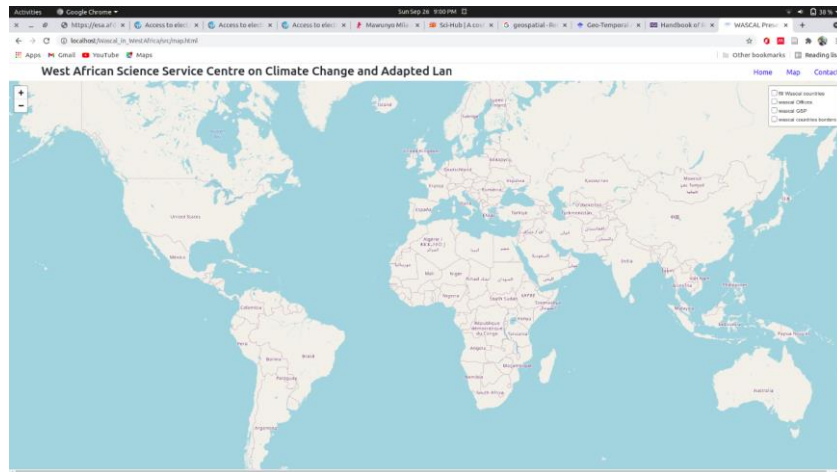

Figure 1: Web Map interface

The Map page is composed of a set of layers. Each layer plays a specific role in the mapping.

- The "fill Wascal countries" layer displays Wascal member countries with a filled orange colour.

The figure below shows these different countries in forms of multi-polygons. Eleven countries in total (10 in block and one composed of a set of polygons, Cape Verde).

Figure 2: Fill Wascal countries layer

- The "Wascal countries borders" layer displays Wascal countries borders in red colour. As the figure below, then (10) countries are shown in block and one in a set of polygons.

Figure 3: Wascal countries borders layer

- The "Wascal offices" layer displays Wascal offices through popups. The figure above shows the display of this layer. Wascal offices are two (02) in total, Wascal Headquarters in Ghana and Wascal Competence Centre in Ouagadougou.
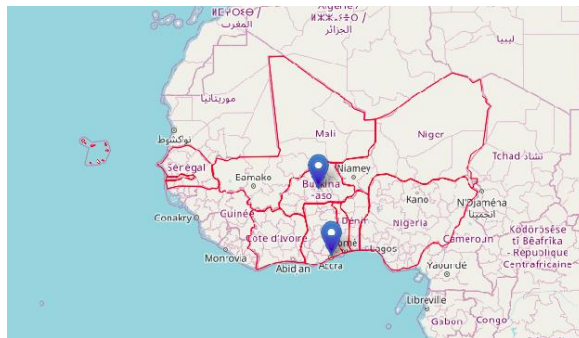

Figure 4: Wascal Offices Layer

By clicking on a popup, as the figure above shows, user will get more information on the given office.
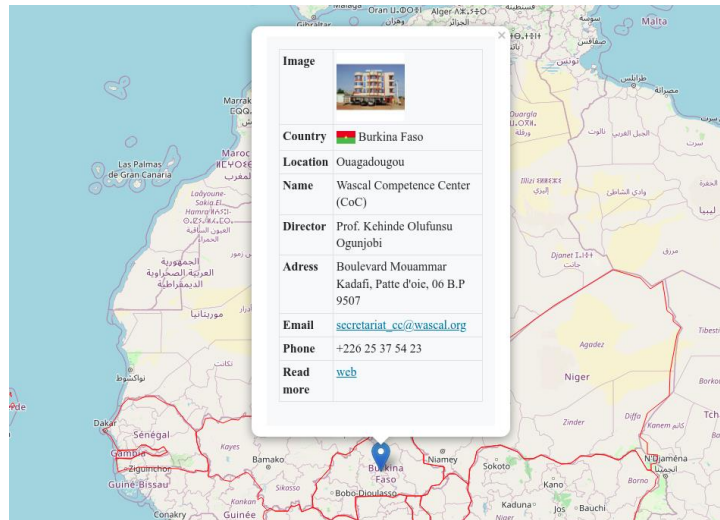
Figure 5: Wascal Office information

By clicking on the email address, the user can send an email to the office. The web link will direct the user on the Wascal web page that present the related office in more detail.

- The "Wascal GSP" layer displays Wascal institution, Wascal Graduate Studies Programs through popups. Twelve (12) in total, then (10) PhD in (09) countries and (02) MSc in (02) countries.

Figure 6: Wascal GSP

By clicking on a given Wascal GSP, user will get more information on that Wascal institution as the figure below shows.
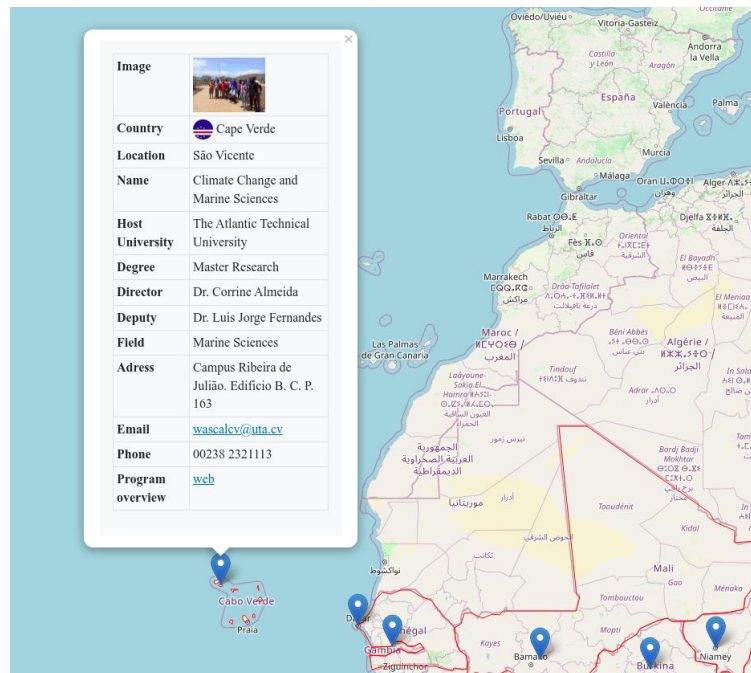
Figure 7: Wascal GSP information

By clicking on the email address, the user can send an email to the given institution. The web link will direct the user to Wascal website's section that describe the program in more detail.

2.3 Contact page

The contact page displays the contact of the website owner. The figure below shows the information displayed by the contact page.

Figure 8: Contact page

2.4 Get time button

"Get time" button displays the current time of the system in digital and numerical form.
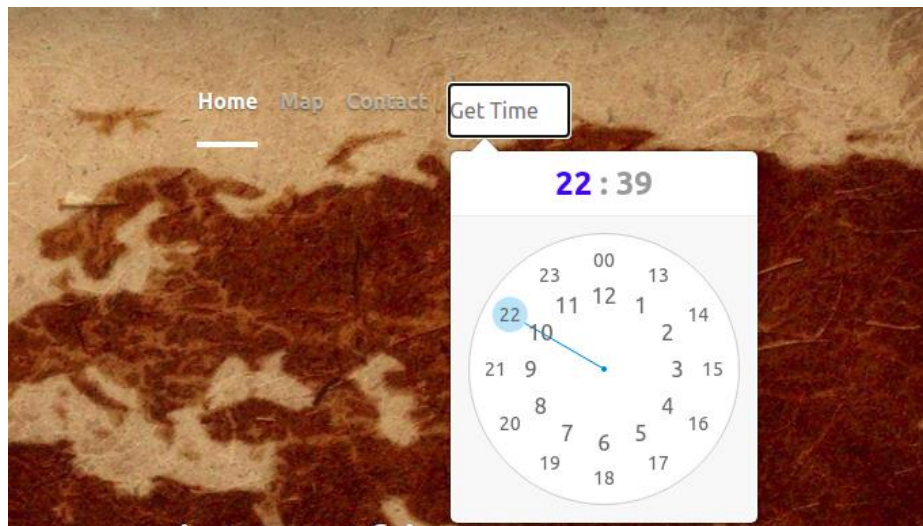
Figure 9: Get time button

3. Installation and configuration

The installation of the web map application can be done online through a web hosting provider or in local. In this section we are going to describe a local installation of our web map application.

3.1 Prerequisites

Before installing Wascal Presence in West Africa web map application, the user need to install some prerequisites: Web server and PHP.
- The web Map Application was built on Apache 2.4.46 (Ubuntu)

- The PHP 7.4.16 was the version installed on the host machine.

We recommend to install all in one program, like XAMP which will simultaneously install a web server and PHP.

3.2 Web Application folder

The web app folder is composed of a set of sub folders and files. The figure bellow shows the content of the application folder.
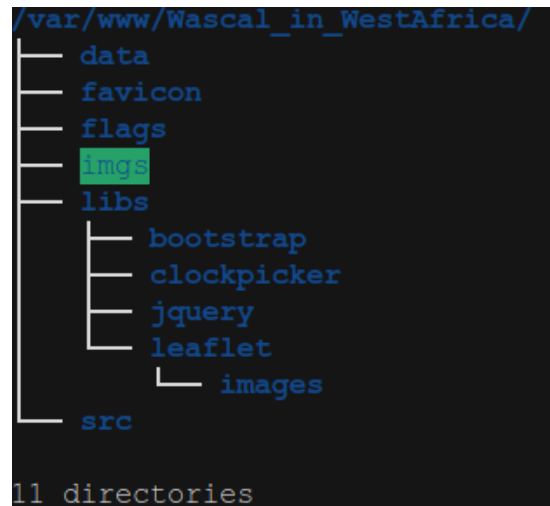
```
/var/www/Wascal_in_WestAfrica/
├── data
├── favicon
├── flags
├── imgs
├── libs
│   ├── bootstrap
│   ├── clockpicker
│   ├── jquery
│   └── leaflet
│       └── images
└── src

11 directories
```

Figure 10: Web Application folder

- data: it contains all data (in geojson format) used for the web app. These data include "wascal_countries.geojson", "wascal_gsp.geojson" and "Wascal_offices.geojson".

- favicon: it contains the data of web app's favicon creation.

- flags: it contains all Wascal member countries flags.

- libs: the different files of libraries used to run the web application. To avoid a long time response, all libraries are used locally.

- src: contains the different subpages file of the web app.

3.3 Setting up the application

After the prerequisites was successfully installed, we can proceed to the installation and configuration of the website.
- Firstly, the application need to be deployed on the web serve. For instance, for linux user who install LAMP on the host computer will just copy the web app folder to "/var/www".

- Then we give execution right to the folder. For instance, by "chmod -R 755" for a linux user.

- Set online user as an owner of the folder. "chown –R www-data:www-data" for a linux user. This setting will allow an access to the web app online.

- Set the web server configuration file by adding the web app folder.

- Finaly, restart the web server and open a web browser then type the web app link to have access to the web map application.

4. Eventual additional functionalities

With WASCAL new project on Green Hydrogen, new countries members joined WASCAL. AS additional functionalities could be the addition of these countries to the existing map by adding new layers.