3. WEB BASED GIS & MAPPING

Web has changed every aspect of our life from our daily activities to our professional activities. Among these changes, GIS has been affected by the evolving web technology leading to Web or Internet GIS.
Today, majority of Internet users are using the web technology whether from desktop or mobile devices e.g. to finding hotels and addresses in an unfamiliar city using online web maps, to locate your location using your phone GPS system or finding your path.

Objectives

Web mapping is the process of using maps delivered by Geographical Information Systems (GIS) on the internet through client-server architecture.

Web Mapping usually involves web browser to consume services.
These services include serving interactive maps, GIS data and location based services.

The goal of this training course is to introduce users to the concept of web mapping.
It will focus on Web Mapping Technology, its architecture, application and tools.

Participants will learn how prepare and share geographic information so that it can effectively be used by colleagues, decision-makers, and non-GIS audiences.

Audience

The expected participants are GIS professionals, cartographers or other technical personnel who have background in computer applications and the internet.

Course Outline

This course will cover the following topics

Day One

- Web GIS Basics
- Basics of Web GIS Architecture
- Web Services and Mashups
- An introduction / Review of ArcGIS Online

Day Two

- Basics of Web programing and development:
- HTML, JavaScript and CSS.

Day Three

- Spatial Databases: Postgres-Pos gis spatial database

Day Four

- Publishing map services on Geoserver

Day Five

- Consuming map services and sharing data:
- Introduction to open source and proprietary web mapping API's and scripting environments.

Software/Applications to be used

- Text editor / Notepad++
- Qgis v 2.8+
- Postgres
- Tomcat
- Geoserver ArcGIS (Desktop& Server where applicable)

4. Mobile GIS & Mapping using ODK & Kobo Collect

This course aims at providing a complete **Field**-to-**Office** mobile mapping workflow to the participants. Participants shall use their mobile devices (GPS enabled Mobile Phones/ Tablet) to collect data, load the data into GIS and create maps from the collected data. The course will enable the participants to also edit existing databases in the field and creating new data using field data collection techniques (Kobo and ODK).

MODULE I

- General Introduction to Mobile Data gathering
- Data and types of Data
- Introduction to ODK collect and Kobo Collect
- Data aggregation, storage and dissemination using ODK and Kobo Collect
- Types of questions

Preparing the mobile phone for data collection

- Installing applications: ODK Collect
- Using Google play
- Manual install (.apk files)
- Configuring the device (Mobile Phones)
- Uploading the form into the mobile devices

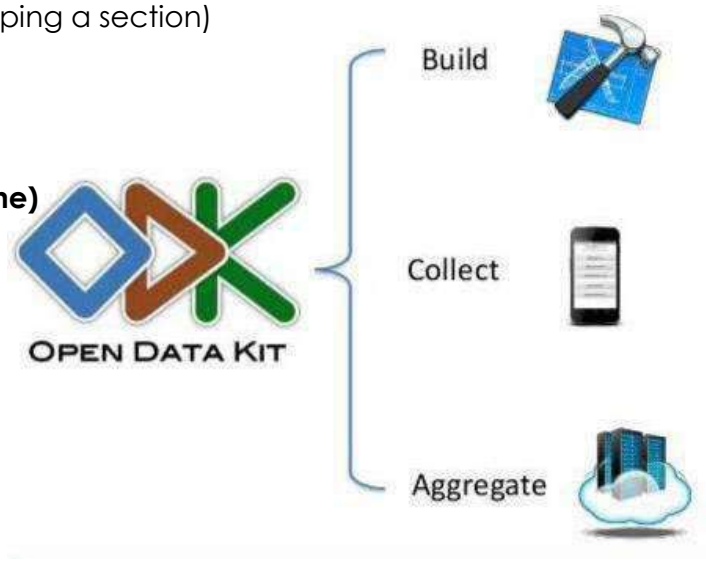
(Hands-on Exercise)

MODULE II
Basic Survey Authoring
Intermediate Survey Authoring
Advanced Survey Authoring

- Conditional Survey Branching
  - Required questions
  - Constraining responses

  - Asking Relevant questions
  - The specify other
- Grouping questions
  - Skipping many questions at once (Skipping a section)
- Repeating a set of questions
- Special formatting
- Making dynamic calculations

MODULE III: Hosting and Exporting survey data (Online)



Introduction to the server side component of ODK
- ODK Aggregate
- ona.io
- Kobo Toolbox

- Configuring ODK Aggregate on a local server
- Ona account registration

- Manual download (ODK Briefcase)
- Using the online server interface (ona.io)

Hands-on Exercise (Practical with a sample questionnaire)

ANALYSIS

ODK and GIS data conversion
- KML
- Shapefiles

Exporting data to Fusion tables
Hand-on Exercise
Course Summary
Discussion on the Choice of Platform
Considerations for Integrating Mobile Data Gathering Tools into the Project