Introduction to GIS for Microplanning, using QGIS

Programme Introduction:

This training programme provides a comprehensive introduction to GIS and geospatial data and their practical application in key development sectors such as population census, health and national infrastructure.

The training will cover important theoretical concepts and principles of GIS, as well as detailed exercises on using open source software (QGIS) and working with various spatial data. The training uses real-world case studies so the participants can relate what they have learnt. Most of the datasets used are data from the recently concluded Kano State ITN Microplanning.

This training will also cover the GIS techniques that are used to support microplanning. In addition, the participants will be trained on how it can be applied for effective local-level planning procedures for health service provision.

Learning Objectives:

Participants will receive detailed instruction on the following:

- GIS foundations and principles and how it is applied in different fields (Health, population and Infrasturcture)
- How to download and install open source software (QGIS) on their systems
- A comprehensive walk through the QGIS software and functionality
- How to access various open geospatial data on population, infrastructure and related topics of interest
- Understanding the processes of how to store, prepare, open, select and query spatial datasets
- How to work with coordinate reference systems (and map projections) in QGIS environment
- How to create new map data or edit and update existing data
- Load and import data from fieldwork into GIS and query the data
- Apply colours and styles to data to create maps and data visualisation by highlighting data trends and attributes
- Create buffer zones of a standard distance around all distribution hubs in a particular area and generate the population estimates for that area of interest (catchment area)
- How to use a QGIS Print Layout application for map generation and Map Atlas with dynamic data features to generate a series of PDF maps rapidly

Learning Outcomes:

By the end of the training, participants will:

- Have a better and more detailed understanding of geospatial data and technologies, and applications in decision-making processes
- Know how to apply their knowledge of GIS to their occupational sector
- Appreciate how different types of spatial data and techniques can drive progress in their department
- Be able to use tools in QGIS for data analysis, e.g. queries and summary statistics

  Ability to independently develop maps to inform decision-making and communicate important issues on request
- Be able to use GIS to improve microplanning process.
- Be able to understand better how to integrate maps and spatial data into microplanning activities

Course Content:

Participants on this training programme will run through the following courses:

- Principles of Spatial Data and Geographic Information Systems
- QGIS Core Functionality
- Spatial Data Management in QGIS
- Working with primary field data in QGIS
- Selecting and Querying Population Data using QGIS
- Basic Map Production in QGIS
- GIS Support for Microplanning: A Case Study of ITN Mass Distribution Campaign
- Automated Map Production in QGIS: Field Survey Case Study

Training methods:

The training programme will be virtual via zoom. It will take place over five live sessions on Zoom video call - approximately 5 hours daily of live, online training plus self-study, i.e. 10:00 am - 12:00 pm, 1 hour break, then 1:00 pm to 3:00 pm.

During live sessions, participants will hear from subject matter experts through presentations and software demonstrations, before getting hands-on with QGIS through a range of practical exercises based on real-world examples. There are also quizzes at the end of each course so that learners can measure their understanding as they go (quizzes can be retaken as many times as necessary).

Programme Requirements?

Prerequisite skills: this is a GIS beginner-level programme covering the foundations of GIS; hence no prior experience is required; participants should, however, be familiar and comfortable using Microsoft Windows-based computers and 'Office applications, notably Excel:

Practical requirements: To complete this course, you must ensure the following:

- You have access to a Wi-Fi-enabled computer for the duration of the training programme
- You have individual access to a laptop or workstation running Microsoft Windows for the duration of the training programme and have QGIS software pre-installed (details below)
- Go to https://qgis.org/en/site/forusers/download.html
- Download the latest version of the Long Term Release QGIS Standalone Installer (currently 3.22). Select the 64 bit version, unless you have a very old computer, or know that you need the 32 bit version.
- Run through the program installation process
- Test that the application normally opens with no error messages

Sessions?

TIME DATE	10:00am to 12:00am	12:00pm to 1:00pm	1:00pm to 3:00pm
Monday 10th October, 2022	*Principles of Spatial Data and Geographic Information Systems*	**LUNCH BREAK**	*Introduction to Geographic Information Systems (GIS): QGIS Core Functionality*)
Tuesday 11th October, 2022	*Spatial Data Management in QGIS*		*Working with primary field data in QGIS: household survey location*
Wednesday 12th October, 2022	*Selecting and Querying Population Data using QGIS*		*Basic Map Production in QGIS*
Thursday 13th October, 2022	*GIS Support for Microplanning: A Case Study of ITN Mass Distribution Campaign*		*GIS Support for Microplanning: A Case Study of ITN Mass Distribution Campaign (Contd.)*
Friday14th October, 2022	*Automated Map Production in QGIS: Field Survey Case Study*		