



EXECUTIVE COURSE –DATA ANALYSIS AND VISUALIZATION USING QUANTUM GEOGRAPHIC INFORMATION SYSTEMS (QGIS)

Contact Persons

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COURSE INFORMATION

Course Name: **Data Analysis and Visualization Using Quantum Geographic Information Systems (QGIS)**

Total Course hours: **28 hours (In class=18, Exercises=10)**

Language: **English**

Training type: **Practical Hands-on training and use of case studies**

Assessment: **Two Mandatory assessments**

INTRODUCTION

QGIS software creates, manages, analyzes, and maps all types of data. It connects data to maps, integrating location data with all types of descriptive information. QGIS allows all these different types of information, no matter their source or original format, to be overlaid on a single map through map creation. QGIS uses location as the key index variable to relate these seemingly unrelated data, and its visuals are amazing. QGIS techniques help program managers, different professionals (e.g M&E, Statisticians, engineers) to identify problems, monitor change, manage and respond to events, perform forecasting, set priorities, and understand trends

By the end of this training, participants will attain knowledge and hands-on skills in using QGIS software as an enabling technology to **manage, analyze and visualize data using dynamic maps**. This course will provide a thorough understanding of the GIS concepts, how to collect data and import it in GIS, and visualization using QGIS.

WHO SHOULD ATTEND?

This training is ideal for professionals including statisticians, economists, engineers (surveying and environment), officers, managers, and researchers from development organizations, foundations, governments, and non-governmental organizations, as well as students. It's for people wanting to have a wide exposure to the use of technology for enhanced decision making, project and program planning, management, monitoring, evaluation, and learning. **No prior knowledge of GIS is required.**

LEARNING OBJECTIVES

- To equip trainees with the understanding of data, GIS concepts, tools, and processes for designing visuals in QGIS.
- To equip participants with knowledge of how to manage, analyze and visualize data with the aid of QGIS techniques.
- To share knowledge and experiences in translating complex data into simplified analytics.

COURSE SESSIONS

Session 0: Introduction to the course

- Registration, Introduction, Expectations, General norms.
- Workshop goals & Time table

Session 1: Understanding Data & its Concepts (fundamentals of data)

- What is statistics?
- Types of data
- Variables
- Measurements of variable

Session 2: Understanding GIS & its Concepts

- What is GIS

- GIS components
- GIS data types and formats
- Application of GIS
- Data collection and GPS calibration
- Landscape of software involved in GIS

Session 3: Introduction to QGIS

- Case studies
- Plotting X,Y coordinates using Microsoft Excel
- Why QGIS
- Installation of QGIS
- QGIS interface

Session 4: Data manipulation using QGIS

- How to collect spatial data & nature of spatial data
- How to import data into QGIS
- Digitizing and creating new shape files
- Calculating geometrical properties e.g length
- Downloading and visualizing elevation data (digital representation of the Earth's terrain)

Session 5: Fundamentals of Spatial Data Visualization

- Why Visualisation
- Elements of Good Visuals
- Types of visuals
- Key GIS visualization terms
- 3D model and visualization

Session 6: Visualisation and Mapping in QGIS

- How to create a map
- Adding a base map
- Google maps as base layers
- How to split a polygon
- How to georeference a map
- Making a geological map using QGIS

Session 7: Working with Raster Data in QGIS

- Introduction to Raster data
- Visualizing raster data
- How to clip a raster
- Converting raster files to vector formats

Session 8: Workshop Closure

- Confidentiality When Using Spatial Data
- Final assessment
- Final workshop evaluation