



# GIS support for microplanning in the health sector

*Learn to use geospatial data and technologies to reach more people  
in need of immunization and related services*

## Course details

- Enrolment: [Enrol here](#)
- Commitment: 6 – 8 hours, depending on your experience
- Method: Self-paced learning, at [learn.grid3.org](http://learn.grid3.org)
- Cost: FREE
- Level: Intermediate (see below for requirements)
- Outcome: GRID3 certificate (on successful completion)

## Introduction to the training programme

This open online training presents a range of data and GIS techniques that can inform local-level planning procedures for health service provision, a process often referred to as microplanning. The first step in developing a microplan is to gather accurate and relevant data such as population distribution and density, settlement locations, health facilities, administrative boundaries, transportation networks, and other points of interest. You will be provided with such data and instructed on how it can be visualized to best effect, queried, and discussed.

Once you have retrieved key information, such as the location of target population groups and their characteristics, you will want to publish and communicate those findings in a map. You will be guided in the process of producing a series of maps (an Atlas) using an efficient automated map production function in QGIS.

## Learning objectives

Participants will receive detailed instruction on the following:

- Load population estimates and settlement extents into GIS and interrogate the data
- Improve data symbology to highlight patterns in population and settlement distribution and characteristics
- Load health areas into the GIS and calculate their geographic size
- Calculate zonal statistics to estimate population in a selection of settlements in your study area
- Create fixed-distance buffer zones around health facilities in your study area; analyze the settlements and populations that fall within those zones
- Configure a QGIS Map Atlas with dynamic data-driven features to rapidly generate a series of PDF maps, to support microplanning operations



## Learning outcomes

By the end of the training, participants will gain:

- Knowledge of the techniques by which GIS can improve and speed up health service planning procedures, improve accuracy and ultimately connect more people to necessary health services
- A better understanding of how to use and apply spatial data in microplanning procedures
- Practical methods for estimating populations served by health facilities
- An approach for assessing locations and communities in which current health service provision is deficient

## Who is the training for?

The GIS skills and techniques covered in this training apply to any sector or industry. However, it is especially relevant to those working in health, education, population census or national/regional infrastructure.

This is an **intermediate-level GIS** training program, intended for current users of QGIS software. Prerequisites are as follows:

- Participants should have completed the [GRID3 QGIS Foundations](#) training program, with all quiz assessments successfully passed
- or
- Hold equivalent knowledge

## Practical requirements

Hardware/software requirements are as follows:

- Each participant should have access to a laptop or workstation running Microsoft Windows for the duration of the training
- QGIS software to be pre-installed ([see guidance](#))
- A reliable Internet connection for the duration of the training

## Programme content

Participants in this training program will run through the following modules:

- Spatial data analyses using QGIS, to inform planning for health service provision
  - *Case study 1: Using high-resolution gridded population data to estimate population within settlements and administrative areas*
  - *Case study 2: Evaluating the type and distribution of settlements within health facility catchment areas*
- QGIS Case Study - Automated map production for microplanning



Participants are encouraged to apply these GIS methods and functions to data from their region, i.e. to produce their own local maps. Trainers will provide a certain amount of post-training support to those who pursue this objective.

## Training methods

The training program is hosted on GRID3's learning platform (or learning management system – LMS). This is an online platform for learners to come together, explore ideas, and collaborate. Anyone new to GRID3 training will need to self-register to establish their user account. Those with existing accounts should log in as normal, before self-enrolling on the program (see Key Details section above).

A live introduction session is scheduled (again see Key Details), to provide an introduction both to the learning platform, and the training program. Trainers will answer questions and ensure that participants are comfortable and familiar with how to proceed. The training is then self-paced, you will work through materials independently, getting hands-on with QGIS through a range of practical exercises based on real-world examples, and exploring presentations and videos to support your learning.

## Getting support

- **Discussion Forum:** Participants can post queries to the LMS discussion forum. Trainers will respond in due course; however, we encourage fellow learners to respond and support their peers, as part of our growing GIS community.
- **Office hours:** the training team may schedule one or more 'office hours'. These are purely optional - you come along to a live Zoom session and pose questions to the group

## Course assessment and certificate

There is an assessment at the end of each module so that learners can measure their understanding as they go. Assessments can be retaken as many times as necessary, but a successful pass for each module is required to receive your certificate.

We hope that you enjoy your online learning experience with GRID3. Explore more at [learn.grid3.org](https://learn.grid3.org)