HIS Geo-enabling Course – 2nd edition

Introduction

The 2nd edition of the HIS Geo-enabling course builds on the content of the first edition

The content of all the sessions have been revised to reflect recent development in the management and use of geospatial data and technologies in public health as well as the release of new reference material.

The exercises in modules 4 and 5 have been updated to reflect the latest version of QGIS and ArcMap.

Audience

This course is primarily developed to be integrated in the regular curriculum of Schools of Public Health across Asia and the Pacific or used by individuals interested in the topics it covers.

This course addresses staff from the health sector in countries (government and key partners). More specifically: (1) policymakers and managers; (2) HIS staff at national and sub national level; (3) data managers and GIS technicians; and (4) students in health sciences and practice.

Objectives

The objectives of this course are to:
1. Introduce the concept and process behind the geo-enablement of the Health Information System in countries
2. Demonstrate and illustrate the potential of geospatial data and technologies applied to public health
3. Build participants' knowledge on the elements required for geo-enabling the Health Information System (HIS)
4. Strengthen the participants' technical capacity when it comes to the management and use of geospatial data technologies in public health

Format and access

Each module of the course consists of PowerPoint slides accompanied by associated materials organized in such a way that anybody having the knowledge on the topics being covered could give it to students.

The slides and associated materials will be freely available for download from the Health GeoLab Hub website: https://healthgeolab.net/resources/his-geo-enabling-course/.

Competencies covered

The following knowledge and competencies are expected to be acquired by the participants at the end of each module:

- Module 1 (Medical Geography):
  - Basic concepts of medical geography
  - Potential of geospatial data and technologies in public health
  - Regional examples of use of geospatial data and technologies in public health
- Module 2 (Geo-enabling the Health Information System (HIS)):
  - Good understanding of the HIS geo-enabling framework and its implementation process
  - Resources and support for HIS geo-enabling from Health GeoLab Hub
- Module 3 (Geospatial Data Management):
  - Good geospatial data management practices
- Module 4 (Hands on Geospatial Technologies):
  - Introduction to geospatial technologies (Global Navigation Satellite System (GNSS), Geographic Information System (GIS), Remote Sensing (RS), registry and Common Geo-Registry (CGR)
  - Field data collection using GNSS-enabled devices
  - Basic functions of ArcMap and QGIS
- Module 5 (Creating good thematic maps):
  - Preparation of the data to create thematic maps
  - Creation of thematic maps using GIS

Syllabus

Module 1: Medical geography (90 minutes)
- Session 1.1: Context and objective of the course, agenda, and round of introduction of the participants - 20 minutes
- Session 1.2: The geographic dimension and the potential of geospatial data and technologies in public health - 30 minutes
- Session 1.3: Examples of application of geospatial data and technologies in public health - 30 minutes

Module 2: Geo-enabling the Health Information System (HIS) (140 minutes)
- Session 2.1: Introduction to the Health Information System (HIS) geo-enabling framework - 30 minutes
- Session 2.2: Implementation of the HIS Geo-enabling Framework - 90 minutes
- Session 2.3: The Health GeoLab Hub: A regional resources to support HIS geo-enabling across Asia and Pacific - 20 minutes

Module 3: Geospatial Data Management (210 minutes)
- Session 3.1: Introduction to the geospatial data management cycle - 30 minutes
- Session 3.2: Implementing the geospatial data management cycle (Part 1): Document the process and define the data needs - 15 minutes

- Session 3.3: Implementing the geospatial data management cycle (Part 2): Define the terminology, data set specifications, and ground reference - 60 minutes
- Session 3.4: Implementing the geospatial data management cycle (Part 3): Document the data - 15 minutes
- Session 3.5: Implementing the geospatial data management cycle (Part 4): Compile the data and identify data gaps - 20 minutes
- Session 3.6: Implementing the geospatial data management cycle (Part 5): Fill data gaps - 40 minutes
- Session 3.7: Implementing the geospatial data management cycle (Part 6): Host, maintain, share, use, and update data - 30 minutes

Module 4: Hands-on Geospatial Technologies (220 minutes)
- Session 4.1: Introduction to geospatial technologies – 20 minutes
- Session 4.2: Introduction to Global Navigation Satellite Systems (GNSS) – 40 minutes
- Exercise 4.A: Collecting data in the field using a GNSS-enabled device – 75 minutes
- Session 4.3: Introduction to Geographic Information System (GIS) – 20 minutes
- Exercise 4.B: Using the basic functionalities of a GIS software (QGIS, ArcMap) – 45 minutes
- Session 4.4: Introduction to the concepts of registry and Common Geo-Registry (CGR) - 20 minutes

Module 5: Creating Good Thematic Maps (375 minutes)
- Session 5.1: Components of good thematic maps and the process to create them – 45 minutes
- Session 5.2: Prepare the data to create a thematic map in a GIS software – 30 minutes
- Exercise 5.A: Preparing the statistical data for use in GIS software – 60 minutes
- Exercise 5.B: Preparing and uploading the geospatial data in the GIS software – 60 minutes
- Exercise 5.C: Creating a thematic map using QGIS or ArcMap - 180 minutes