

# **HIS Geo-enabling Course**

Institutions involved in the development of the course:

- Health GeoLab Hub (HGL Hub)
- Mahidol-Oxford Tropical Medicine Research Unit (MORU)

# Course objective

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

# **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):
  - Basic concepts about geospatial technologies
  - Field data collection using GNSS-enabled devices
  - Basic functions of ArcMap and QGIS
- Module 5 (Creating good thematic maps):
  - Creation of thematic maps using GIS



## **Course 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.

## **Course 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 HGLC website: <u>https://healthgeolab.net/resources/his-geo-enabling-course/</u>.

## <u>Syllabus</u>

#### Module 1: Medical geography

Topics:

- 1. Introduction to the HIS geo-enabling course (30 minutes)
- 2. The geographic dimension and the potential of geospatial data and technologies in public health (45 minutes)
- 3. Examples from the Region (45 minutes)
  - a. Planning
  - b. Communicable diseases
  - c. Emergency management
  - d. Immunization
  - e. Country-specific use cases (Myanmar, Cambodia, Vietnam, and Mongolia (story maps))

#### Module 2: Geo-enabling the Health Information System (HIS)

Topics:

- 1. Introduction to the HIS geo-enabling framework (45 minutes)
  - a. Definition
  - b. Vision
  - c. Objectives and benchmarks



- d. Guidelines
- e. Examples of implementation of the HIS geo-enabling process in Myanmar, Cambodia, Vietnam, and Mongolia (story maps)
- f. Introduction to the HIS Geo-enabling Toolkit
- Implementation process of the HIS geo-enabling framework (90 minutes)
  - a. Identify the actual priorities, challenges, needs, and gaps
  - b. Understand the geography, define the products, and identify the needs
  - c. Assess the level of geo-enablement of the health information system
  - d. Define the strategy(ies) to be implemented to fill the gaps identified during the assessment
  - e. Develop the action plan aiming at filling the gaps in the HIS geo-enabling framework
  - f. Implement the action plan
  - g. Assess, document, and sustain the result of the action plan implementation
  - h. Restart from step 1 on a regular basis
- 3. Available regional resources (30 minutes)
  - a. The Health GeoLab Hub

# Module 3: Geospatial Data Management

## Topics:

- 1. Introduction to the geospatial data management cycle (30 minutes)
- Implementing the geospatial data management cycle
  - a. Document the process
    - (30 minutes)

(60 minutes)

- b. Define the data needs
- c. Define the terminology
- d. Defining the data specifications
- e. Defining the ground references
- f. Document the data (15 minutes)
- g. Compile existing data and identify gaps (30 minutes)
- h. Fill data gaps (45 minutes)
- i. Host, maintain, use, and update data (30 minutes)

# Module 4: Hands on Geospatial Technologies

Topics:

- 1. Introduction to geospatial data technologies
  - a. Geospatial technologies in general (30 minutes)
  - b. Global Navigation Satellite Systems (GNSS) (45 minutes)
  - c. Geographic Information System (GIS) (30 minutes)
  - d. Registry and Common Geo-Registry (CGR) (30 minutes)
- 2. Collecting data in the field using GNSS-enabled devices (60 minutes)
- Using basic functionalities of GIS software (QGIS- or ArcMap) (45 minutes)



# Module 5: Creating Good Thematic Maps

Topics:

- 1. The components of and process behind making good thematic maps (45 minutes)
- 2. Preparing data for use in GIS software (30 minutes)
  - a. Exercise in preparing statistical data (60 minutes)
  - b. Exercise in preparing geospatial data (60 minutes)
- 3. Creating a thematic map using QGIS or ArcMap (120 minutes)