HIS Geo-enabling Course

Institutions involved in the development of the course:

- Health GeoLab Collaborative (HGLC)
- London School of Hygiene & Tropical Medicine (LSHTM)

Course objective

The objectives of this course are to:
1. Introduce the concept of HIS geo-enabling and support its implementation 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 a 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 competencies are expected to be acquired by the participants at the end of each module:
- Module 1 (Medical Geography):
  - Basic concepts of Medical geography
  - Regional examples of use of geospatial data and technologies in public health
- Module 2 (Geo-enabling the Health Information System (HIS)):
  - Basic concepts of Health information system (HIS)
  - Good understanding of the HIS geo-enabling framework components and implementation
- Module 3 (Geospatial Data Management):
  - Good geospatial data management practices
- Module 4 (Hands on Geospatial Technologies):
  - Field data collection using GNSS-enabled devices
  - Basic functions of QGIS and ArcMap
- 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: https://healthgeolab.net/resources/his-geo-enabling-course/.

Syllabus

Module 1: Medical geography

Topics:
1. Introduction to the HIS geo-enabling course (30 minutes)
2. Geographic dimension of public health (60 minutes)
3. Examples from the Region (60 minutes)
    a. Planning
    b. Communicable diseases
    c. Emergency management
    d. Immunization

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

Topics:
1. Geography and time in the HIS (30 minutes)
2. The 9 elements of the HIS geo-enabling framework: Description (30 minutes) and Implementation (60 minutes)
    a. Vision, strategy(ies), and action plan
    b. Governance structure
    c. Technical capacity
    d. Data specifications, standards, and protocols
    e. Master lists and common geo-registry
    f. Geospatial technology
    g. Use cases

    h. Policy
    i. Resources for sustainability
3. The examples of implementation of the HIS geo-enabling process in Myanmar, Cambodia, and Vietnam (story maps) (30 minutes)
4. Conducting a rapid HIS geo-enabling level assessment (45-60 minutes)
5. Available regional resources (30 minutes)
    a. The Health GeoLab Collaborative

Module 3: Geospatial data management

Topics:
1. Introduction to the geospatial data management cycle (30 minutes)
2. Implementing the geospatial data management cycle
    a. Documenting the process ⎤
    b. Defining the needs ⎦ (45 minutes)
    c. Terminology ⎤
    d. Data specification, standards, and protocols ⎬ (60 minutes)
    e. Ground reference ⎦
    f. Data compilation and gaps assessment (60 minutes)
    g. Data collection and extraction (60 minutes)
    h. Data cleaning, validation, and documentation (45 minutes)
    i. Data distribution, use, and update (30 minutes)
3. Identifying the data needs of a public health priority (60 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) (30 minutes)
    c. Geographic Information System (GIS) (45 minutes)
2. Collecting data in the field using GNSS-enabled devices (60 minutes)
3. Using basic functionalities of GIS software (QGIS or ArcMap) (45 minutes)
4. Available resources to explore further (GNSS, QGIS, and ArcMap) (30 minutes)

Module 5: Creating good thematic maps

Topics:
1. The process behind making good thematic maps (30 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. The components of a good thematic map (30 minutes)
4. Creating a thematic map using QGIS or ArcMap (120 minutes)