Offered by
Government of Pakistan
Ministry of National Health Services, Regulations and Coordination
Health Services Academy (HSA)

Course No.5:

Title: Health Information System Geo-enabling GIS Course

Duration: 6 Weeks (2 day per week (Saturday Sunday)

Software: ArcGIS 10.x MS excel, PowerPoint

Participant Fee: 30,000

Certificate: Earn a Certificate upon completion

About This Course:

This course is designed for Health profession exclusively, how to utilize the power of GIS in your official Health statistics, workflow and Health census.

The objectives of this course are to

- Introduce the concept of HIS geo-enabling and support its implementation in country Health System
- Demonstrate and illustrate the potential of geospatial data and technologies applied to public health
- Build participants' knowledge on the elements required for geo-enabling a Health Information System (HIS)
- Strengthen the participant's 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 GIS 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 Public Health across the country and the Pacific or used by individuals interested in the topics it covers.

- This course addresses staff from the health sector in country (government and key partners). More specifically:
- policymakers and managers;
- HIS staff at national and sub national level;
- data managers and GIS technicians;
- Students in health sciences and practice.
- The Districts/Provinces /State MOHS & EPI staff that will be supporting the creation of the microplanning maps.
- The Provinces /State MOHS staff that will be supporting the regular update of the health facilities and villages master list as well as produce thematic maps for the Region/State MOHS office
- A manager that oversees the management and use of data at the Region/State level

Syllabus - What you will learn from this course:

Module 1: Medical geography:

Topics:

Session 1.1

1. Introduction to the HIS geo-enabling course (Context and objective of the training, agenda and round of introduction of the participants

Session 1.2

2. Geographic dimension of public health

Session 1.3

3. Examples from the other countries

a. Planning b. Communicable diseases c. Emergency management d. Immunization Module

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

Topics:

Session 2.1

1. Geography and time in the HIS
2. 2. The 9 elements of the HIS geo-enabling framework: Description

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

Session 2.2

3. The examples of implementation of the HIS geo-enabling process in Myanmar, Cambodia, and Vietnam (story maps)

4. Conducting a rapid HIS geo-enabling level assessment.

5. Available regional resources

Module 3: Geospatial data management:

Session 3.1

1. Introduction to the geospatial data management cycle.

2. Implementing the geospatial data management cycle

a. Documenting the process

b. Defining the needs

c. Terminology

d. Data specification, standards, and protocols

e. Ground reference

Session 3.2

Data compilation and gaps assessment

Session 3.4

Data collection and extraction

Session 3.5

Data cleaning, validation, and documentation

Session 3.6

Data distribution, use, and update

Session 3.7

Identifying the data needs of a public health priority.

Module 4: Hands on Geospatial technologies

Topics:

Session 4.1

1. Introduction to geospatial data technologies

a. Geospatial technologies in general

b. Global Navigation Satellite Systems (GNSS)

c. Geographic Information System (GIS

Session 4.2

2. Collecting data in the field using GNSS-enabled devices

Session 4.3

3. Using basic functionalities of GIS software (QGIS or ArcMap)

Session 4.5

4. Available resources to explore further (GNSS, QGIS, and ArcMap)

Module 5: Creating good thematic maps:

Topics:

Session 5.1

1. The process behind making good thematic maps

Session 5.2

3. Preparing data for use in GIS software

Session 5.3

a. Exercise in preparing statistical data

b. Exercise in preparing geospatial data

3. The components of a good thematic map

Session 5.4

4. Creating a thematic map using QGIS or ArcMap

Module 6: Use of GIS Tool (ArcGIS)

Module 7: Spatial analysis (ArcGIS)

Use of Geospatial Technologies & Data in

Public Health Sector

The effective use of digital innovations has the potential to improve data-driven decision-making, planning and evaluation of Health Sector Programmes. In this context, geospatial technologies, which include global navigation satellite system (GNSS), geographic information systems (GIS) and remote sensing, are helping Health programmes implementation through the visualization and analytical power of maps, geospatial analysis and modelling.

Geographic Information System (GIS):

A collection of computer software and data used to view and manage information about geographic objects, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.

Geospatial data:

Information about the location and shape of objects, geographic features and the relationships between them.

Geospatial technologies:

A set of equipment, computer applications and systems to visualize, measure, and analyze Earth's features, typically involving such systems as Global Navigation Satellite System (GNSS), Geographical Information Systems (GIS), and remote Sensing (RS)

Global Navigation Satellite System (GNSS):

Any satellite navigation system with global coverage—a system of orbiting satellites that transmit signals received by devices on the ground to determine the position of the receiver on Earth.

Health system map:

A map containing the spatial distribution of the geographic features pertaining to the health system, in general, and the delivery of health service, in particular (e.g. health facilities, health districts, and catchment areas).