

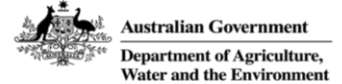
Concept note

Background

Geographic Information System (GIS) softwares are now more widely used by Veterinary Services for disease surveillance and control. Spatial risk assessment (SRA) facilitates an informed appraisal of disease risk and prioritisation of areas to concentrate control activities and enables decision-makers to develop risk management strategies. Mapping spatial risk patterns into regions enhances communication with stakeholders and facilitates the prioritisation of surveillance and vaccination to increase the cost-effective use of these limited resources. Quantum-GIS (QGIS) has been made freely available and easily accessible by Veterinary Services for animal disease surveillance and control purposes. The OIE Sub Regional Representation for South East Asia (OIE SRR-SEA) has worked with the Massey University EpiCentre to provide QGIS training to targeted veterinary officers in 2017 and again in 2019. Additionally, in 2018 Geographic Information Systems (GIS) for advanced spatial analysis of animal health data was organised in Thailand for SEACFMD member countries. These courses covered fundamental principles of spatial epidemiology, GIS and application of spatial techniques, including an introduction to SRA. Countries may have also benefited from other training programmes. As a result, some national staff are already equipped with basic or advanced GIS skills.

SRA is a combination of multi-criteria decision analysis (MCDA) and GIS methods. MCDA provides a collection of techniques for structuring complex problems and prioritising decision alternatives based on the knowledge of several experts about the causal relationships between spatial risk factors and disease events. Spatial cluster analysis is another useful tool to identify an increased risk of disease in animal populations and might yield important information about the transmission and/or control of such diseases. These techniques have not yet been applied extensively in the South-East Asia region, despite their high relevance, specifically considering the increasing emphasis on the application of risk-based approaches for the control and eradication of foot and mouth disease (FMD). The proposed advanced training course will therefore focus on SRA.

This Advanced GIS virtual training is part of a training scheme developed and delivered by the EpiCentre, Massey University, New Zealand and the OIE SRR-SEA under Output 3 of the NZ MFAT funded project 'ASEAN regional, strengthening FMD control in South East Asia'. Thanks to funding from contribution from the Australian Government Department of Agriculture Water and Environment will support participation from selected Pacific countries.



Objectives

The overall aim of this Advance GIS virtual training course is to strengthen animal disease surveillance and control in the region by using GIS tools.

At the end of the training, the participants would be able,

1. To describe and practically apply spatial risk assessment methods and create risk-based maps.
2. To apply Multi Decision Criteria (MCDA) method in determination of weight of spatial risk factors.
3. To apply cluster analysis method for detection of spatial disease clusters and test if they are statistically significant in animal population, and get better informed on disease spread.
4. To use up to date QGIS features.

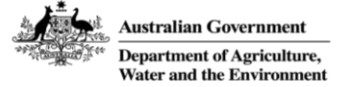
Methodology

The 2-week training will be delivered virtually using the online Massey University Moodle platform (Stream) and Zoom synchronous training sessions. The course contents and deliveries will be developed with the prerequisite that participants have skills in using GIS software to perform basic tasks (see below). Previous examples of spatial risk assessment from SEACFMD members will be used as case studies in the training course. QGIS and Microsoft Excel will be used to perform MCDA and spatial risk assessment tasks. Spatial cluster analysis exercise will be provided using a spatial scan statistic software (SATSCAN). At the end of the training, the assignment will be allocated to each country with specific deliverables and timeline to apply GIS training skills and knowledge using their own country data and local context. The post training follow-up including coordination and technical support will be provided by team OIE and MU.

Proposed operational plan

26 July – 6 August 2021 Virtual training

Dates	Mode of training	Time
26,27,30 July and 2,5,6 August 2021	6 Live sessions over Zoom	1.5 hours per session
28-29 July and 3-4 August 2021	2 Self-learning session	3 hours per session
30 August 2021	1 workshop Zoom	3 hours



Participants

The SEACFMD member countries (Brunei Darussalam, Cambodia, China, Indonesia, Lao PDR, Malaysia, Mongolia, the Philippines, Singapore, Thailand and Vietnam). Additionally, Timor Leste and Papua New Guinea (PNG) pending interest and identification of candidates.

Prerequisite

An entry assessment for potential participants will be used in the participant selection process to ensure the participants have the pre-required set of basic GIS knowledge. The national veterinary services are requested to nominate five participants by **30 June 2021**. The 5 nominated participants will be required to complete the questionnaire by **7 July 2021**. The OIE will select three of the five nominated proposed participants based on the questionnaire assessment results by . The names of the selected participants will be communicated to member countries.

The qualification criteria for nomination is as follows:

- proficient in English.
- has basic knowledge and skills of GIS
 - familiarity with vector/raster data. (desired.)
 - able to convert the projection of map layer between lat/long format to UTM. (desired) .
 - able to convert vector layer to raster layer (rasterise) and perform raster calculations would be an advantage.
- would be able to dedicate time to this training and follow up workshop for the country project.

Facilitators

1. Dr Chris Compton, EpiCentre, Massey University, New Zealand.
2. Dr Art Subharat, EpiCentre, Massey University, New Zealand.

Contact points

Dr Ashish Sutar, Project Officer, OIE SRR SEA, Email: a.sutar@oie.int

Dr Art Subharat, School of veterinary science, Massey University, Email: s.subharat@massey.ac.nz

Agenda

Week starting	Agenda	Methods/ Documentation	Facilitator
Monday 26 July 2021 : Opening session, training overview and introduction to spatial risk assessment			
Zoom Live session-1			
10.00-11.30 am	<ul style="list-style-type: none"> • Opening remark by OIE SRR SEA • Importance of GIS in disease surveillance and control. • Objectives and expected outcome • Introduction to spatial risk assessment and multi-criteria decision analysis. • Spatial risk factors (FMD) • Closing remark 	<ul style="list-style-type: none"> • PPTs • Exercise 	<p>Dr Ronello Abila OIE SRR SEA</p> <p>Dr Chris Compton Dr Art Subharat</p> <p>Dr Laure Weber- Vintzel</p>
Tuesday 27 July 2021: Spatial risk factors identification and weighing techniques			
Zoom Live session-2			
10.00-11.30 am	<ul style="list-style-type: none"> • Recap of session -1 • Running focus group of experts to determine spatial risk factors • Weighting techniques for decision-making criteria -Exercise 	<ul style="list-style-type: none"> • PPTs • Group discussion/ Exercise 	<p>Dr Ashish Sutar</p> <p>Dr Chris Compton and Dr Art Subharat</p>
Wednesday and Thursday 28-29 July 2021: Spatial data types			
Self-learning session-1			
Self-pace	<ul style="list-style-type: none"> • Working with spatial data types needed to create risk maps -Exercise 	<ul style="list-style-type: none"> • Exercises 	
Friday 30 July 2021: Spatial risk surface (Part 1)			
Zoom Live session-3			
10.00-11.30 am	<ul style="list-style-type: none"> • Recap of session 2 and self learning • Spatial risk surface implementation (Part 1) -Exercise 	<ul style="list-style-type: none"> • PPTs • Exercise 	<p>Dr Bolortuya Purensuven</p> <p>Dr Chris Compton and Dr Art Subharat</p>

Monday 2 August 2021: Spatial risk surface (Part 2)			
Zoom Live session-4			
10 .00 - 11.30 am	<ul style="list-style-type: none"> Recap session -3 Spatial risk surface implementation -Exercise 	<ul style="list-style-type: none"> PPTs Exercise 	Dr Karma Rinzin Dr Chris Compton and Dr Art Subharat
Tuesday and Wednesday 3 -4 August 2021			
Self-learning session-2			
Self -pace	<ul style="list-style-type: none"> Introduction to spatial clustering Introduction to SATSCAN 	<ul style="list-style-type: none"> PPTs Exercise 	Dr Chris Compton and Dr Art Subharat
Thursday 5 August 2021: Spatial clustering			
Zoom Live session-5			
10 .00 - 11.30 am	<ul style="list-style-type: none"> Recap session -4 Case study for spatial clustering -Exercise 	<ul style="list-style-type: none"> Exercise Group discussion 	Dr Art Subharat Dr Chris Compton
Friday 6 August 2021: Country assignment			
Zoom Live session-6			
10 .00 - 11.30 am	<ul style="list-style-type: none"> Recap of all sessions Country team SRA project assignment Spatial clustering review Course evaluation survey made available Closing remark 	<ul style="list-style-type: none"> Group assignment Technical support through online forum 	Dr Chris Compton and Dr Art Subharat Dr Ronello Abila
Monday 30 August 2021 Closing session			
Workshop			
9.00 am – 12 noon	<ul style="list-style-type: none"> Context Presentation of SRA by country team Coffee break Discussion of communication with decision-makers Closing remarks (summary/ sustainability) 	Workshop	Dr Ashish Sutar Country rep Chris/Art Dr Ronello Abila