



Advanced GIS Virtual Training Course- Day 03- Introduction to Spatial Risk Assessment

Chris Compton and Art Subharat, EpiCentre, Massey University, New Zealand
July 2021

Roadmap

- Day 01 - 02 review
- GIS tools and processes for SRA
 - Acquiring spatial data files
 - Processing spatial data files for SRA

Day 03 timetable

Times	Activities
10:00 - 10:10	Our feedback on causal path models and your feedback on spatial weights spreadsheet exercise
10:10 - 10:30	Presentation- Creating spatial risk surfaces
10:30 - 11:20	Exercise- Breakout groups- Creating spatial risk surfaces of a study area in QGIS
11:25 - 11:30	Wrap-up
Not timetabled	Self-directed exercise- continuing with spatial risk surface exercises



DEPARTMENT OF VETERINARY SERVICES MALAYSIA

RABIES ENDS HERE

[MY] Leonora T...

NZ-Chris Comp...

Ronello Abila

OIE

OIE_Karr...

anthony bucad

Indonesia_Yuni ...

MASSEY UNIVERSITY

NZ_Art Subharat

TH (Kitti...

IDN_Siti Yulianti

Cambodia-Soch...

PH-Ermyrn Ermit...

SG_Tan V...

PH-Chloe Comb...

[MY] Muhamma...

CN_Sufen Pang

Mongoli...

MY_Mariani Ha...

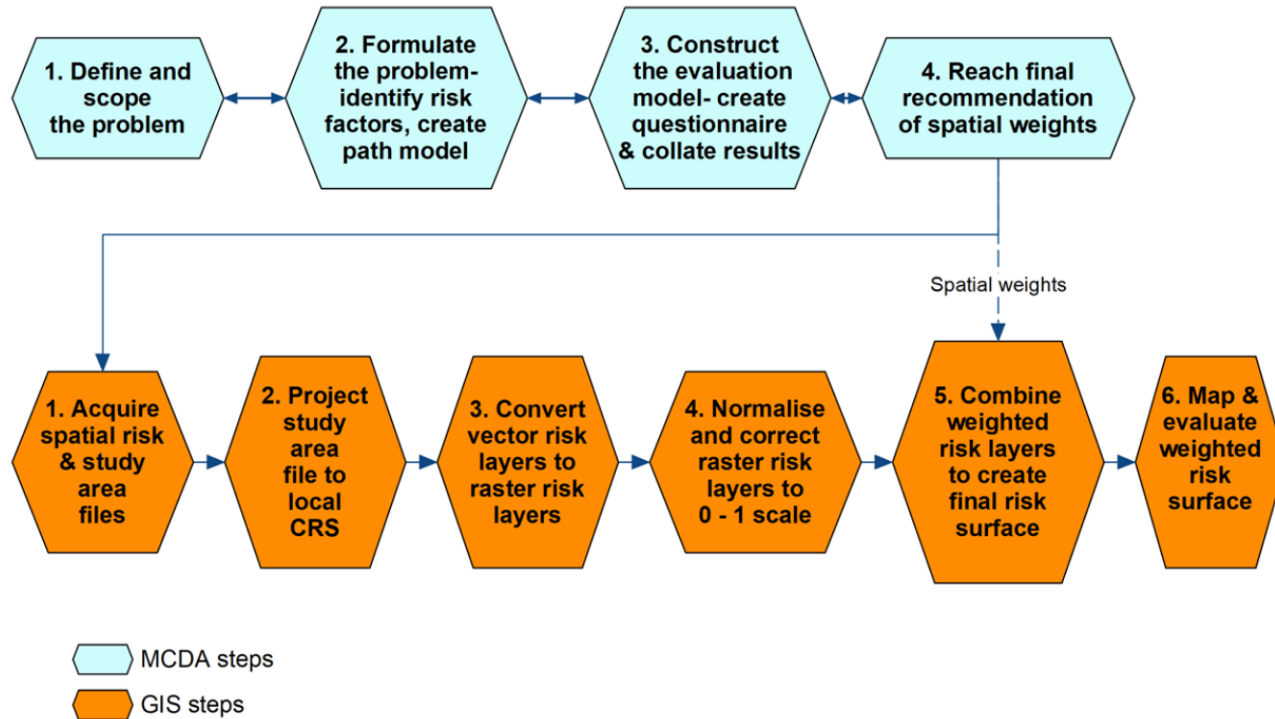
Erdenesaikhan Teg...

Galaxy A20s

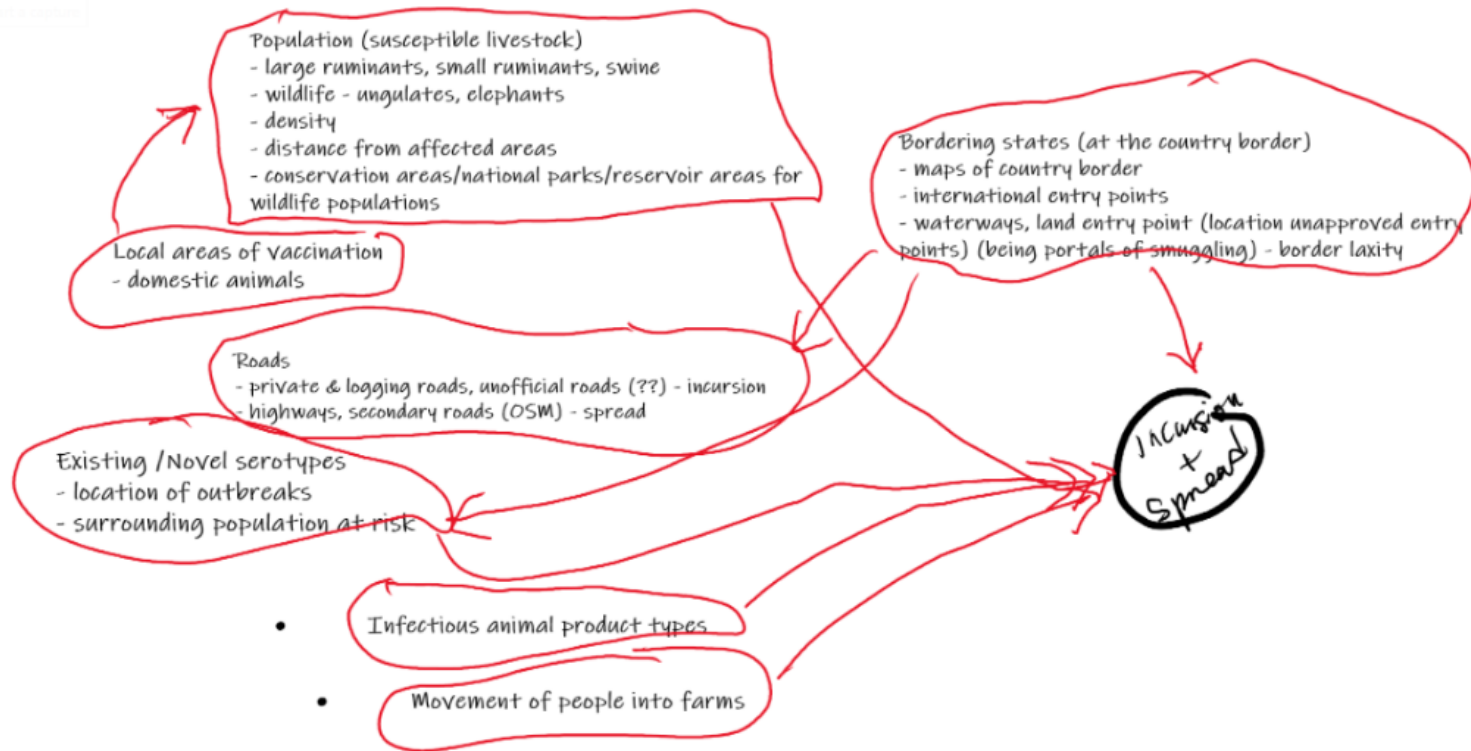
Mongol...

Day 01 - 02 review

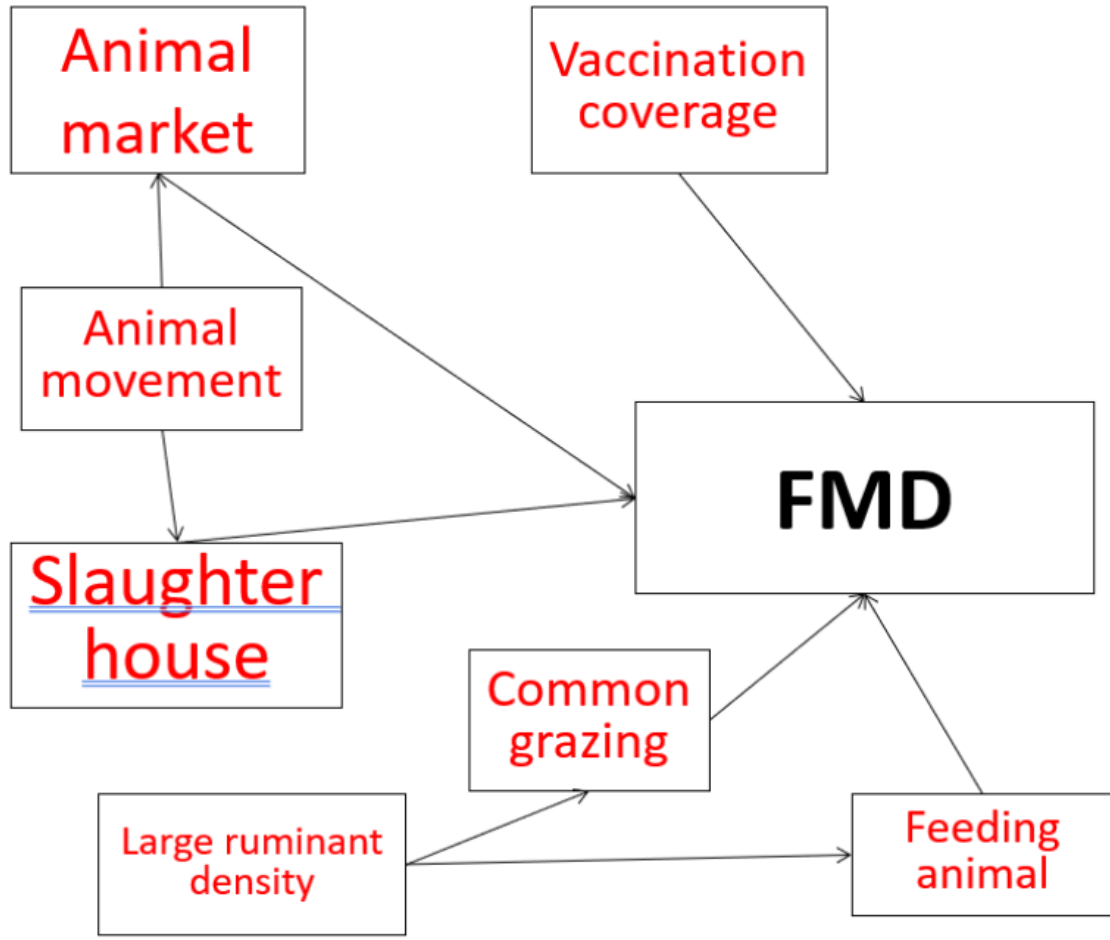
Spatial risk assessment = MCDA + GIS



Salam sejahtera & สวัสดี from the MALAYSIA & THAILAND GROUP : DIAGRAM FOR CAUSAL PATH MODEL



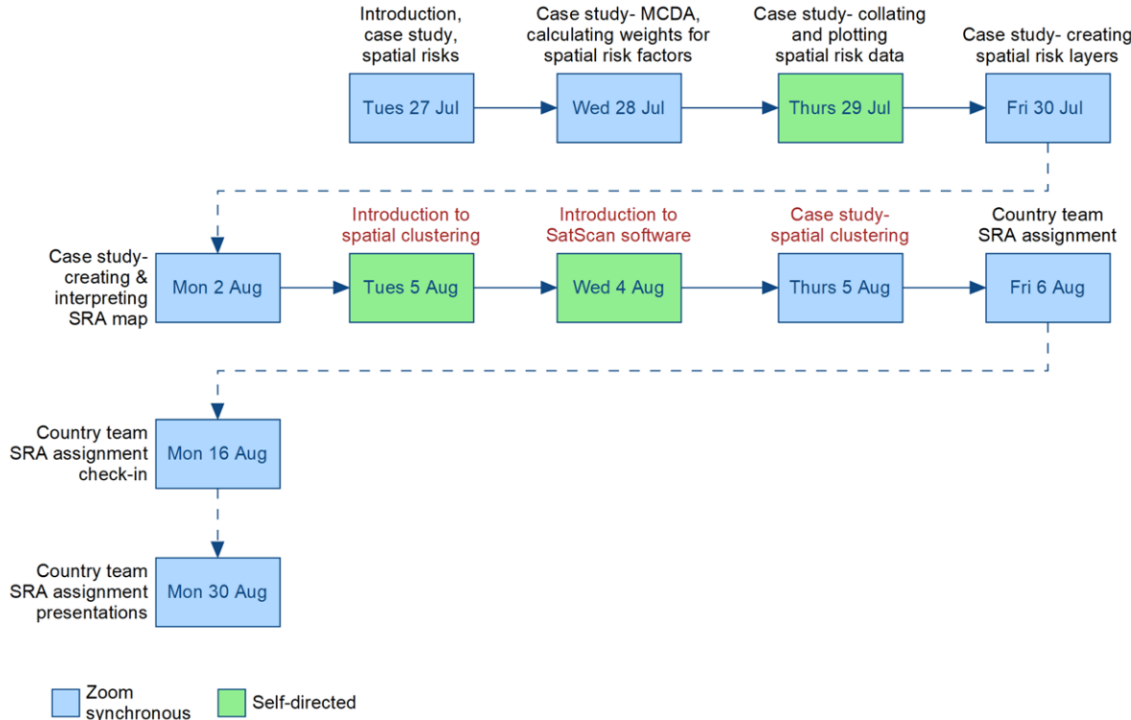
Group: LAOS-Cambodia

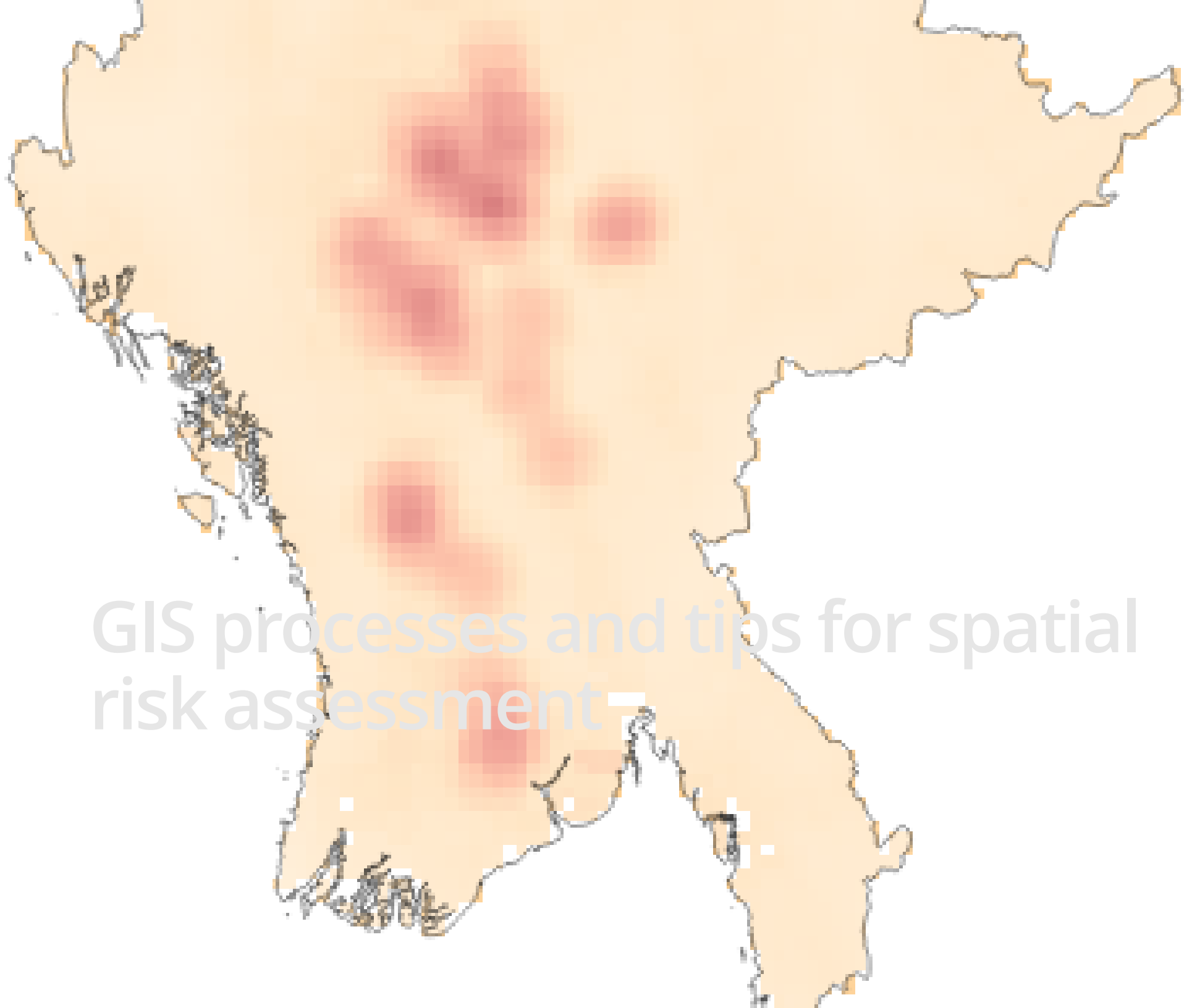


MCDA spreadsheet exercise

	A	B	C	D	E	F	G	H	I
1	Median scores for risk factor comparisons								
2				Risk factor 2					
3			Major and minor roads	Cattle population density	Pig population density	Live animal markets			
4		Major and minor roads	0	0	0	-2			
5	Risk	Cattle population density	0	0	2	-2			
6	factor 1	Pig population density	0	-2	0	0			
7		Live animal markets	2	2	0	0			
8									
9	Transformed scores, geometric means & weights								
10				Transformed score for each risk factor comparison					
11				Risk factor 2					
12			Major and minor roads	Cattle population density	Pig population density	Live animal markets	Geometric row mean	Weight for spatial risk layer	
13		Major and minor roads	1.00	1.00	1.00	0.55	0.77	0.18	
14	Risk	Cattle population density	1.00	1.00	1.83	0.55	1.00	0.24	
15	factor 1	Pig population density	1.00	0.55	1.00	1.00	0.77	0.18	
16		Live animal markets	1.83	1.83	1.00	1.00	1.69	0.40	
17								1.00	

Where are we going?





GIS processes and tips for spatial risk assessment

Overview of GIS steps in SRA

- Aim to:
 - Assemble risk factors represented as spatial raster maps for study area
 - Each layer to represent risk as probability between 0 and 1
 - Weight each layer by multiplying by spatial weights created from MCDA exercise
 - Combine these “layers” to create final risk surface
- See “Day03-SpatialRiskAssmnt-MMR.docx” Section 1

Tips for using QGIS for SRA

- Many files are created!
 - Be organised!
- Use a standardised way of naming files and saving them in folders
 - Quicker to find what you need and fewer errors
 - See “Day03-SpatialRiskAssmnt-MMR.docx” Section 1
- Be aware of where you are in the process
 - Review where you are in the SRA steps diagram
- This is not easy- make time to learn and **understand** the steps

Exercise

- Work individually but stay in the same Zoom breakout groups from Day 01
- Use the Zoom chat function to support one another to complete the tasks
 - Country GIS expert to lead this support
- Create a folder structure for project
- Download from Stream the spatial data files and copy them to an appropriate directory
- Download and open "Day03-SpatialRiskASSmnt-MMR.docx file
 - Describes the steps for the GIS operations using QGIS
- Using QGIS:
 - Work on steps 5.1 towards 5.3
 - You may not complete in the time available today- that is OK

Exercise learning outcomes

- Be able to:
 - Create a folder structure that organises project data
 - Use QGIS to:
 - Create a projected map of the study region (the state of Myanmar)
 - Complete the initial processing of spatial risk files