ESCAP
Economic and Social Commission for Asia and the Pacific

Land cover and land accounting in Vanuatu – Day 5

Component 3 & 4

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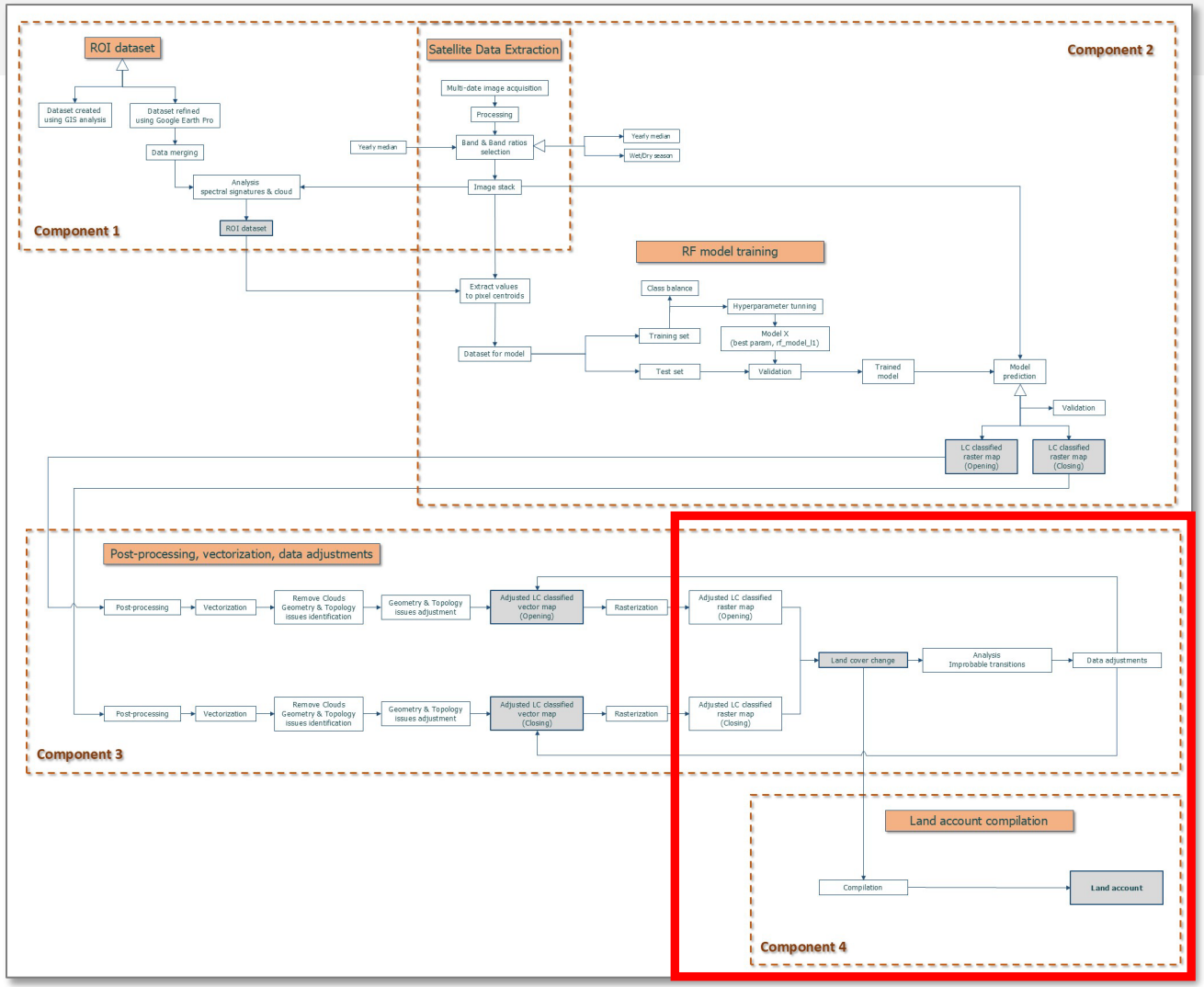
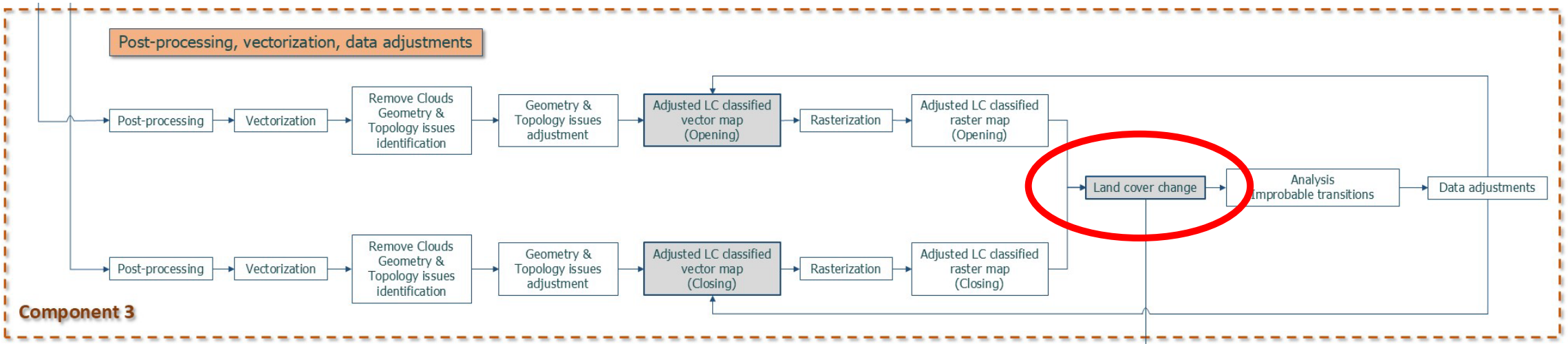
Pipeline for **A**gile **E**stimation of **L**and **A**ccounts (PAELA)



	Dense_Forest	Open_Forest	Forest_plantations	Mangroves	Agriculture	Coconut_Plantation	Grassland	Built-up_Infrastr	Water_body	Shrubs	Bareland	Total
Opening area	274316.9	13137.4	10666.8	752.5	375.6	60.0	1453.4	37753.4	16096.2	9720.2	20416.3	387577.9
Expansions	11301.9	24893.4	5267.3	652.0	173.9	69.1	865.7	12010.2	11082.0	10793.9	7446.6	86209.8
Regressions	18946.6	3582.7	4458.4	430.2	284.3	31.6	663.1	33856.4	9637.2	3494.5	9476.7	86209.8
Net change	7644.7	-21310.7	-808.9	-221.8	110.4	-37.5	-202.6	21846.1	-1444.8	-7299.3	1724.4	0.0
Closing area	266672.3	34448.1	11475.7	974.4	265.2	97.5	1656.1	15907.3	17541.0	17019.6	18691.9	387577.9

Yesterday

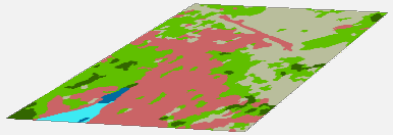
- Work on Component 3



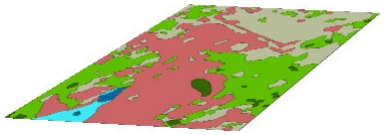
LC 2020

LC 2023

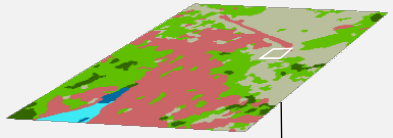
LC 2020



LC 2023

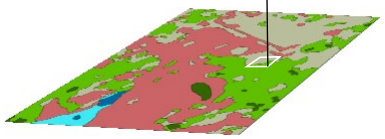


LC 2020

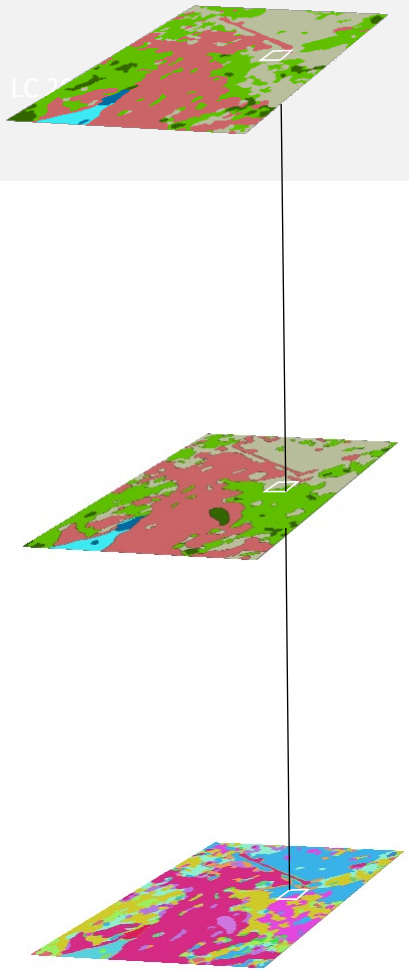


Open Forest (code=2)

LC 2023



Dense Forest (code=1)



Open Forest (code=2)

Dense Forest (code=1)

Area aggregate

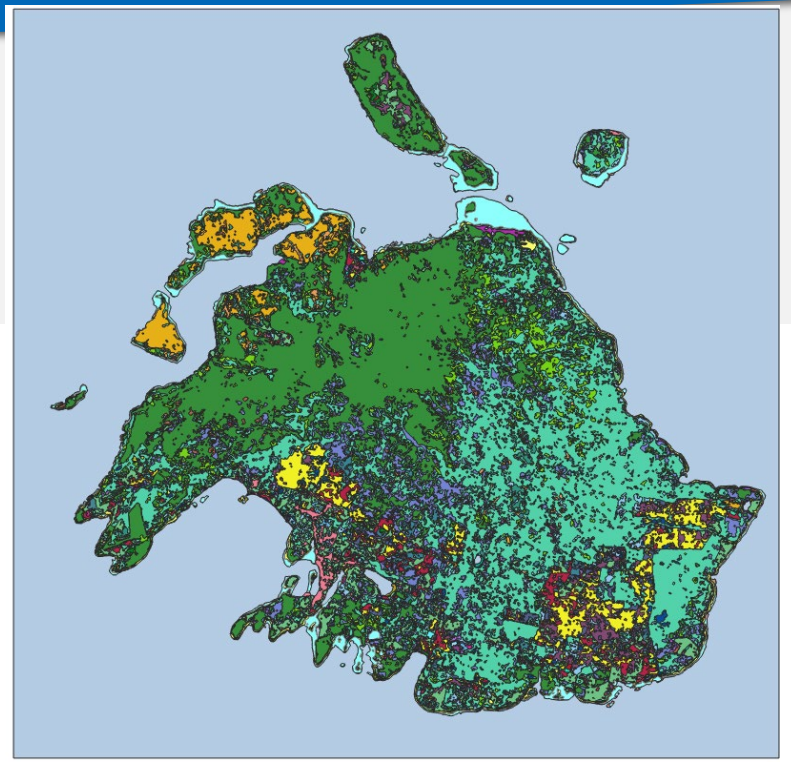
From Open Forest to Dense Forest (CrossClass = 2)

Land cover change matrix

Units: ha

	>_Closing	Dense_Forest	Open_Forest	Mangroves	Agriculture	Coconut_Plantation	Gr
	V_ReferenceClass	1	2	4	5	6	
Dense_Forest	1	25338.3	7153.2	21.4	79.8	3.2	
Open_Forest	2	5335.3	27890.3	8.1	964.2	5.4	2
Mangroves	4	3.2	0.3	124.4	0.0	0.0	
Agriculture	5	41.6	1328.1	12.3	3657.1	7.6	2
Coconut_Plantation	6	2.3	0.6	0.0	3.4	11.3	
Grassland	7	342.6	2256.5	16.8	1995.2	30.2	5
Built_up_Infrastr_Settlements	8	3.7	14.8	0.0	6.0	0.0	
Water_body	9	17.2	4.1	11.9	0.8	0.0	
Shrubs	10	903.1	969.6	4.1	70.2	0.4	
Bareland	11	17.6	17.0	0.6	18.8	0.6	
Reef	13	10.5	3.7	1.5	0.0	0.0	

Yesterday – Land cover change matrix/map



Land cover change matrix

	>_Closing	Dense_Forest	Open_Forest	Mangroves	Agriculture	Coconut_Plantation	Grassland	Built_up_Infrastr_Settlements	Water_body	Shrubs	Bareland	Reef
	V_ReferenceClass	1	2	4	5	6	7	8	9	10	11	13
Dense_Forest	1	253383200.0	71531600.0	213600.0	798000.0	31600.0	4890400.0	279600	165200	6515200	860000	60000
Open_Forest	2	53353200.0	278903200.0	81200.0	9642400.0	53600.0	26790000.0	258000	224000	9696400	491600	22000
Mangroves	4	32400.0	2800.0	1244000.0	0.0	0.0	8800.0	0	5200	13600	4000	2800
Agriculture	5	416400.0	13281200.0	122800.0	36570800.0	76400.0	24437200.0	212000	48400	347200	354000	1200
Coconut_Plantation	6	22800.0	6400.0	0.0	33600.0	113200.0	85600.0	0	0	0	0	0
Grassland	7	3426400.0	22564800.0	168400.0	19952000.0	302000.0	55794400.0	3159200	381200	1824000	1952400	17200
Built_up_Infrastr_Settlements	8	37200	148000	400	60400	0	919200	6214400	90000	12800	670400	11200
Water_body	9	172000	41200	119200	8400	0	120800	135200	1612334000	69200	937600	5506400
Shrubs	10	9031200	9696400	40800	702400	3600	1411600	32400	76400	26516800	200000	22000
Bareland	11	175600	169600	5600	187600	5600	1230800	537600	432000	192800	12324400	656800
Reef	13	105200	36800	15200	0	0	56800	16400	1644000	9200	4612400	32497200

Units: m2

Yesterday – Identification of improbable transitions

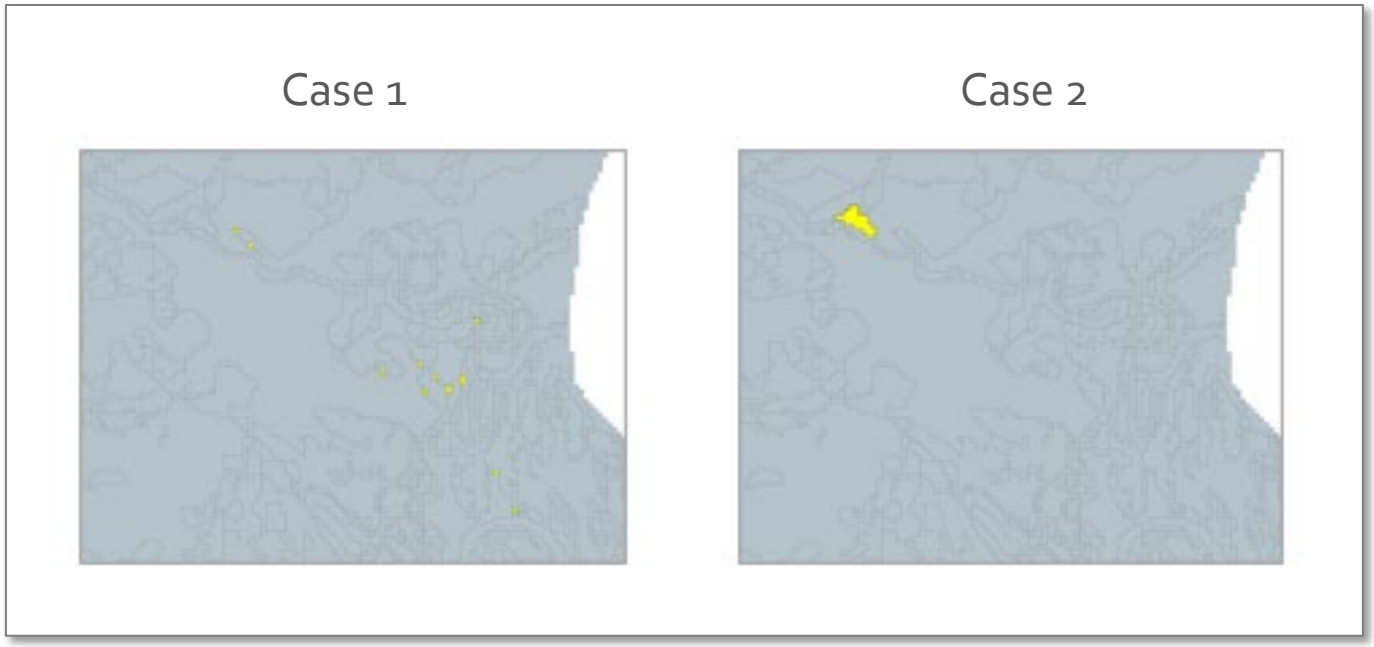
A	B	C	D	E	F
LCcode_FROM	**LCdesc_FROM**	**LCcode_TO**	**LCdesc_TO**	**ImpTrans (group discussion April 3, 2025)**	**Notes**
1	Dense_Forest	1	Dense_Forest		
1	Dense_Forest	2	Open_Forest		
1	Dense_Forest	3	Forest_plantation		
1	Dense_Forest	4	Mangroves	1	
1	Dense_Forest	5	Agriculture		
1	Dense_Forest	6	Coconut_Plantation		
1	Dense_Forest	7	Grassland		
1	Dense_Forest	8	Built_up_Infrastr_Settlements		
1	Dense_Forest	9	Water_body	1	
1	Dense_Forest	10	Shrubs		
1	Dense_Forest	11	Bareland		
1	Dense_Forest	13	Reef	1	
2	Open_Forest	1	Dense_Forest		
2	Open_Forest	2	Open_Forest		
2	Open_Forest	3	Forest_plantation		
2	Open_Forest	4	Mangroves	1	
2	Open_Forest	5	Agriculture		
2	Open_Forest	6	Coconut_Plantation		
2	Open_Forest	7	Grassland		
2	Open_Forest	8	Built_up_Infrastr_Settlements		
2	Open_Forest	9	Water_body	1	
2	Open_Forest	10	Shrubs		
2	Open_Forest	11	Bareland		
2	Open_Forest	13	Reef	1	
3	Forest_plantation	1	Dense_Forest		
3	Forest_plantation	2	Open_Forest		
3	Forest_plantation	3	Forest_plantation		
3	Forest_plantation	4	Mangroves		

Yesterday – Filled part of template (from SCP)

A	B	C	D	E	F	G	H	I
CrossClassCode	NewClass	ReferenceClass	PixelSum	Area [metre^2]	TAreakm2	desc2020	desc2023	ImpTrans
1	1	1	633458	253383200	253.3832	Dense_Forest	Dense_Forest	0
2	1	2	133383	53353200	53.3532	Open_Forest	Dense_Forest	0
5	1	4	81	32400	0.0324	Mangroves	Dense_Forest	1
7	1	5	1041	416400	0.4164	Agriculture	Dense_Forest	1
11	1	6	57	22800	0.0228	Coconut_Plantation	Dense_Forest	1
15	1	7	8566	3426400	3.4264	Grassland	Dense_Forest	1
20	1	8	93	37200	0.0372	Built_up_Infrastr_Settleme	Dense_Forest	1
26	1	9	430	172000	0.172	Water_body	Dense_Forest	1
33	1	10	22578	9031200	9.0312	Shrubs	Dense_Forest	1
41	1	11	439	175600	0.1756	Bareland	Dense_Forest	1
58	1	13	263	105200	0.1052	Reef	Dense_Forest	1
3	2	1	178829	71531600	71.5316	Dense_Forest	Open_Forest	0
4	2	2	697258	278903200	278.9032	Open_Forest	Open_Forest	0
8	2	4	7	2800	0.0028	Mangroves	Open_Forest	0
12	2	5	33203	13281200	13.2812	Agriculture	Open_Forest	0
16	2	6	16	6400	0.0064	Coconut_Plantation	Open_Forest	0
21	2	7	56412	22564800	22.5648	Grassland	Open_Forest	0
27	2	8	370	148000	0.148	Built_up_Infrastr_Settleme	Open_Forest	1
34	2	9	103	41200	0.0412	Water_body	Open_Forest	1
42	2	10	24241	9696400	9.6964	Shrubs	Open_Forest	0
50	2	11	424	169600	0.1696	Bareland	Open_Forest	0
67	2	13	92	36800	0.0368	Reef	Open_Forest	1
6	4	1	534	213600	0.2136	Dense_Forest	Mangroves	1
9	4	2	203	81200	0.0812	Open_Forest	Mangroves	1
17	4	4	3110	1244000	1.244	Mangroves	Mangroves	0
22	4	5	307	122800	0.1228	Agriculture	Mangroves	0
35	4	7	421	168400	0.1684	Grassland	Mangroves	1
43	4	8	1	400	0.0004	Built_up_Infrastr_Settleme	Mangroves	1
51	4	9	298	119200	0.1192	Water_body	Mangroves	0
59	4	10	102	40800	0.0408	Shrubs	Mangroves	0
68	4	11	14	5600	0.0056	Bareland	Mangroves	0

Area values contributing to entry in LC matrix

- For a particular transition, the total area shown in the land cover change matrix:
  - Case 1: aggregated area of scattered pixels
  - Case 2: large area of non-scattered pixels

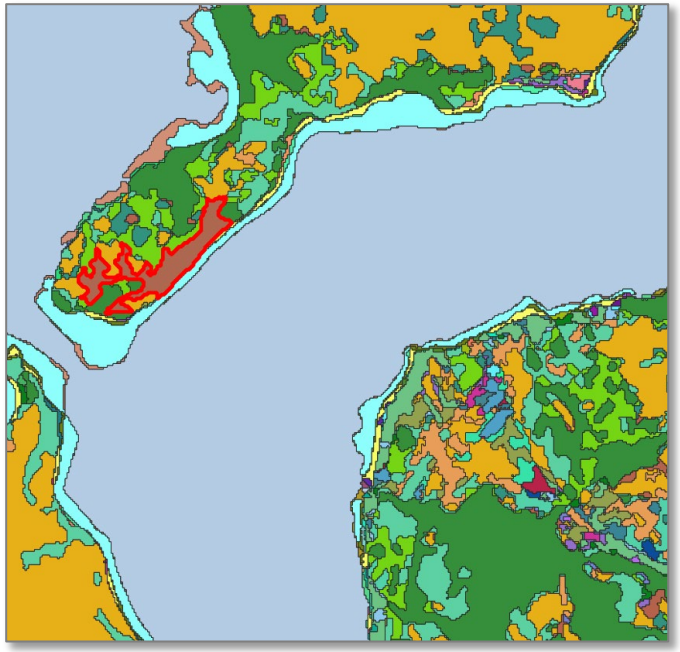


Today – Component 3: Improbable transition issues?

- Initial analysis
- Complete fill in template

This matrix shows the maximum area of all polygons having that transition (see explanation of the value displayed "MAX(AREAkm2)" below). Colors for the cells correspon

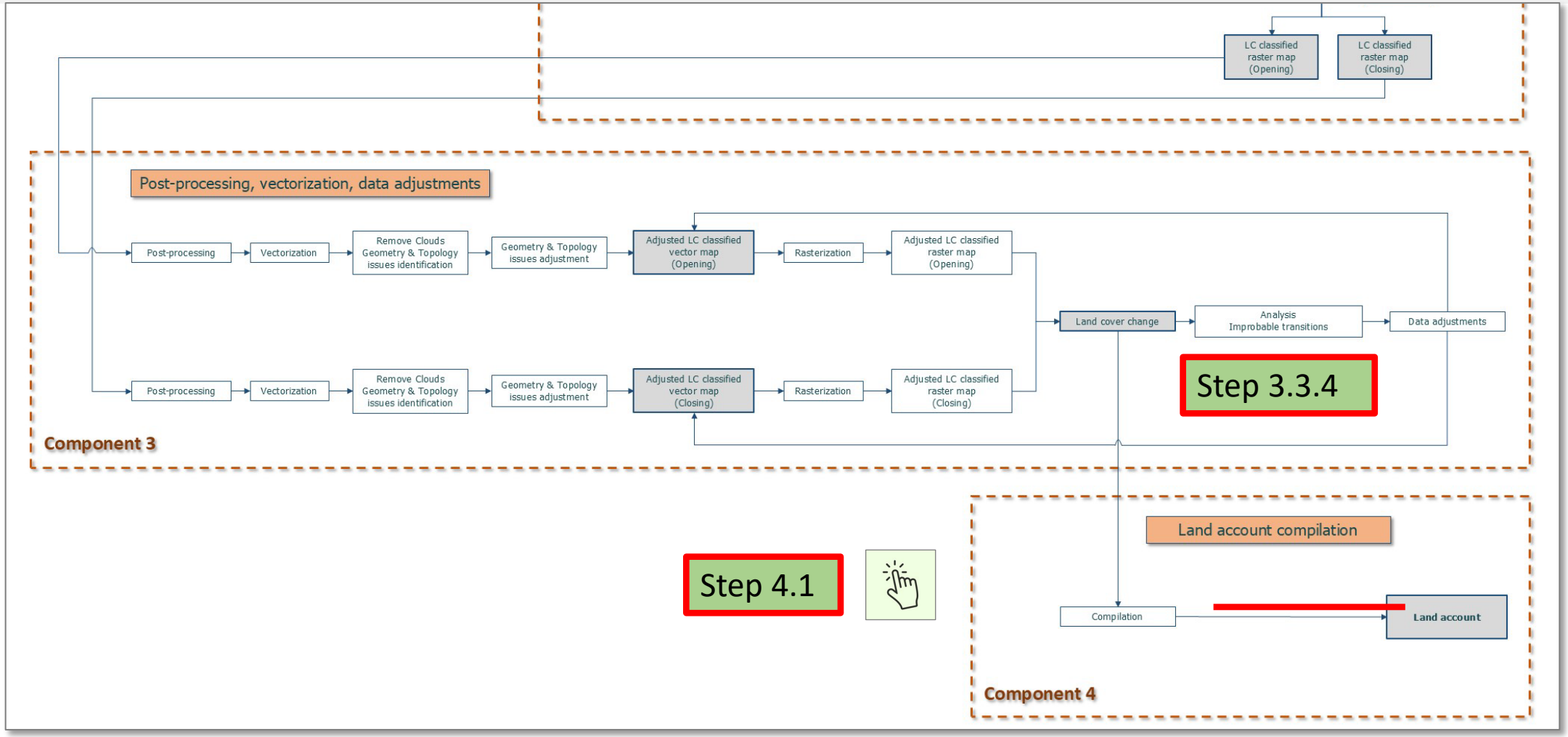
		Dense_Forest	Open_Forest	Mangroves	Agriculture	Coconut_Plantation	
	V_ReferenceClass	1	2	4	5	6	
Dense_Forest	1	162.474	2.573	0.049	0.046	0.012	
Open_Forest	2	2.002	156.755	0.014	0.494	0.017	
Mangroves	4	0.008	0.001	0.812	#N/A	#N/A	
Agriculture	5	0.059	0.456	0.103	6.856	0.026	
Coconut_Plantation	6	0.010	0.005	#N/A	0.015	0.038	
Grassland	7	0.364	0.776	0.081	1.611	0.094	
Built_up_Infrastr_Se	8	0.005	0.012	0.000	0.014	#N/A	
Water_body	9	0.010	0.008	0.018	0.005	#N/A	
Shrubs	10	0.451	0.371	0.017	0.125	0.003	
Bareland	11	0.014	0.020	0.001	0.047	0.006	
Reef	13	0.010	0.006	0.005	#N/A	#N/A	



Today – Component 4: Land account compilation

	Dense_Forest	Open_Forest	Mangroves	Agriculture	Coconut_Plantation	Grassland	Built_up_Infrastr_Settlements	Water_body	Shrubs	Bareland	Reef	Total
Opening area	33872.8	37951.6	131.4	7586.8	26.2	10954.2	816.4	161944.4	4773.4	1591.8	3899.3	263548.2
Expansions	6677.2	11747.9	76.7	3138.5	47.3	5995.1	463.0	306.6	1868.0	1008.2	630.0	31958.6
Regressions	8534.5	10061.2	7.0	3929.7	14.8	5374.8	195.0	711.0	2121.7	359.4	649.6	31958.6
Net change	-1857.3	1686.6	69.8	-791.2	32.4	620.4	268.1	-404.4	-253.6	648.8	-19.6	0.0
Closing area	32015.6	39638.2	201.1	6795.6	58.6	11574.6	1084.5	161540.0	4519.7	2240.7	3879.7	263548.2

Today – Component 3 & Component 4



PyQGIS

Today – Your turn

1) Initial improbable transitions analysis

- Continue with Step 3.3.4

2) Compile the Land Account for the accounting period 2020 – 2023

- Go through Step 4.1