Land cover and land accounting in Vanuatu

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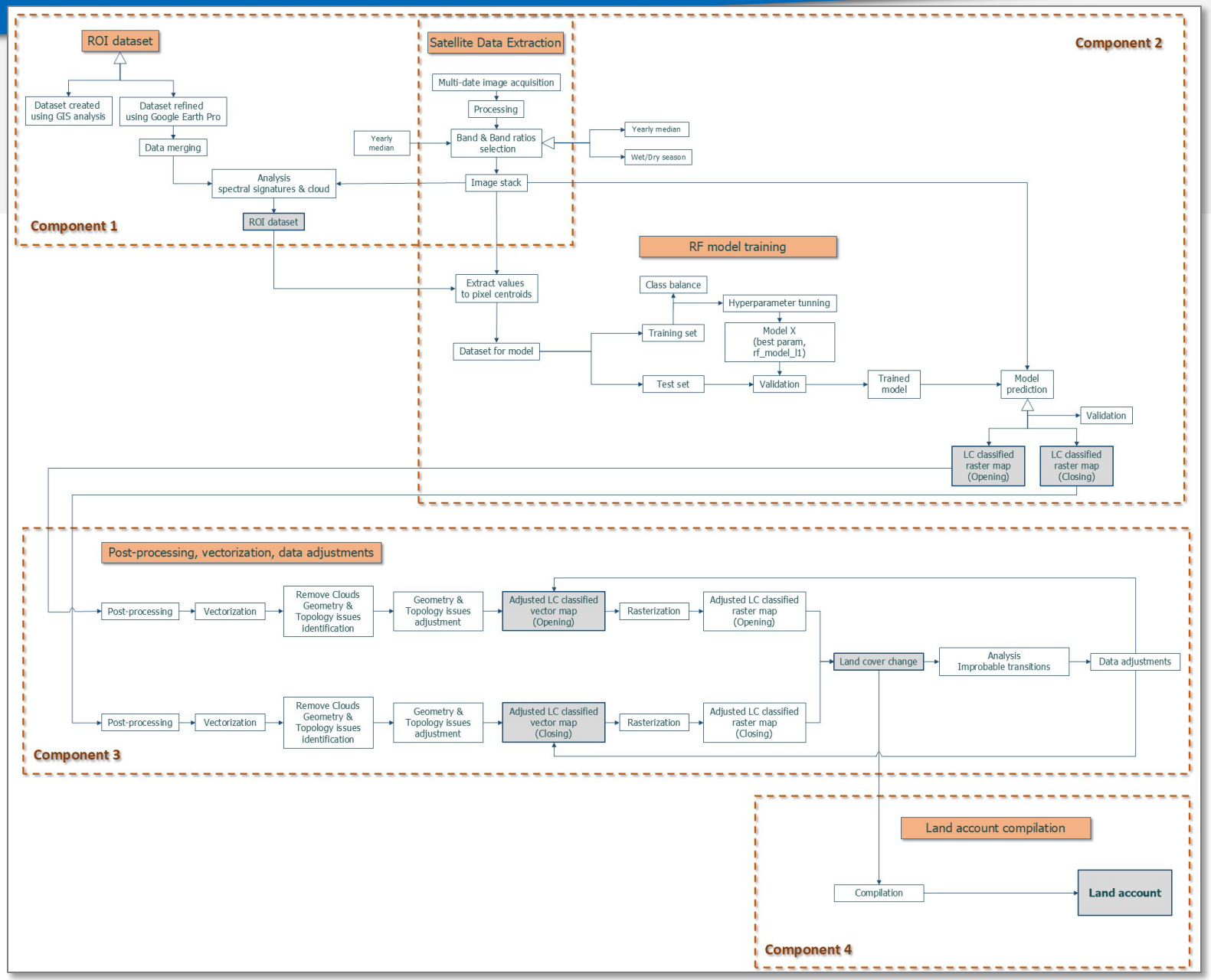
Land account

	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

Pipeline for Agile Estimation of Land Accounts (PAELA)



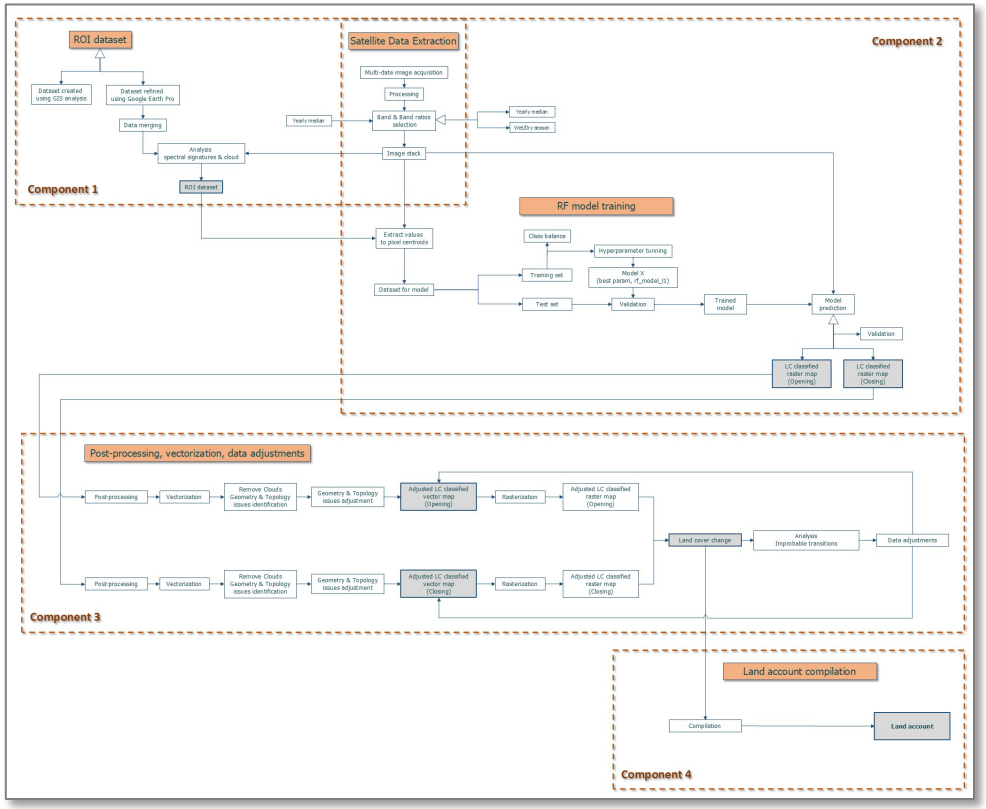
Pipeline for **A**gile **E**stimation of **L**and **A**ccounts (PAELA)

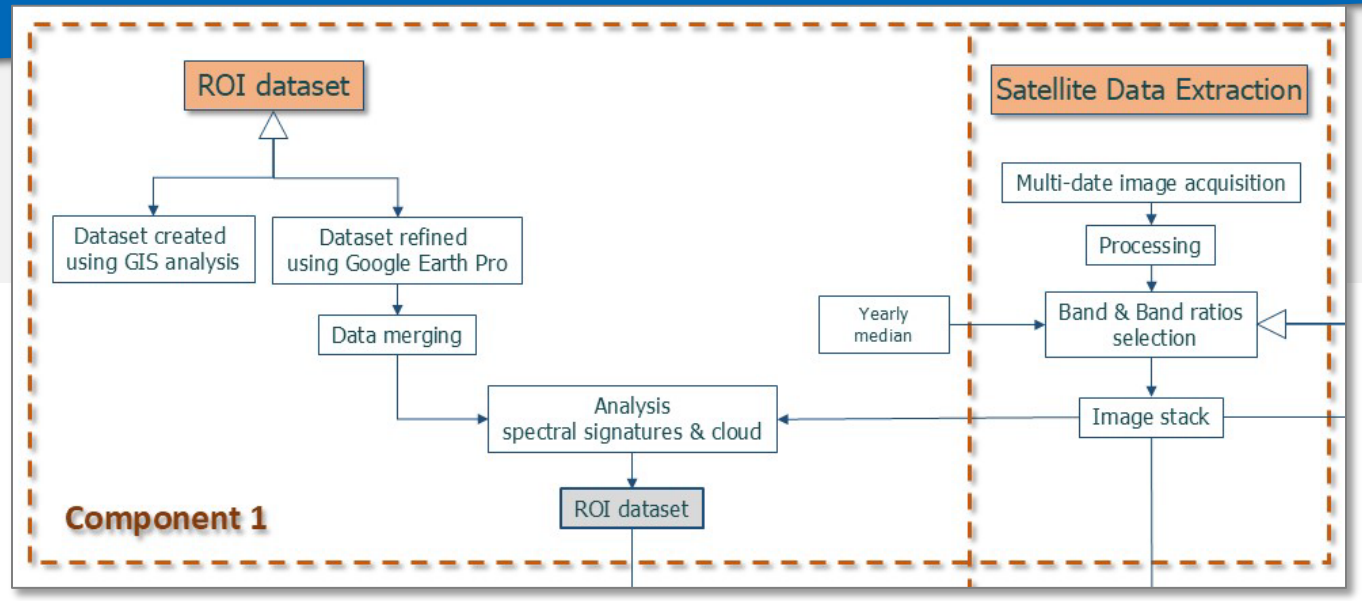
- **Workflow of interconnected components**: Facilitates a structured process for land account compilation, where each component builds upon the outputs of the previous one

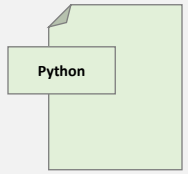
- **Progressive training approach**: Previous in-person trainings focused on guiding participants through the step-by-step process within and across components to build the conceptual understanding before introducing automation

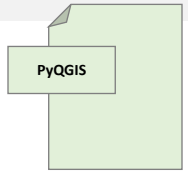
- **Transition to Automation**: The current focus has been on automating several steps, ensuring that participants understand the logic and purpose 'behind' the automated procedures. However, not all steps can be automated as expert knowledge is still required

- **Institutional Collaboration**: Supports different teams within VBoS or across institutions to work on specific components based on their technical expertise, sharing inputs and outputs

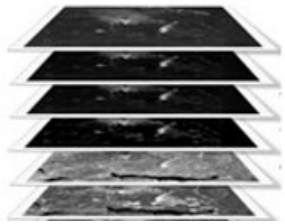




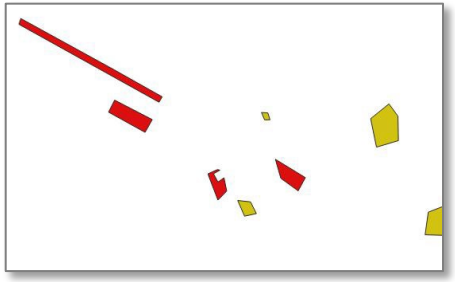


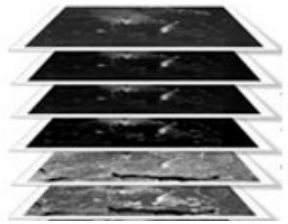


Initial ROIs 2020

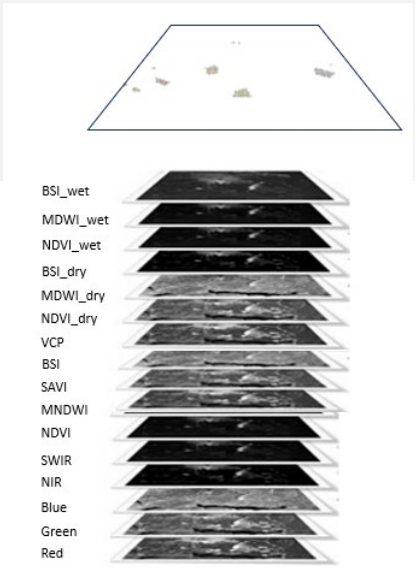


Initial ROIs 2023



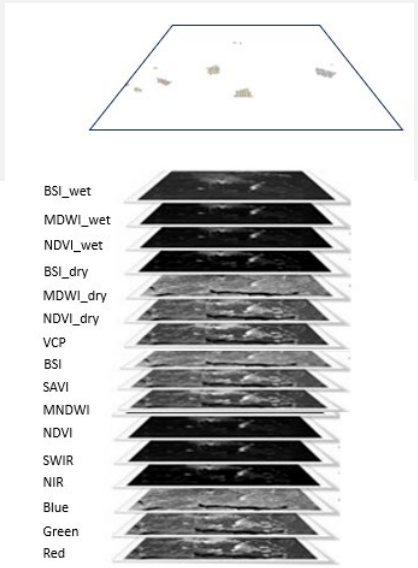


2020

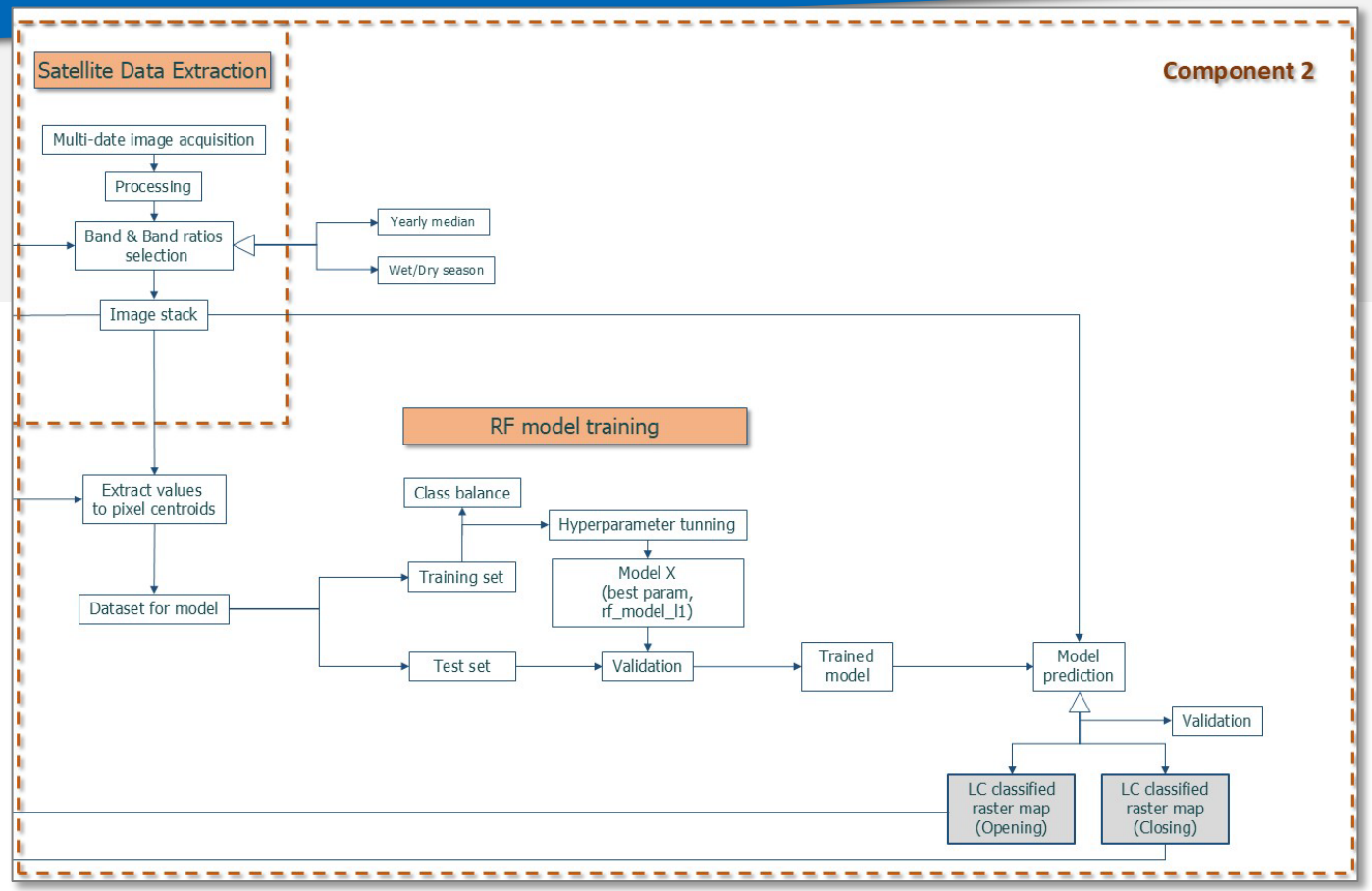


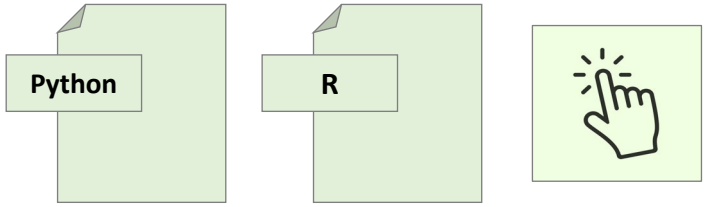
Trained RF Model

2023

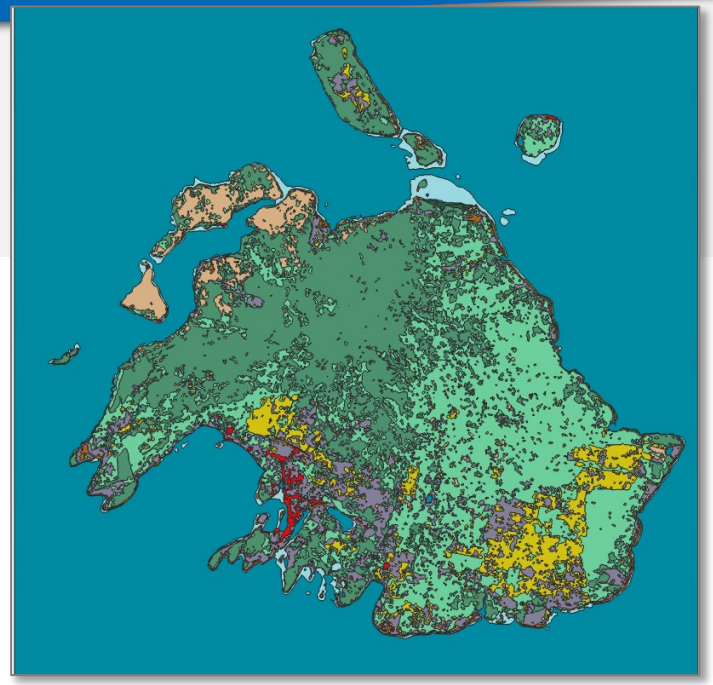


Trained RF Model

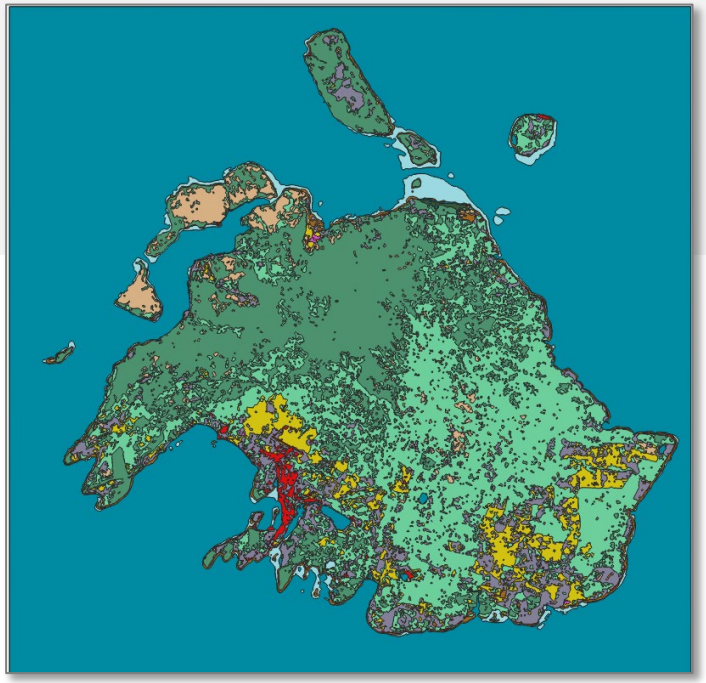


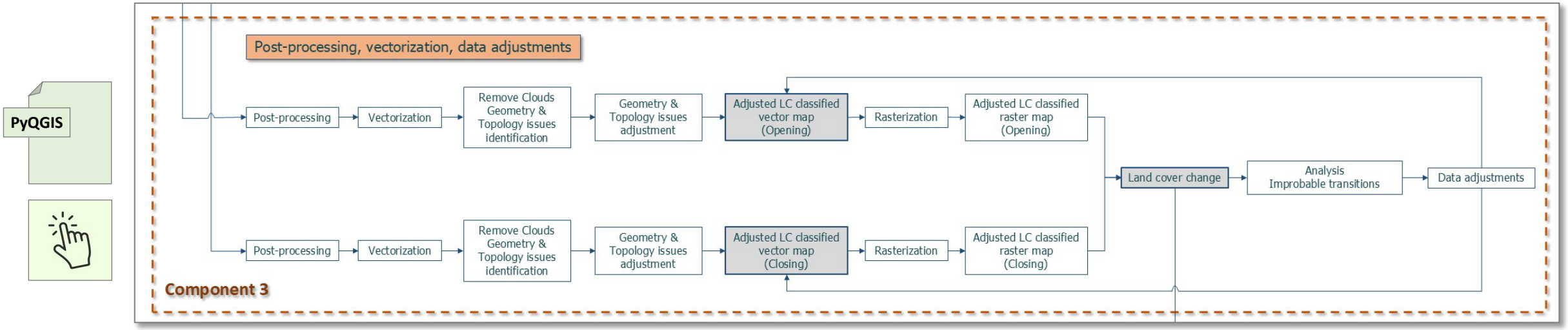


2020



2023




PyQGIS
Post-processing, vectorization, data adjustments
Post-processing
Vectorization
Remove Clouds Geometry & Topology issues identification
Geometry & Topology issues adjustment
Adjusted LC classified vector map (Opening)
Rasterization
Adjusted LC classified raster map (Opening)
Post-processing
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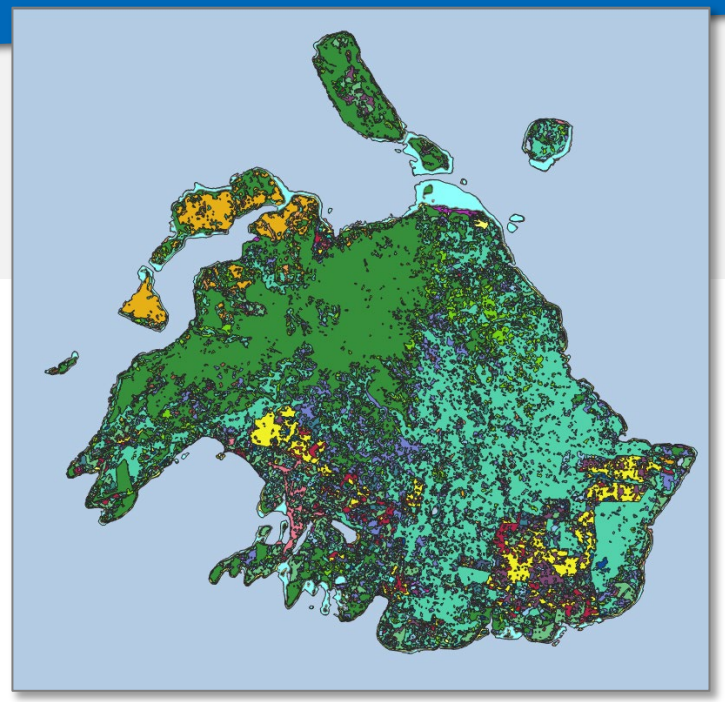
Adjusted LC classified vector map (Closing)
Rasterization
Adjusted LC classified raster map (Closing)
Land cover change
Analysis Improbable transitions
Data adjustments
Component 3

LC Change map 2020 -- 2023

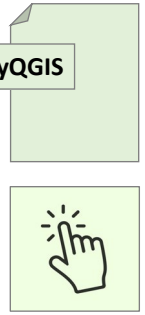


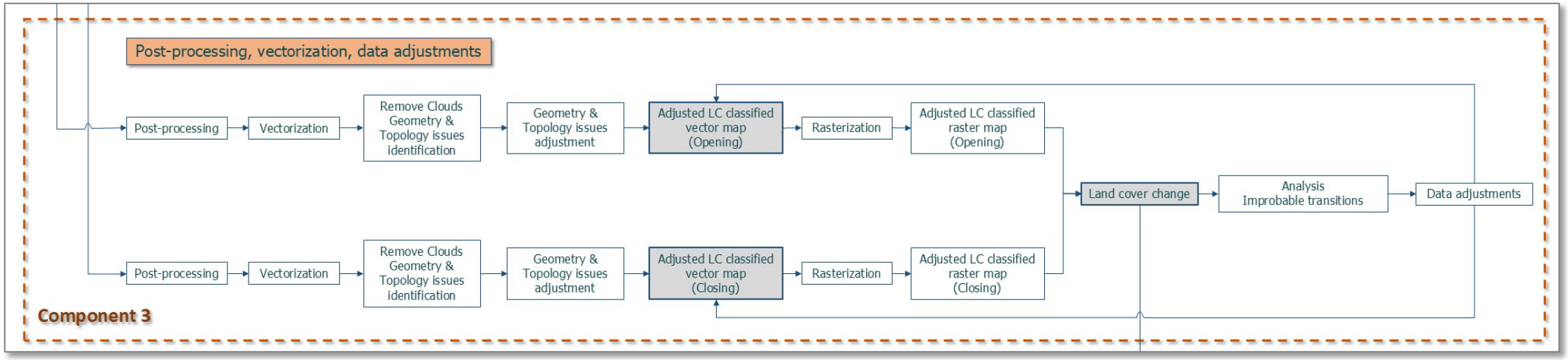
LC Change matrix 2020 -- 2023

Units: ha

	>_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	25338.3	7153.2	21.4	79.8	3.2	489.0	28.0	16.5	651.5	86.0	6.0
Open_Forest	2	5335.3	27890.3	8.1	964.2	5.4	2679.0	25.8	22.4	969.6	49.2	2.2
Mangroves	4	3.2	0.3	124.4	0.0	0.0	0.9	0.0	0.5	1.4	0.4	0.3
Agriculture	5	41.6	1328.1	12.3	3657.1	7.6	2443.7	21.2	4.8	34.7	35.4	0.1
Coconut_Plantation	6	2.3	0.6	0.0	3.4	11.3	8.6	0.0	0.0	0.0	0.0	0.0
Grassland	7	342.6	2256.5	16.8	1995.2	30.2	5579.4	315.9	38.1	182.4	195.2	1.7
Built_up_Infrastr_Settlements	8	3.7	14.8	0.0	6.0	0.0	91.9	621.4	9.0	1.3	67.0	1.1
Water_body	9	17.2	4.1	11.9	0.8	0.0	12.1	13.5	161233.4	6.9	93.8	550.6
Shrubs	10	903.1	969.6	4.1	70.2	0.4	141.2	3.2	7.6	2651.7	20.0	2.2
Bareland	11	17.6	17.0	0.6	18.8	0.6	123.1	53.8	43.2	19.3	1232.4	65.7
Reef	13	10.5	3.7	1.5	0.0	0.0	5.7	1.6	164.4	0.9	461.2	3249.7

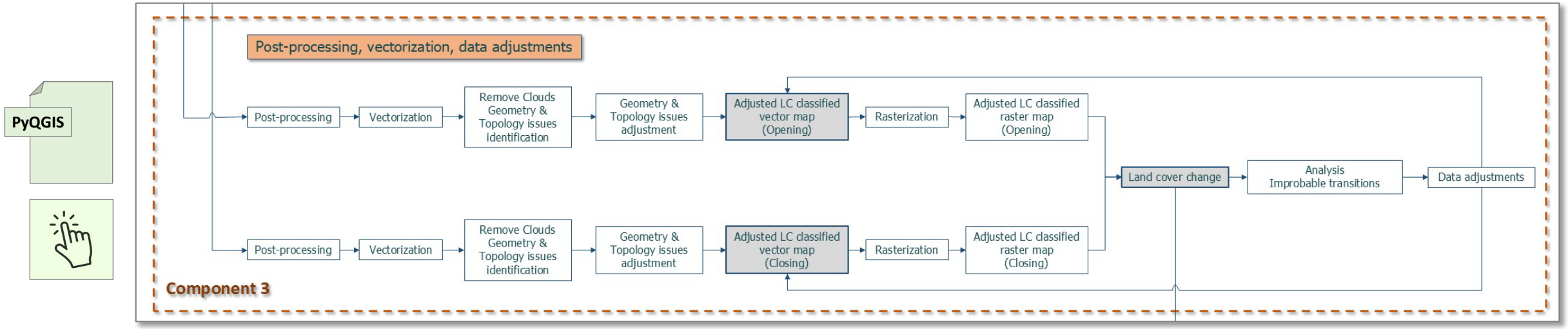
PyQGIS





Improbable transitions

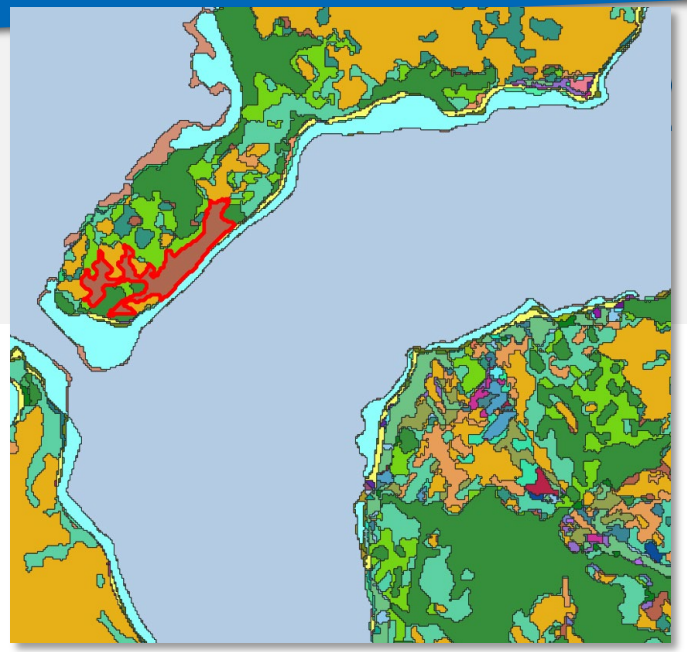
LCcode_FROM	LCdesc_FROM	LCcode_TO	LCdesc_TO	ImpTrans (group discussion April 3, 2
1	Dense_Forest	1	Dense_Forest	
1	Dense_Forest	2	Open_Forest	
1	Dense_Forest	3	Forest_plantation	
1	Dense_Forest	4	Mangroves	1
1	Dense_Forest	5	Agriculture	
1	Dense_Forest	6	Coconut_Plantation	
1	Dense_Forest	7	Grassland	
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	

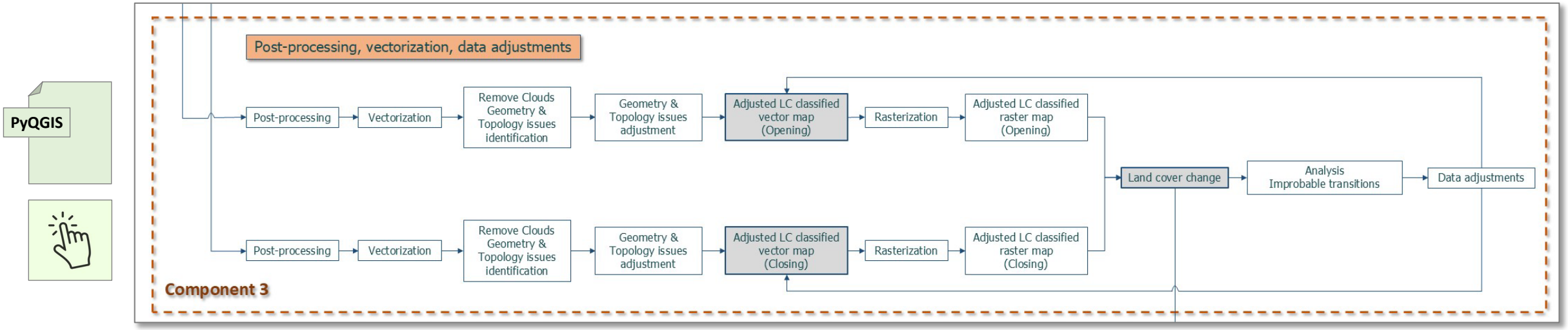


Improbable transitions

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	





Land account

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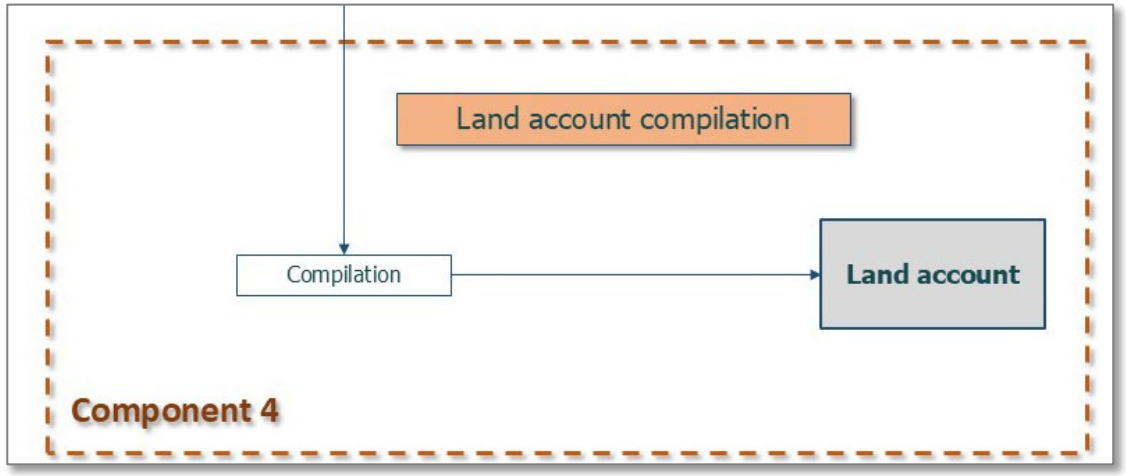

Focus

- Refinement of ROIs
- Improvement of input for RF model training
- Improbable transition analysis and potential adjustment of LC base data

- Compilation of SEEA Land accounts at National level
- Disaggregation at the Area Council level