

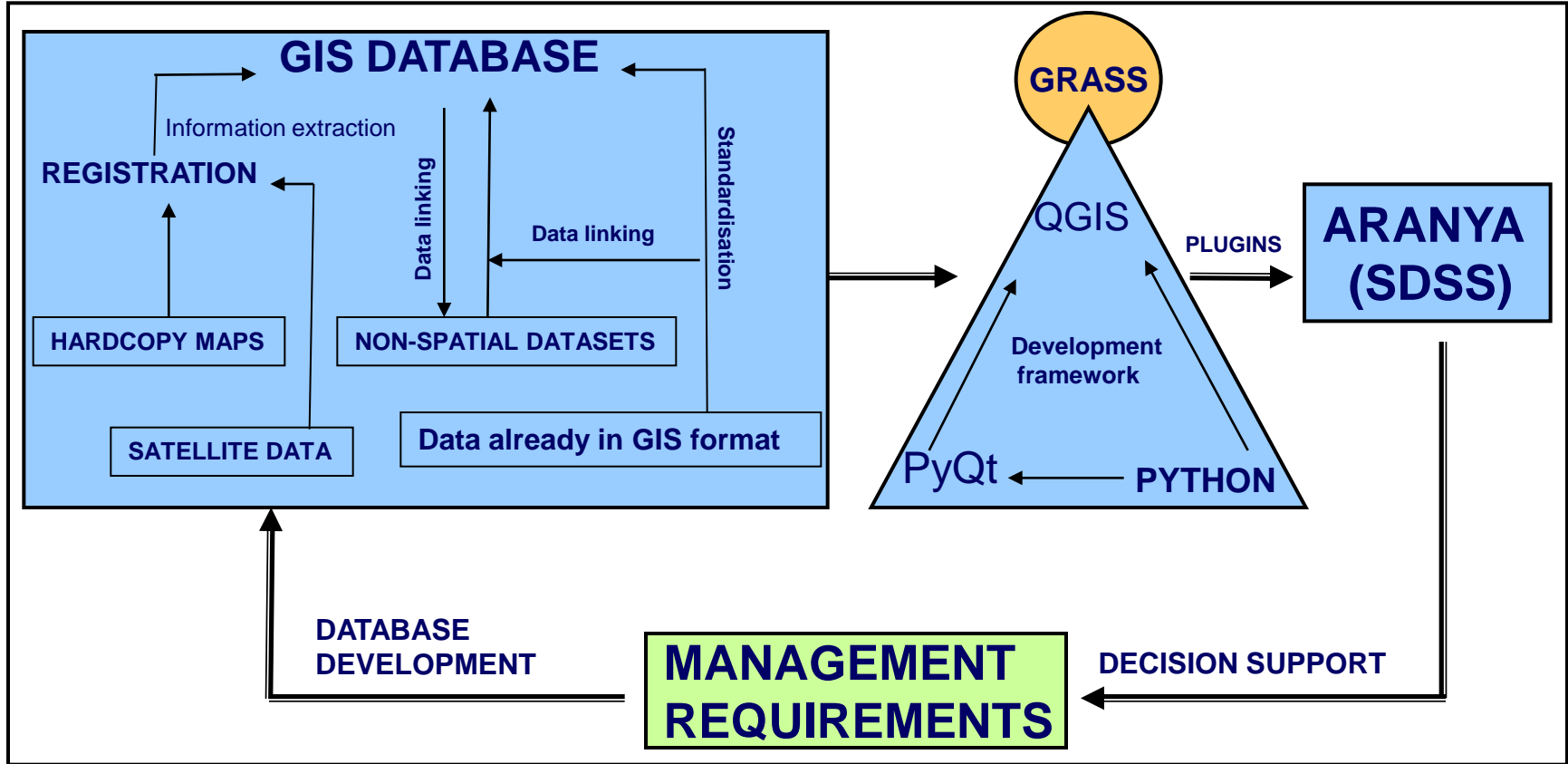
# **COMPREHENSIVE SPATIAL DECISION SUPPORT SYSTEM (SDSS) FOR FOREST MANAGEMENT**

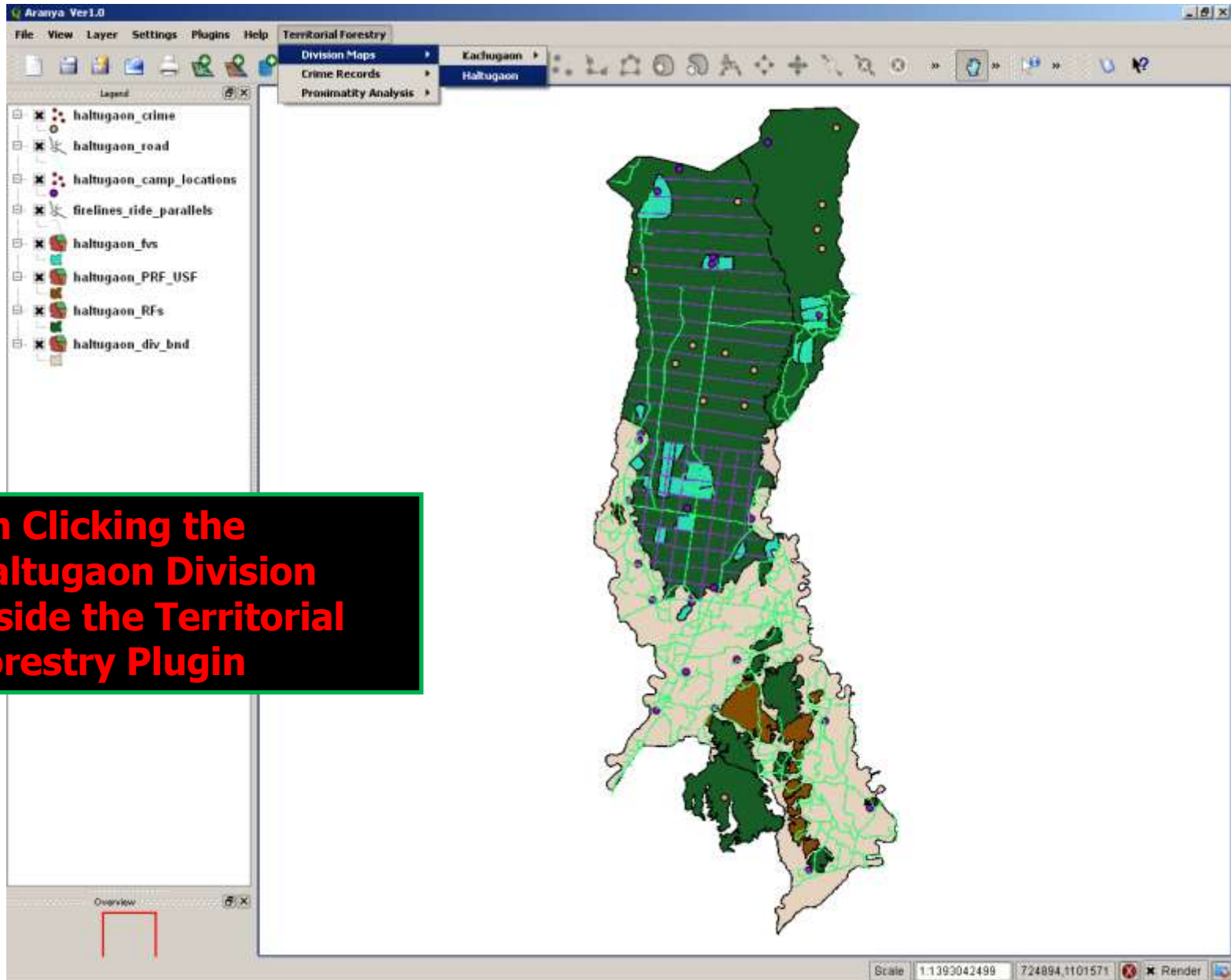
**Manish P. Kale, Bishwarup Banerjee, Nikhil Lele and Sandeep K. Srivastava,  
Centre for Development of Advanced Computing (C-DAC), Pune, INDIA**



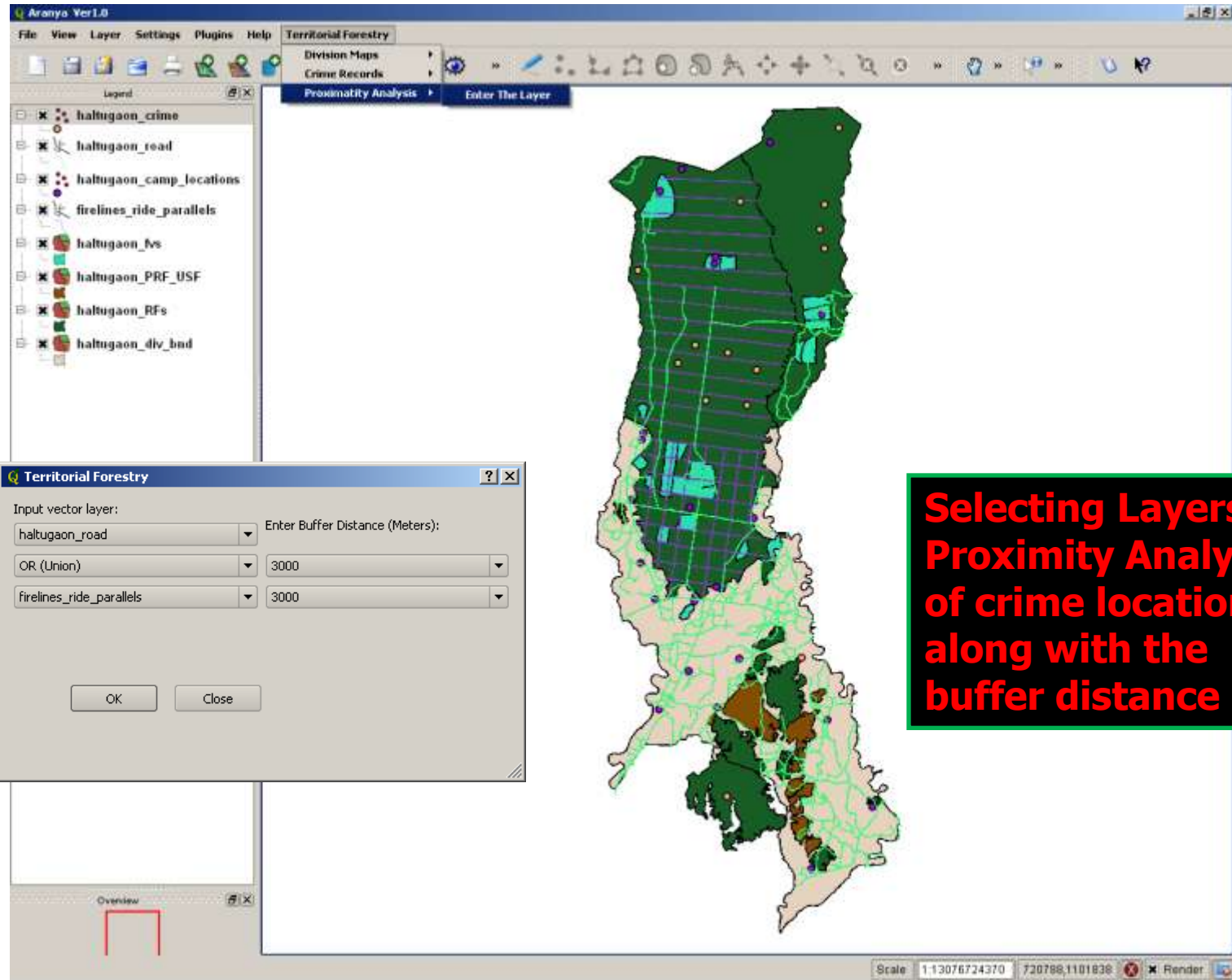
# RATIONALE

- **Databases are scattered and in different formats**
- **Spatial analysis is necessary for objective decision making**
- **Management Information Systems (MIS) are generally non spatial in nature**
- **Maps are worth thousand words**
- **SDSS introduces transparency and accountability in the system**

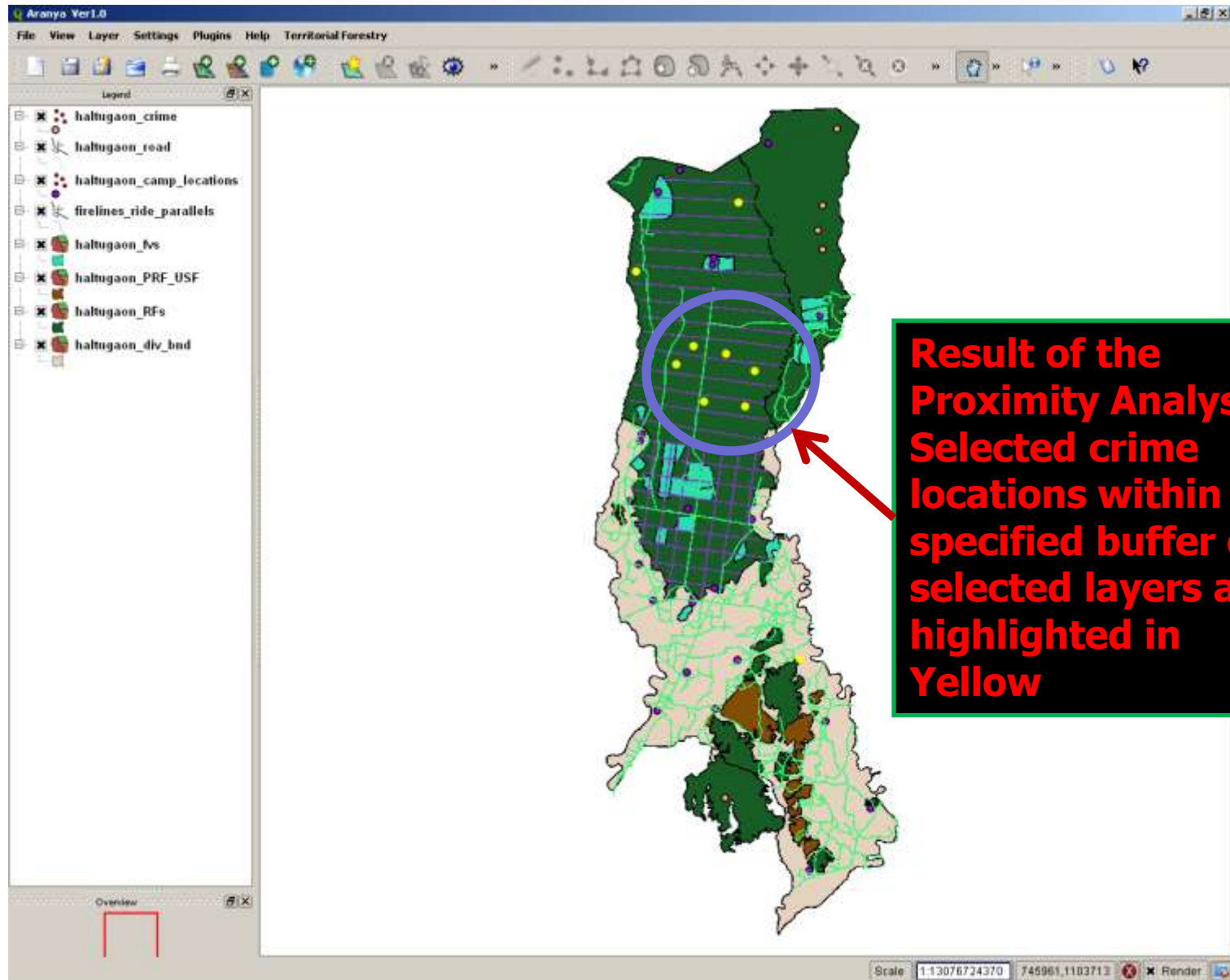


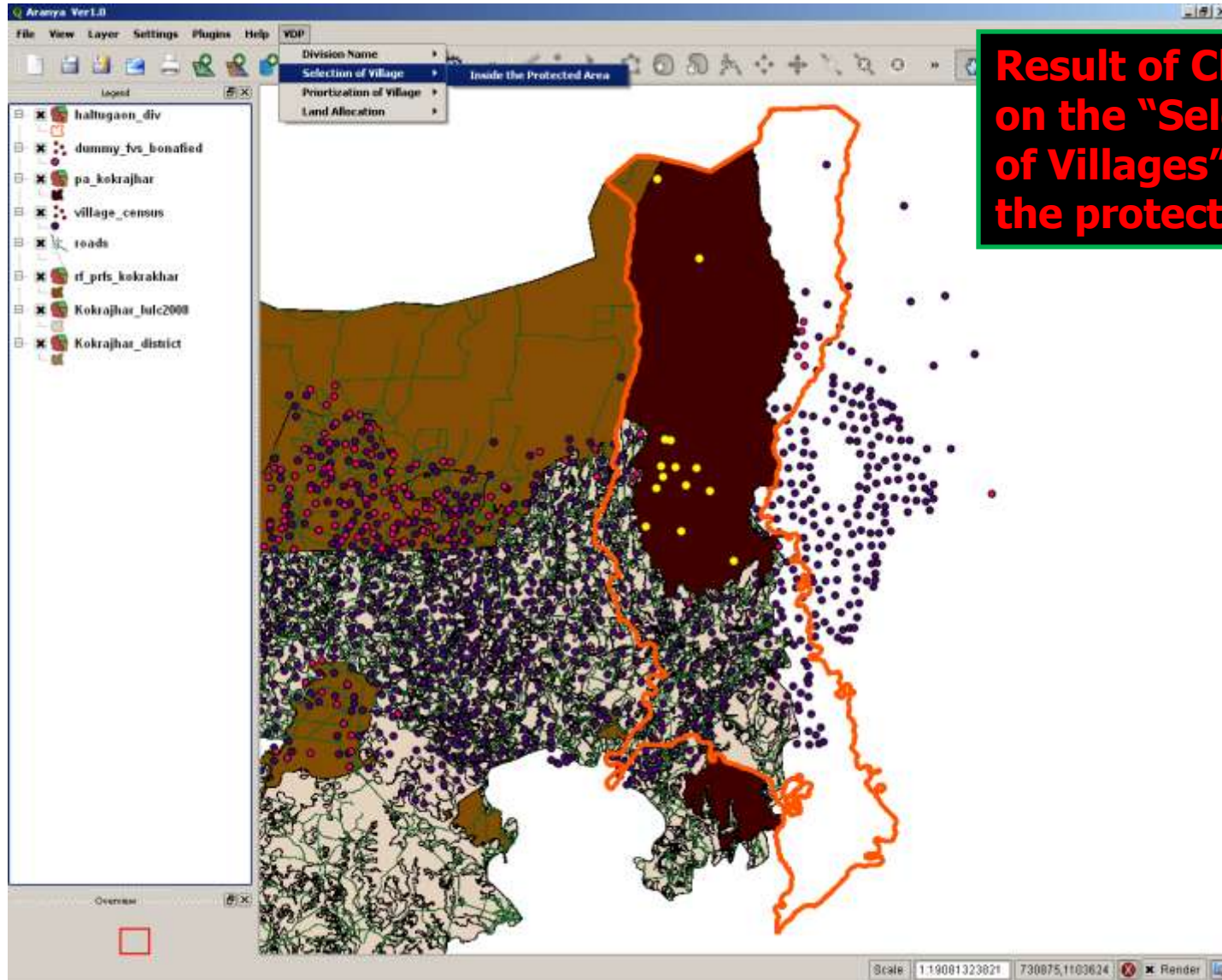


**On Clicking the  
Haltugaon Division  
inside the Territorial  
Forestry Plugin**

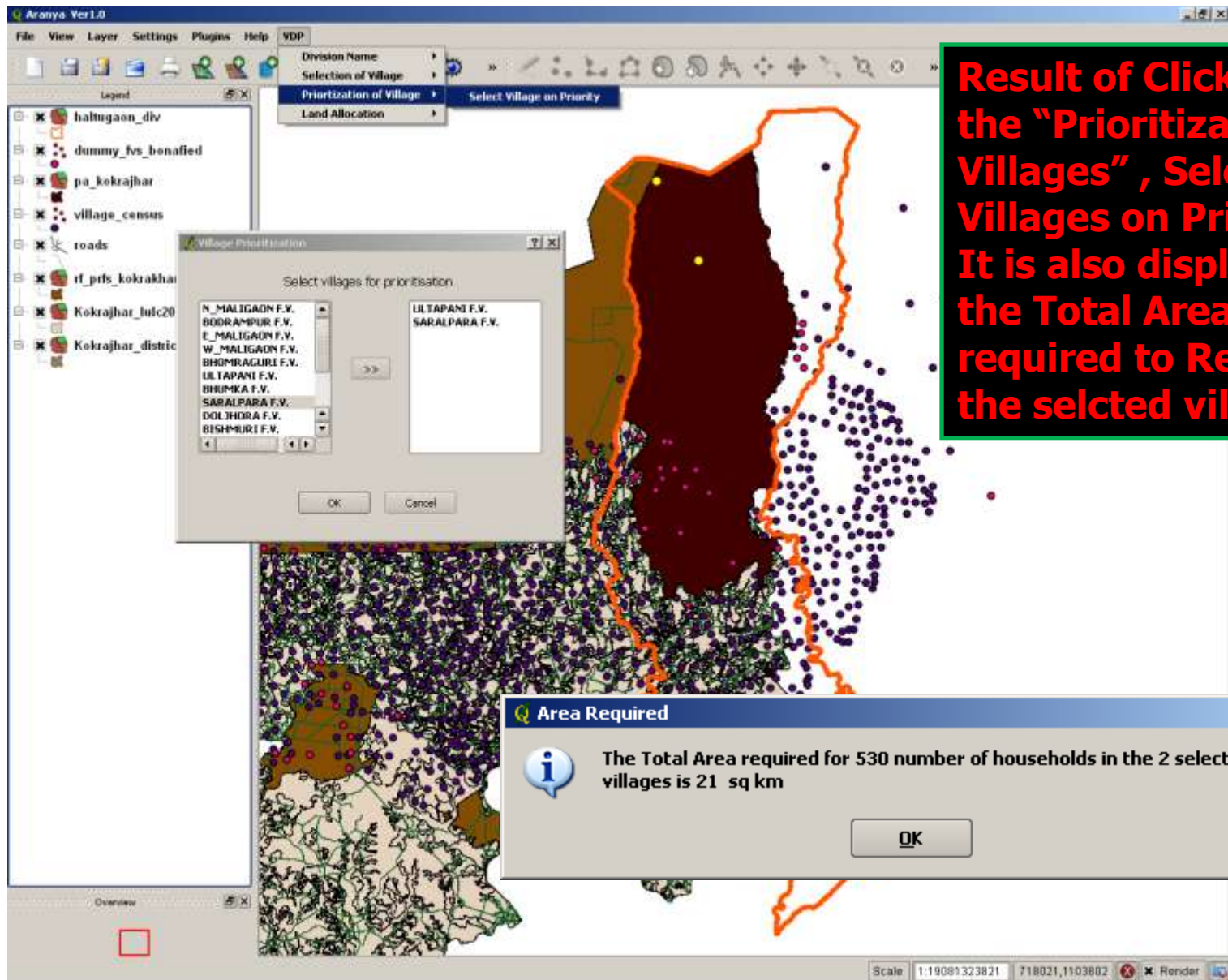


**Selecting Layers for Proximity Analysis of crime locations, along with the buffer distance**





**Result of Clicking on the "Selection of Villages" Inside the protected area**



**Result of Clicking on the "Prioritization of Villages", Selecting Villages on Priority. It is also displaying the Total Area required to Relocate the selcted villages**

Aranya Ver 1.0

File View Layer Settings Plugins Help VDP

Division Name  
Selection of Village  
Prioritization of Village  
Land Allocation Selection Criteria

Legend

- haltugaon\_div
- dummy\_tvs\_bonafied
- pa\_kokrajhar
- village\_census
- roads
- rf\_pfts\_kokrajhar
- Kokrajhar\_Intc2008

Land Allocation Criteria

FACILITIES LAND USE SLOPE Ground Water Potential

BUFFER DISTANCE (M)

- MEDICAL RANG\_ALL 3000
- EDUCATION EDU\_FAC
- BANK RANG\_COMM 3000

OK Cancel

Land Allocation Criteria

FACILITIES LAND USE SLOPE Ground Water Potential

Select code

- LAND USE 030400

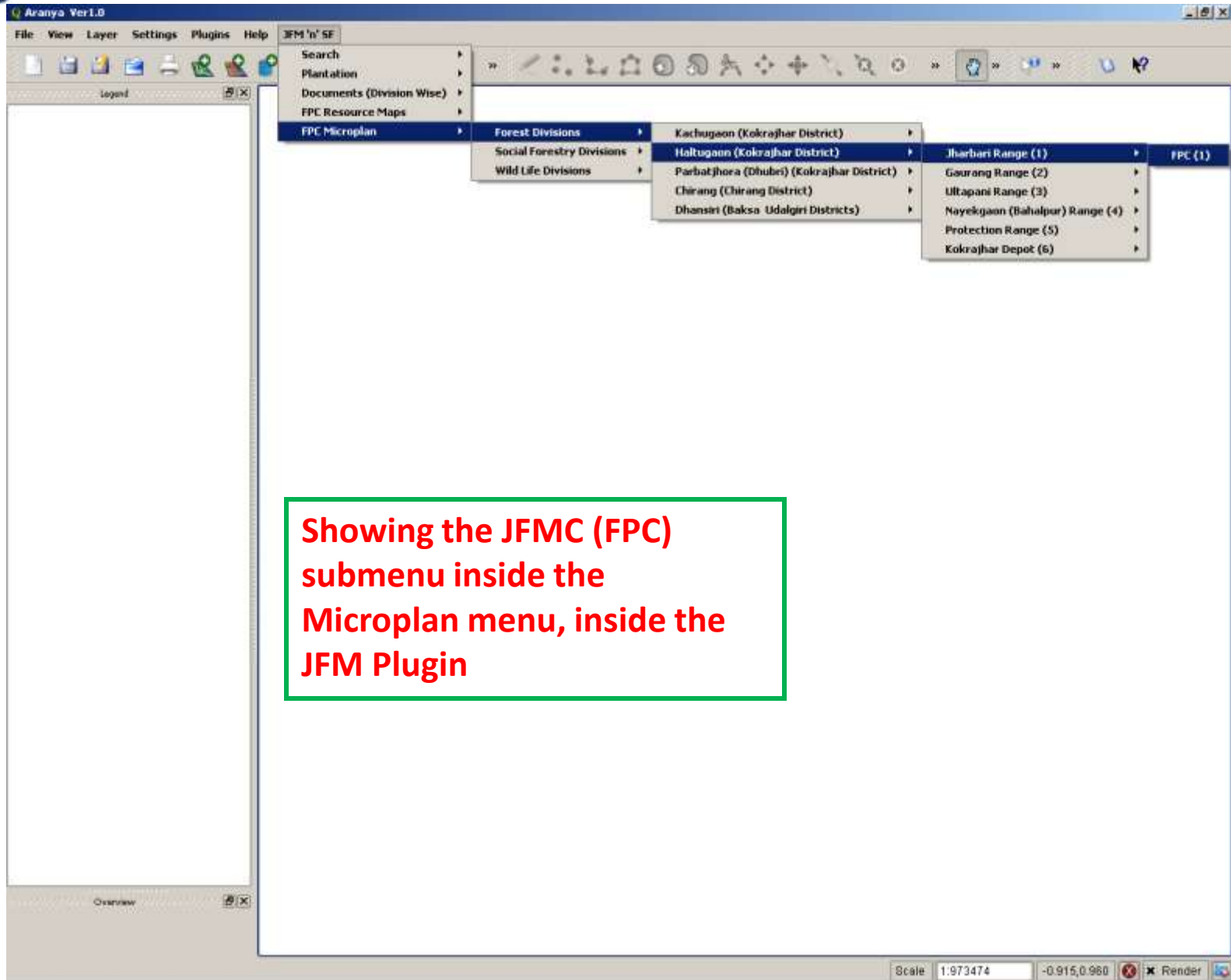
OK Cancel

Scale 1:19081323821 723466,1101749 Render

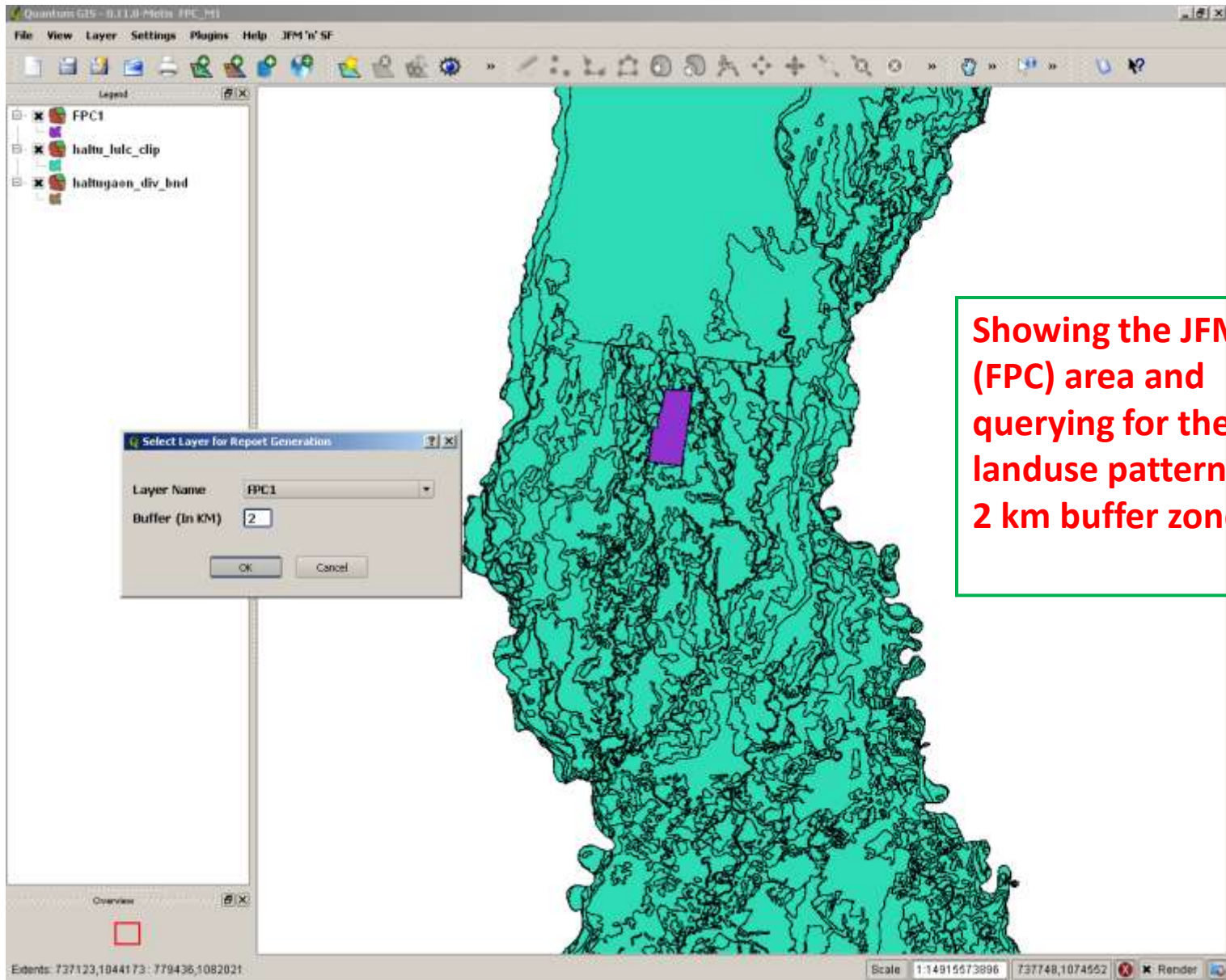
Land Allocation Criteria is being given

The screenshot displays the Aranya Ver1.0 GIS interface. The main map shows a land allocation for the Kokrajhar district, with a large brown area and several yellow patches. A dialog box titled "Land Allocation" is open, displaying the message: "The Total Area available for relocation is 24.695108 sq km". The dialog box has an information icon and an "OK" button. The software's legend on the left lists layers: Final, pa\_kokrajhar, village\_census, dummy\_fvs\_bonafied, Kokrajhar\_district, Kokrajhar\_lulc2008, and roads. The status bar at the bottom shows a scale of 1:26625785701 and a coordinate of 714024,1099869. A red box in the bottom left corner highlights the "Overview" window.

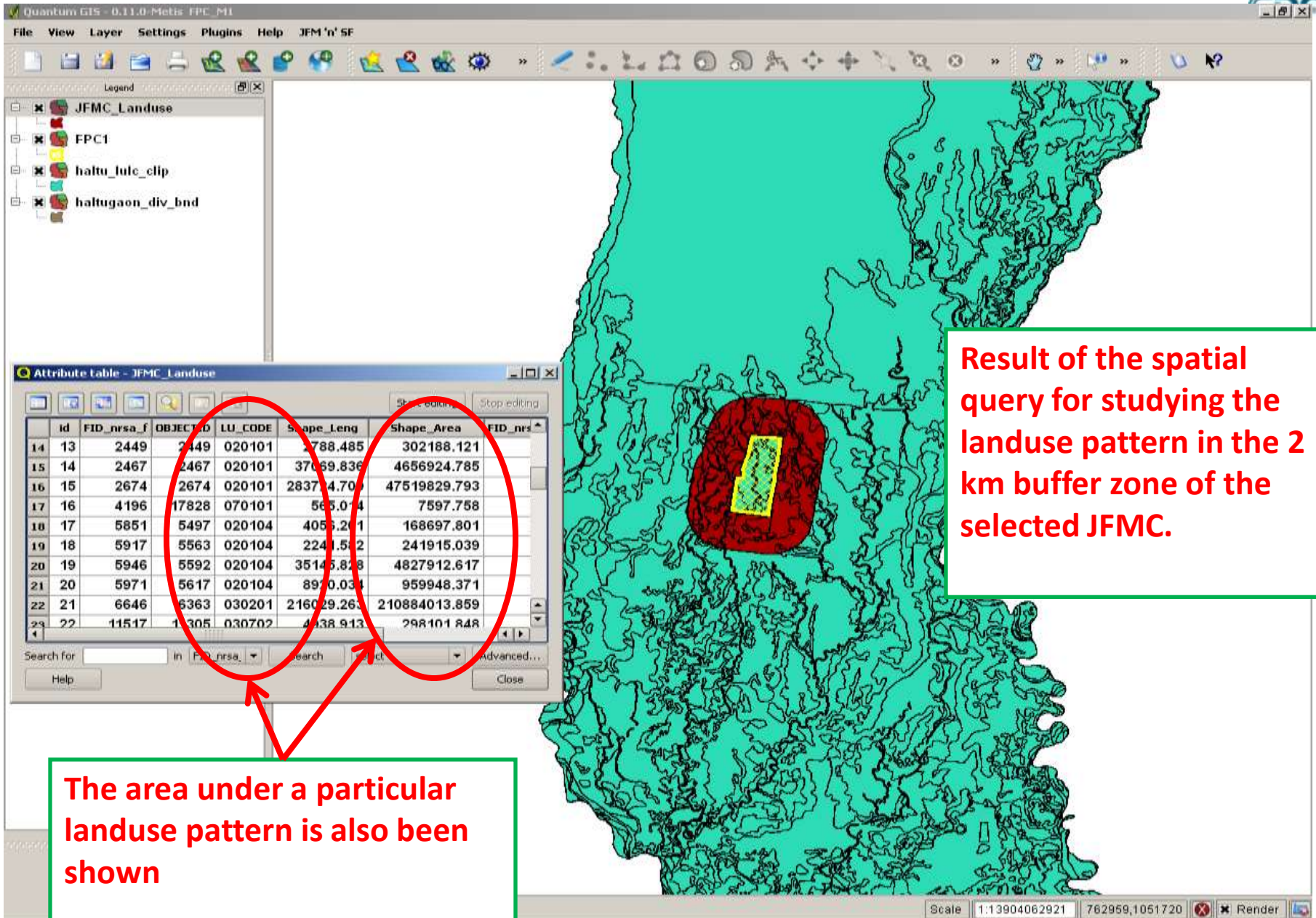
**Total Land that can be allocated on the basis of the criteria provided is being displayed along with the area.**



**Showing the JFMC (FPC) submenu inside the Microplan menu, inside the JFM Plugin**

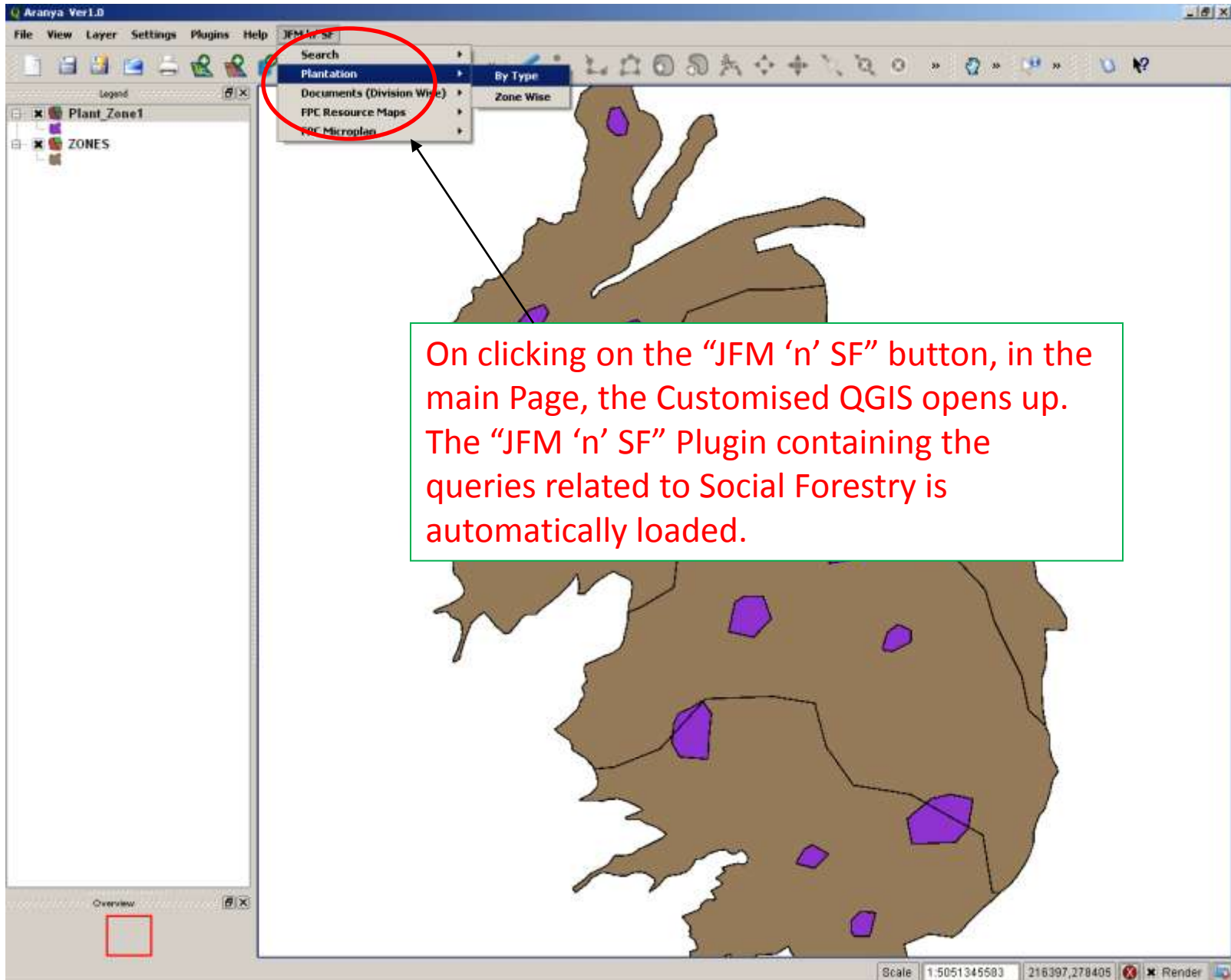


**Showing the JFMC (FPC) area and querying for the landuse pattern around 2 km buffer zone**

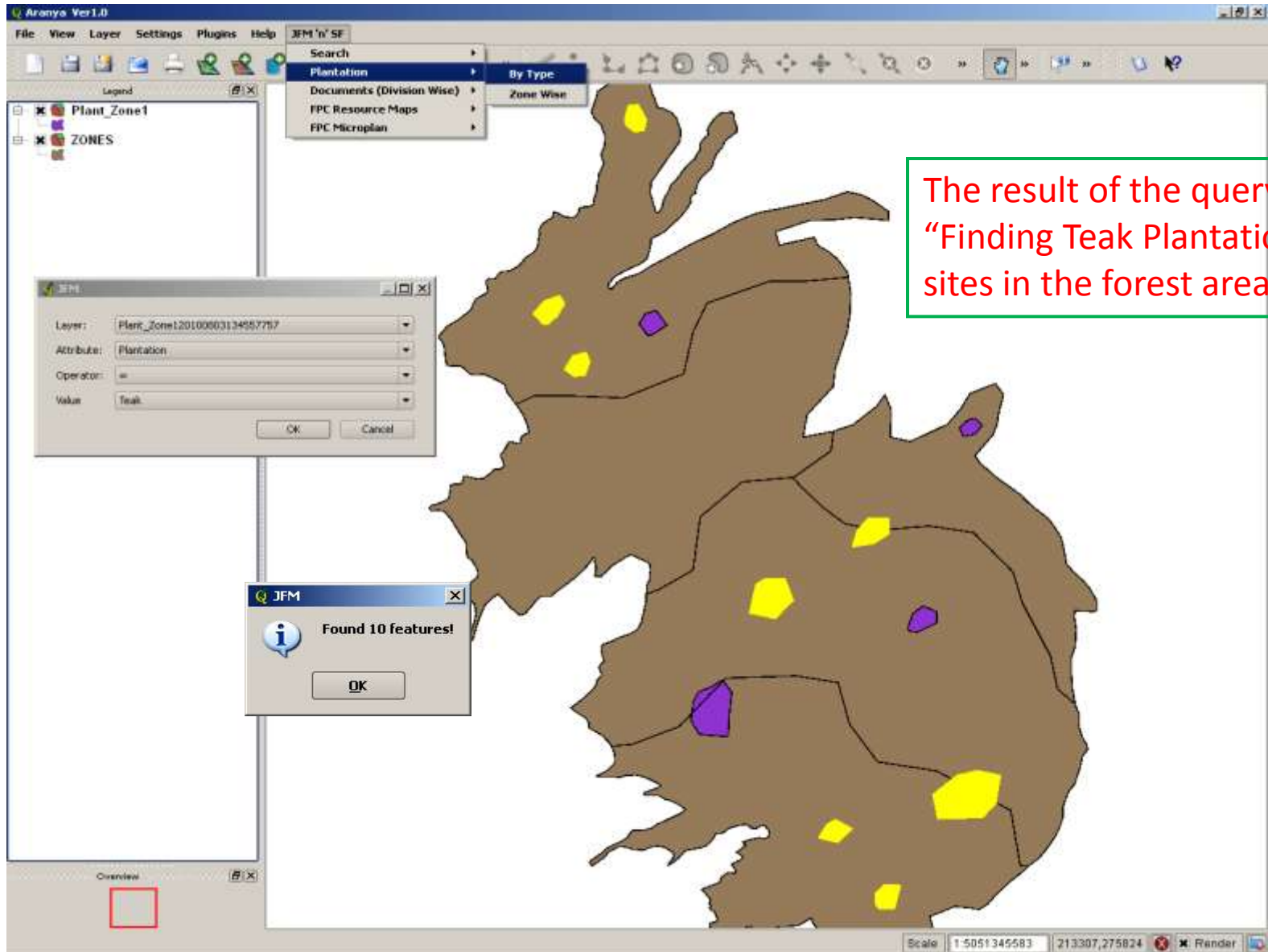


**Result of the spatial query for studying the landuse pattern in the 2 km buffer zone of the selected JFMC.**

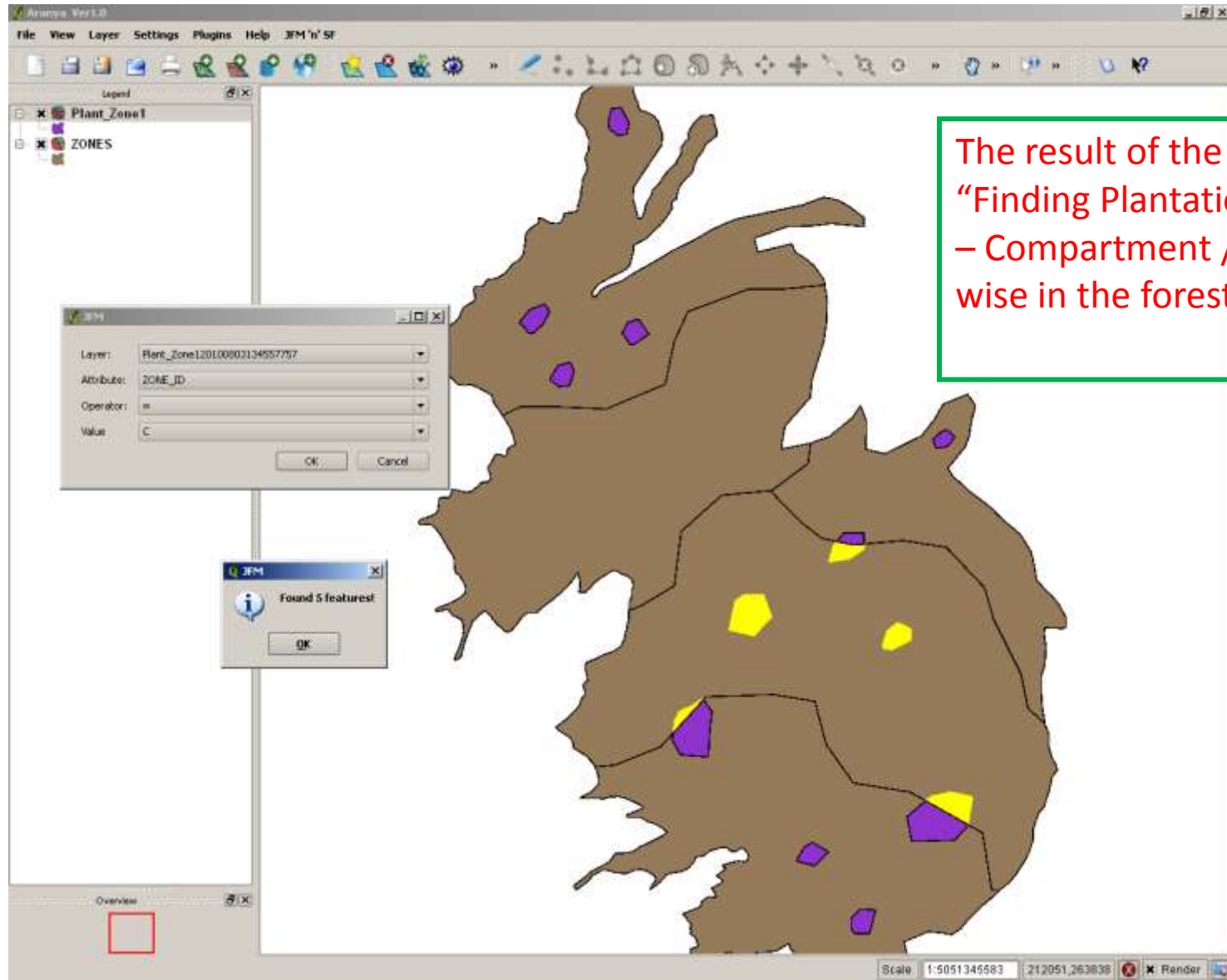
**The area under a particular landuse pattern is also been shown**



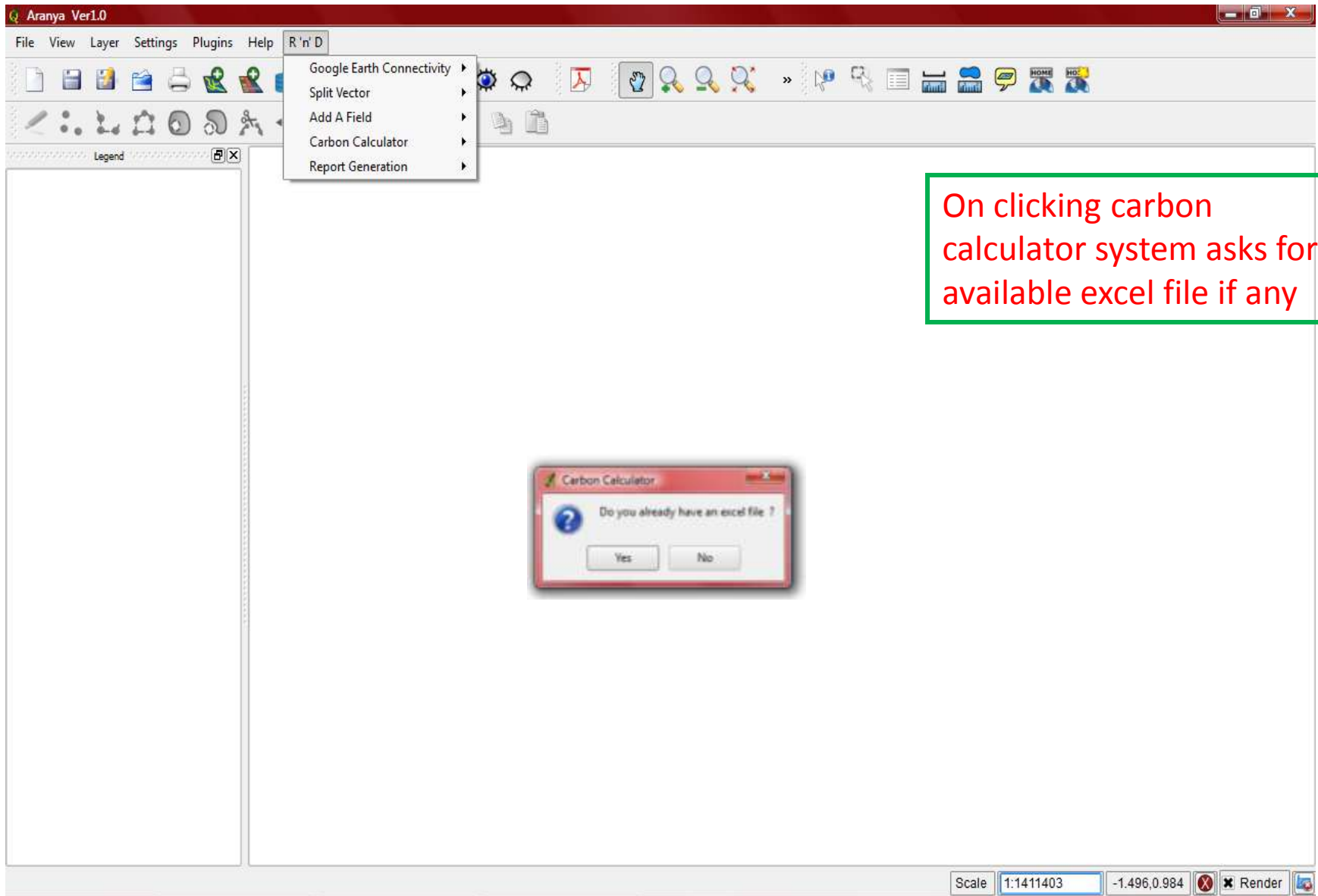
On clicking on the “JFM ‘n’ SF” button, in the main Page, the Customised QGIS opens up. The “JFM ‘n’ SF” Plugin containing the queries related to Social Forestry is automatically loaded.



The result of the query  
“Finding Teak Plantation  
sites in the forest area”.



The result of the query  
“Finding Plantation sites  
– Compartment / Zone  
wise in the forest area”.



On clicking carbon calculator system asks for available excel file if any

Aranya Ver1.0

File View Layer Settings Plugins Help R 'n' D

Legend

Number of Layers

Species Name **Bombax ceiba L.**

Enter Height (in m) 12

Enter Girth (in cm) 60

Add OK Cancel

Scale 1:1411403 1.605,-0.569 Render

Aranya Ver1.0

File View Layer Settings Plugins Help R'n'D

Legend

Number of Layers

RnD

**i** The Total Carbon from this Albizia procera (Roxb.) Benth. for this plot is 224.569020 kg  
The Total Carbon from this Bombax ceiba L. for this plot is 33.792964 kg  
The Total Carbon from this Careya arborea Roxb. for this plot is 44.515644 kg

Total carbon from this plot is 302.877628 kg

OK

Scale 1:1411403 -0.538,-0.248 Render

# Benefits of Spatial Decision Support system

- The data is available in GIS format at the level of division
- Facilitates decision making based on specific GIS analysis
- Helpful in land allocation planning
- Makes the system accountable and transparent



**THANKS**