

SOLARIS

Arunachal Pradesh Space Applications Centre (APSAC), in collaboration with Remote Sensing Instruments LLP, Hyderabad, has developed a Remote Sensing based field level **Soil & Land Resource Information System (SOLARIS)**, exclusively for the benefit of the farmers of Tawang, Namsai and Lower Subansiri Districts on a Pilot basis, to provide the advisory on Crop Suitability, Site and Crop Specific Nutrient Recommendation and Soil and Water Conservation Measures. This information will be also be useful to the Policy Makers, Planners and Administrators.

This User guide provides the details on the workflows to enable the user to work on the application to visualise the results online.

HOME PAGE – DASH BOARD

- On Left side on Dashboard user can view information about project.
- Users can view information about NRIMAPs by district on this page.

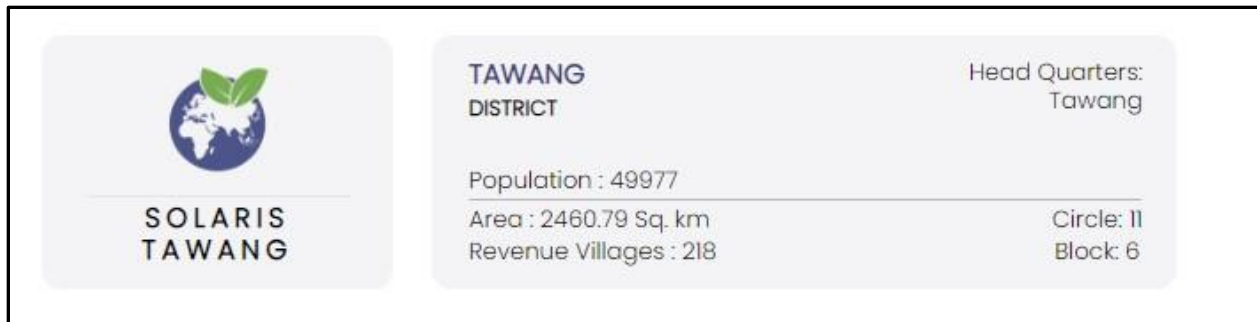
SOIL AND LAND RESOURCE INFORMATION SYSTEM
Natural Resources Inventory for Micro-Level Agricultural Planning (NRIMAP)

Arunachal Pradesh, the largest hilly state of the North Eastern area of India has a geographical area of 83,743 sq.km ranging between 26° 28' to 29° 28' N and 91° 35' to 97° 27' E, is bestowed with exclusive physiographic conditions and an abundance of plant genetic variation. It has large climatic variations including sub-tropical to temperate and alpine. Thus, the state possesses the inherent potential to promote the cultivation largely due to the availability of large areas with a temperate climate. The State is an agrarian where more than 70 percent population is dependent on agriculture for their livelihood. The State is gifted with enormous natural resources and suitable agro-climatic zones. Arunachal Pradesh Space Applications Centre (APSAC), Itanagar, Arunachal Pradesh is the nodal agency for all Remote Sensing and GIS Applications in the State. Realizing the importance on proper agricultural practices and the geographic setting of Arunachal Pradesh, APSAC has initiated to generate a comprehensive resource atlas on 1:50,000 scale and develop the action plans for micro level agricultural planning and also sustainable action plans for land and water resources management in the State. The project namely "Natural Resources Inventory for Micro-level Agricultural Planning (NRIMAP)" aims at identifying suitable areas for various staple and commercial crops based on soil resources inventory. Further, based on field observations and scientific analysis, local specific resource action plans are developed for sustainable development of the land and water resources. A holistic WebGIS and Mobile application is developed as part of NRIMAP for providing the geo-tagged information to Planners and cultivators, thus providing the experience of sharing information in Geo-spatial Context.

NAMSAI DISTRICT		Head Quarters: Namsai
Population: 95950	Area: 160.22 Sq. km	Circle: 5
Revenue Villages: 178		Block: 3

Base Map, Land Use Land Cover, Slope Information, Hydrogeo-Morphology, Soil Information, Land Degradation, Land Capability, Land Irrigability, Action Plan, Crop Suitability

- On Dashboard in between districts and information map buttons there is one table showing the details of selected district.



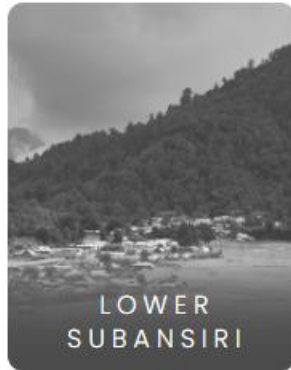
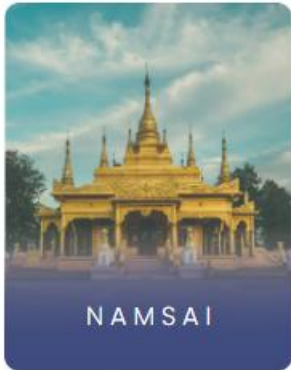
SECTION – 1

Districts

- The user can choose specific district NRIMAPs and district-related maps.
- Example: A user can navigate to the Namsai NRIMAP page by clicking the **Namsai** button.
- Under District Boxes user find two boxes *on click* first box *navigate* to District integrated Map and other box will show district details.
- Under the district's details box, users can view Namsai district information maps.

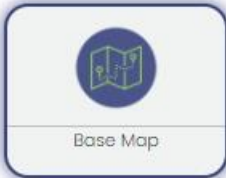


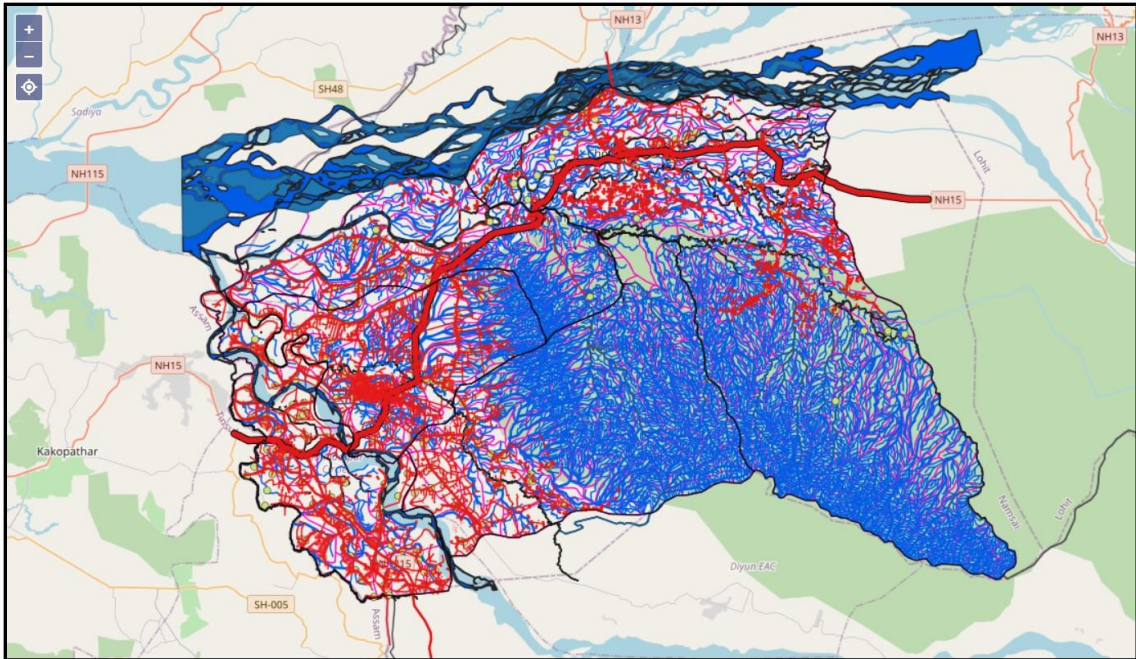
- The user can also choose specific information map
- Example A user can *navigate* to Base Map page on clicking on Base Map button



NAMSAI DISTRICT Head Quarters: Namsai

Population : 95950 Circle: 5
Area : 1160.22 Sq. km Block: 3
Revenue Villages : 178





- Left Sidebar


SOLARIS AR

NAMSAI DISTRICT

GridNo
Village
Watershed

LAYER CONTROL

- Grid
- Circle
- Namsai Base
- Drainage Line
- Drainage Poly
- Watershed

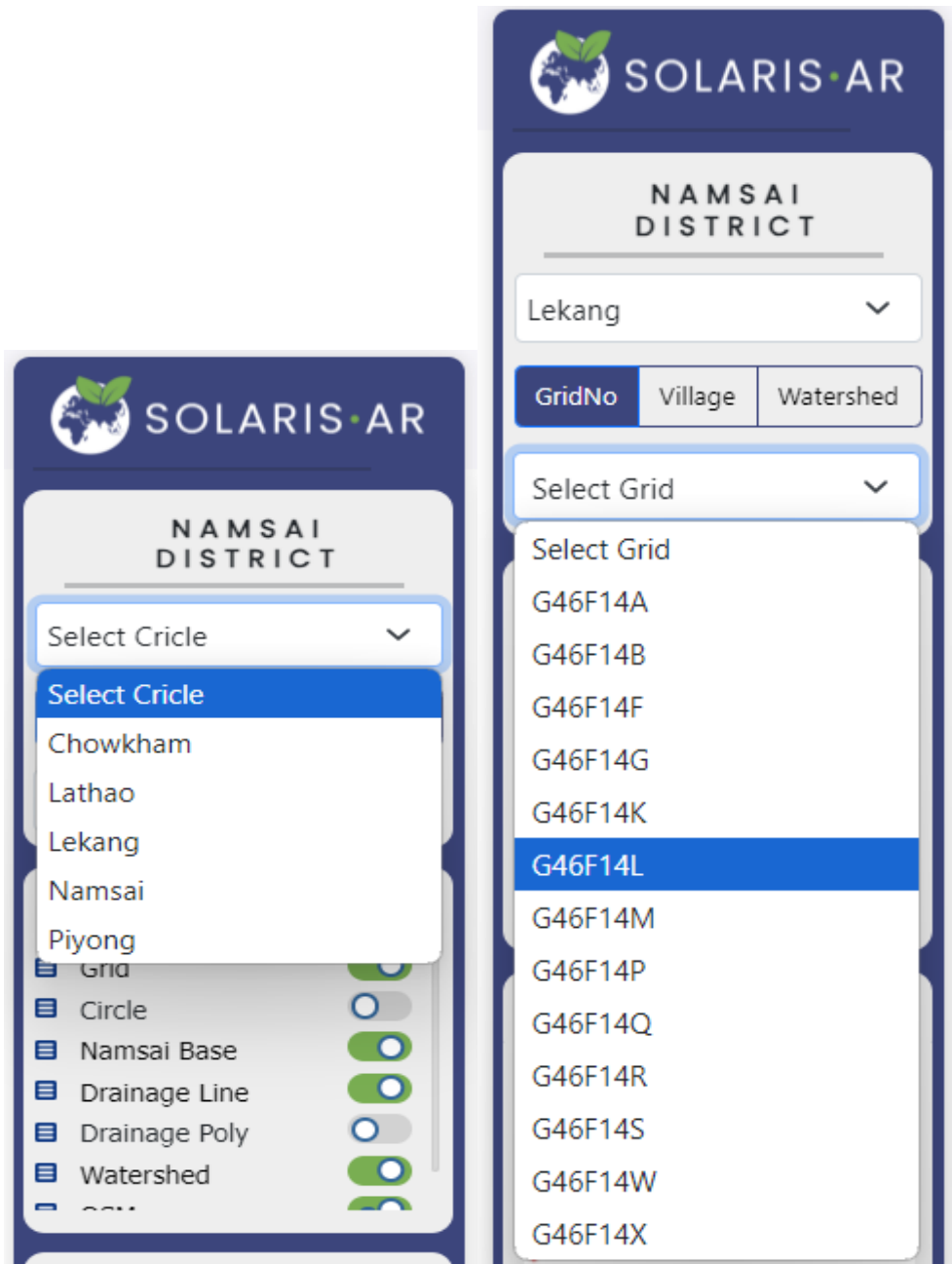
LEGEND

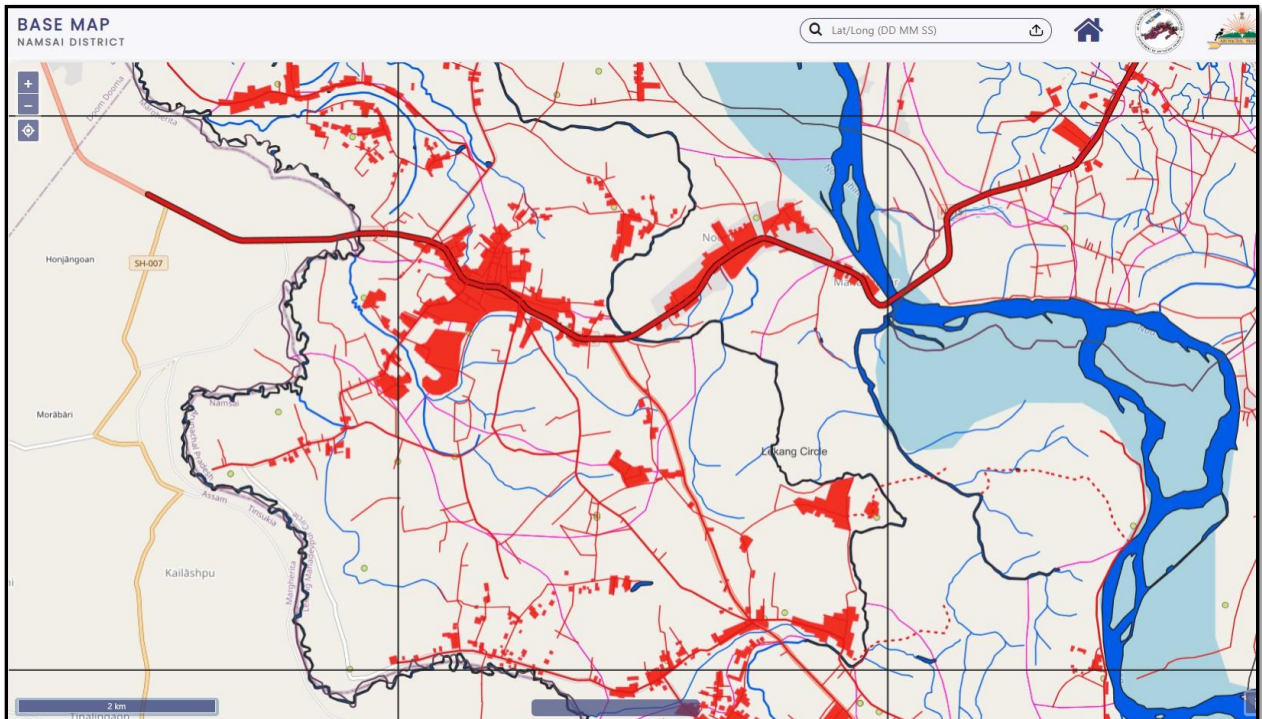
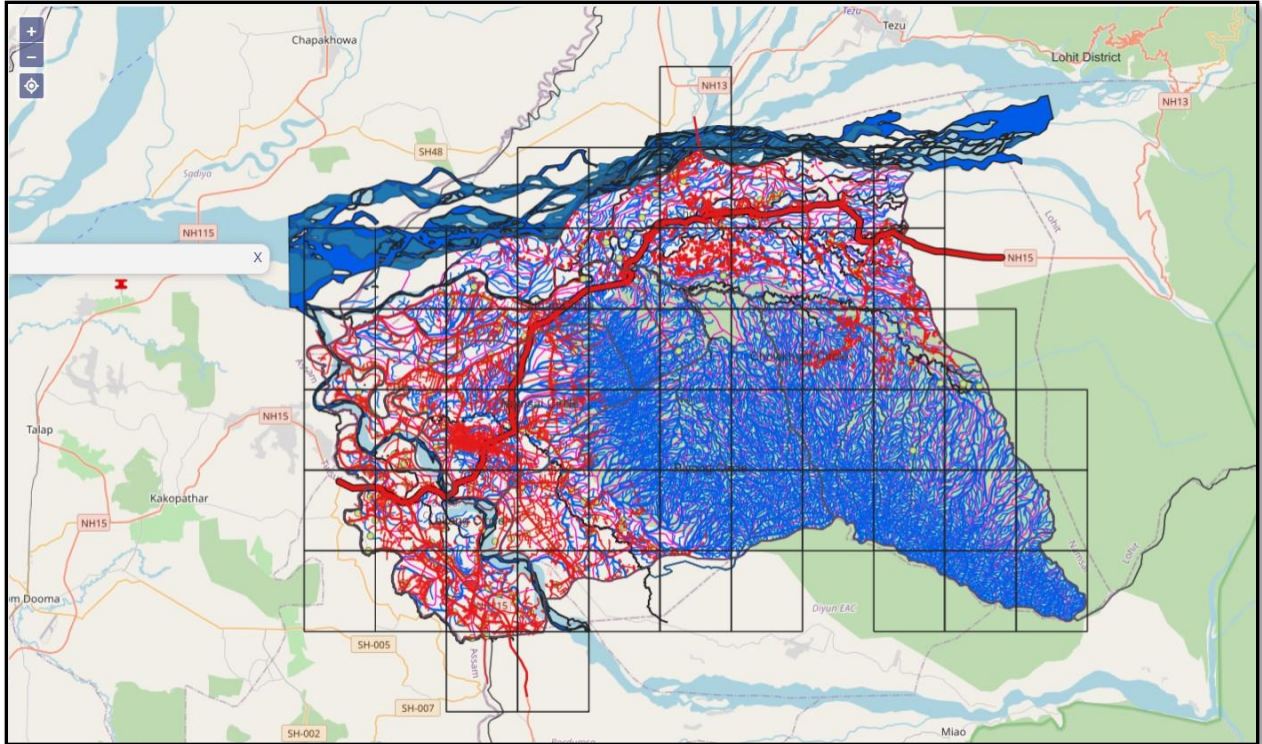
namsai_settlement_point
● Single symbol

namsai_settlement_poly
■ Settlement

namsai_road
■ name is "

- Circle and Grid Selection Dropdown Menu
- A Circle drop-down menu allows user to select a Circle and its related grids to *Navigate* to the information about the selected area directly.
- **Example:** By selecting Lekang circle and specific grid number in the drop-down menu, the map will automatically zoom into the selected area.





- Layer Control dropdown menu

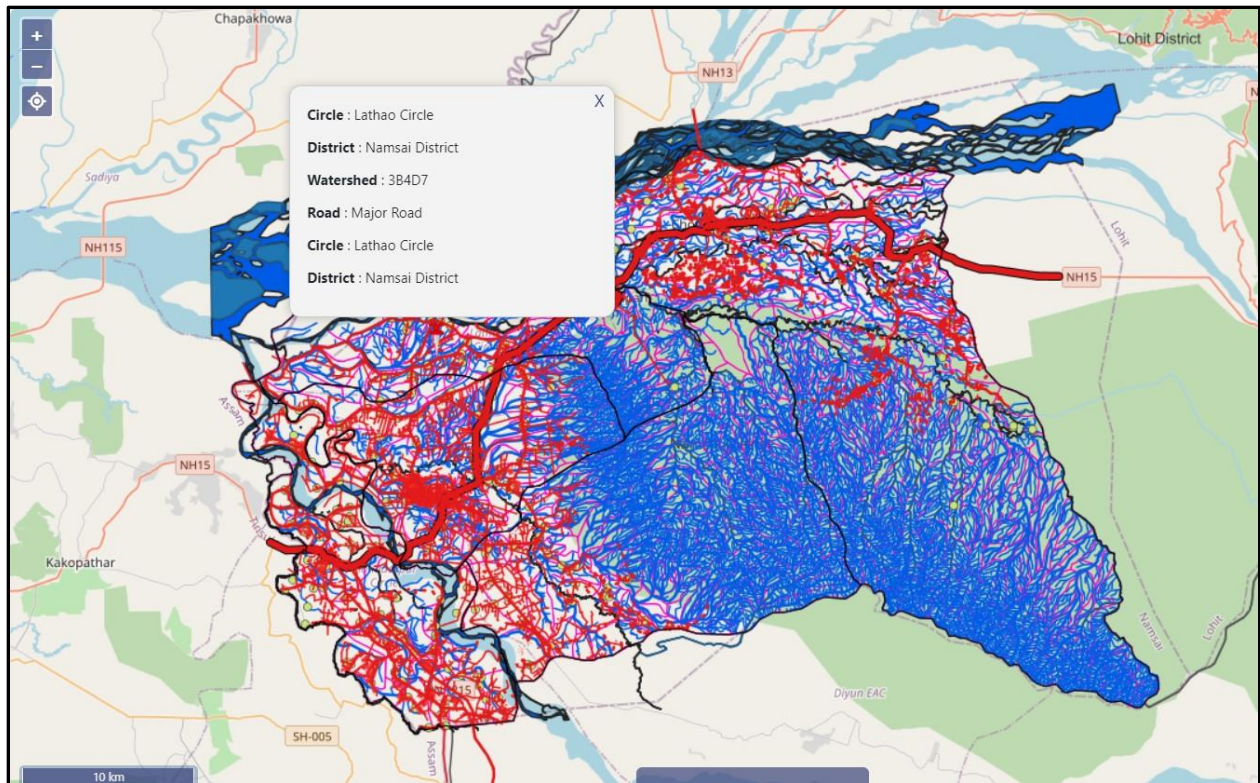
- The Layer Control drop-down menu is useful for selecting specific layers in map. Check boxes can be used to see a specific layers by checking or unchecking them.



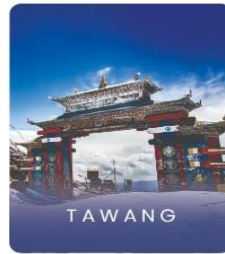
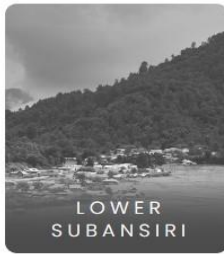
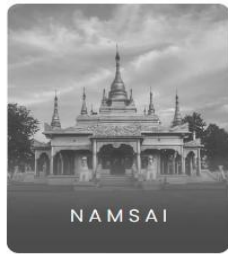
- The Legend button is useful to see the legend of the specific selected map.



- An attribute pop-up window appears when the user clicks on a map.



- To *Navigate* to Tawang District Soil Map
- User after selecting Tawang District button, click on Soil information button

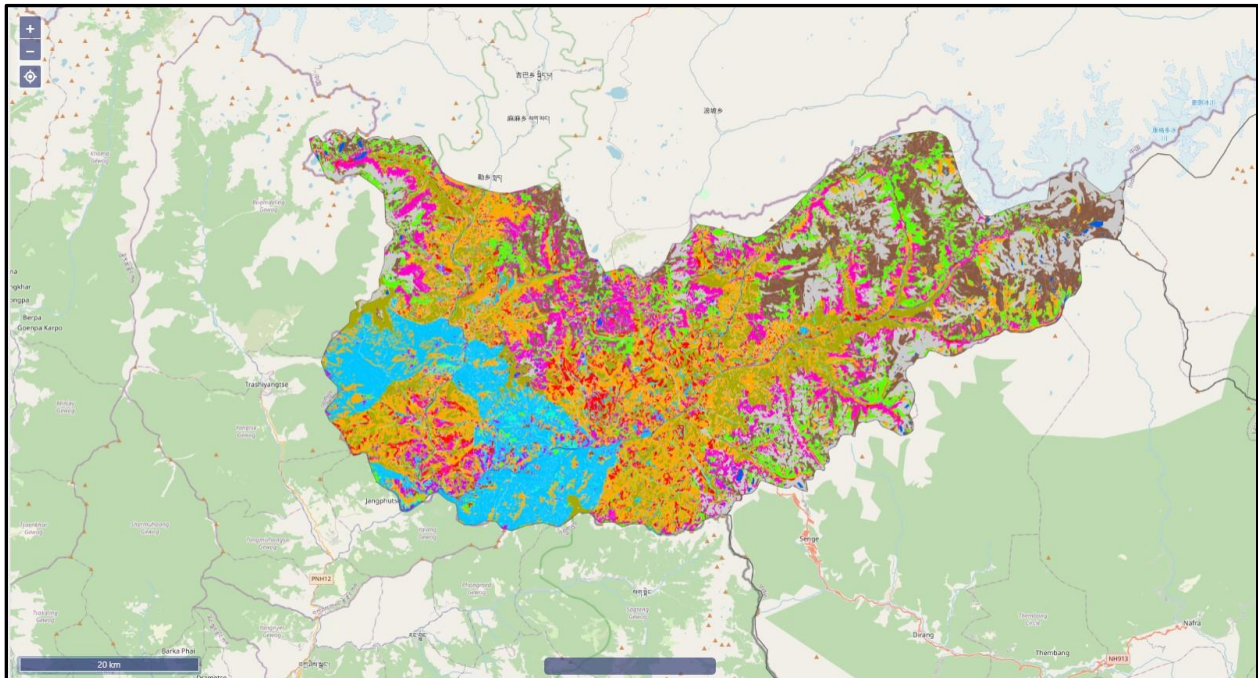


TAWANG
DISTRICT

Head Quarters:
Tawang

Population : 49977
Area : 2460.79 Sq. km
Revenue Villages : 218

Circle: II
Block: 6



- Left Sidebar

SOLARIS AR

TAWANG DISTRICT

Thingbu

GridNo | Village | Watershed

G46B140

LAYER CONTROL

- Grid
- Circle
- Base Map
- Drainage Line
- Drainage Poly
- Watershed

LEGEND

- Barren land
- Barren Rocky
- BGR1431e3
- BGR2342e2
- BLM344e2
- BMS244e2

egend

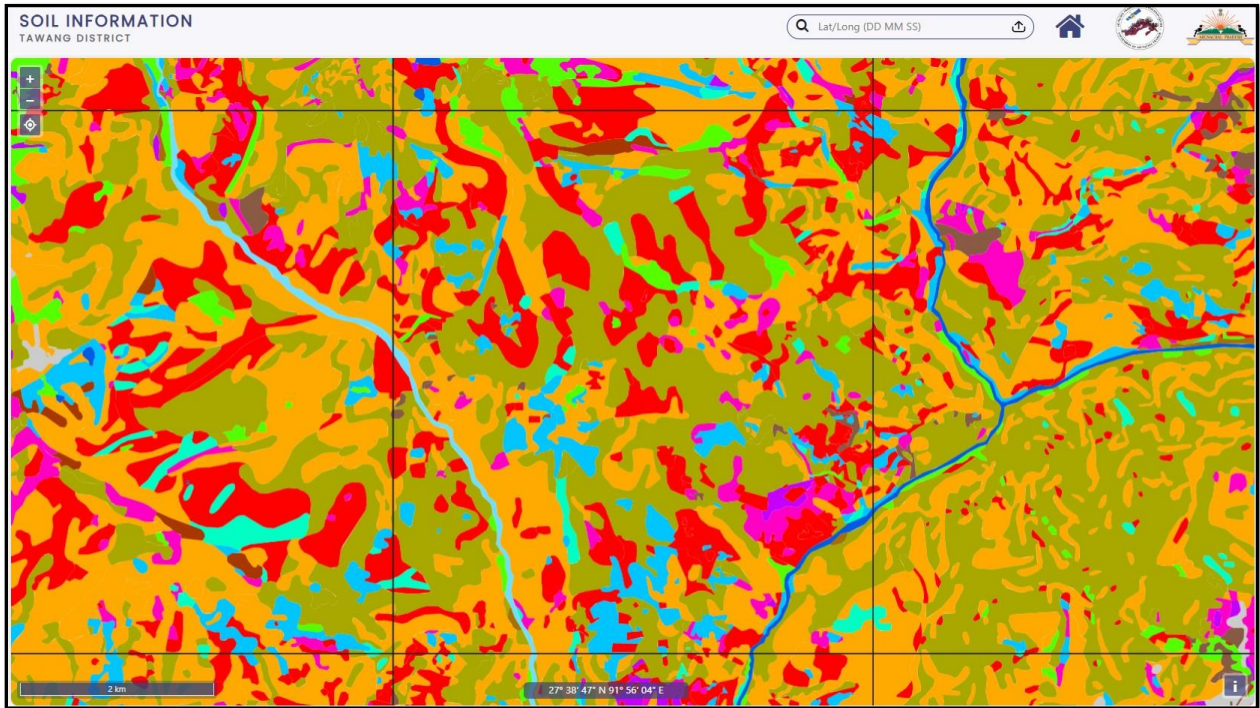
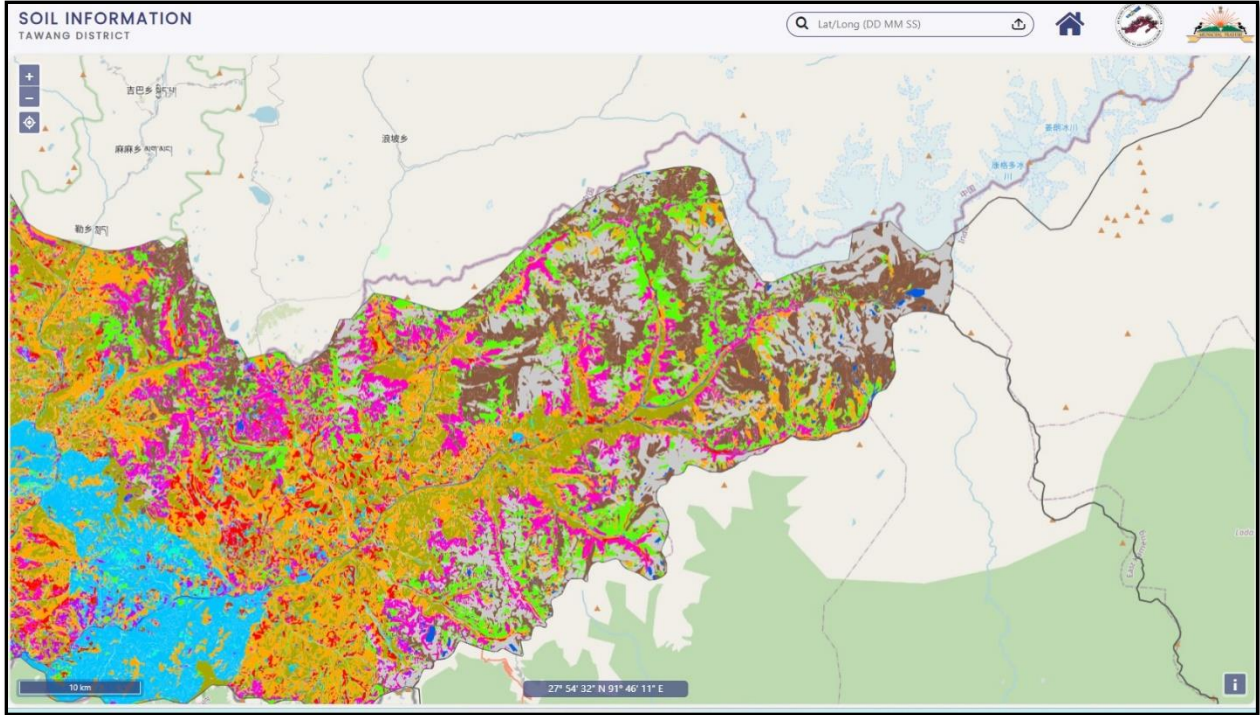
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- **Circle and Grid Selection Dropdown Menu**

A Circle drop-down menu allows user to select a Circle and its related grids to *Navigate* to the information about the selected area directly.

Example: By selecting Thingbu circle and specific grid number in the drop-down menu, the map will automatically zoom into the selected area.





Layer Control

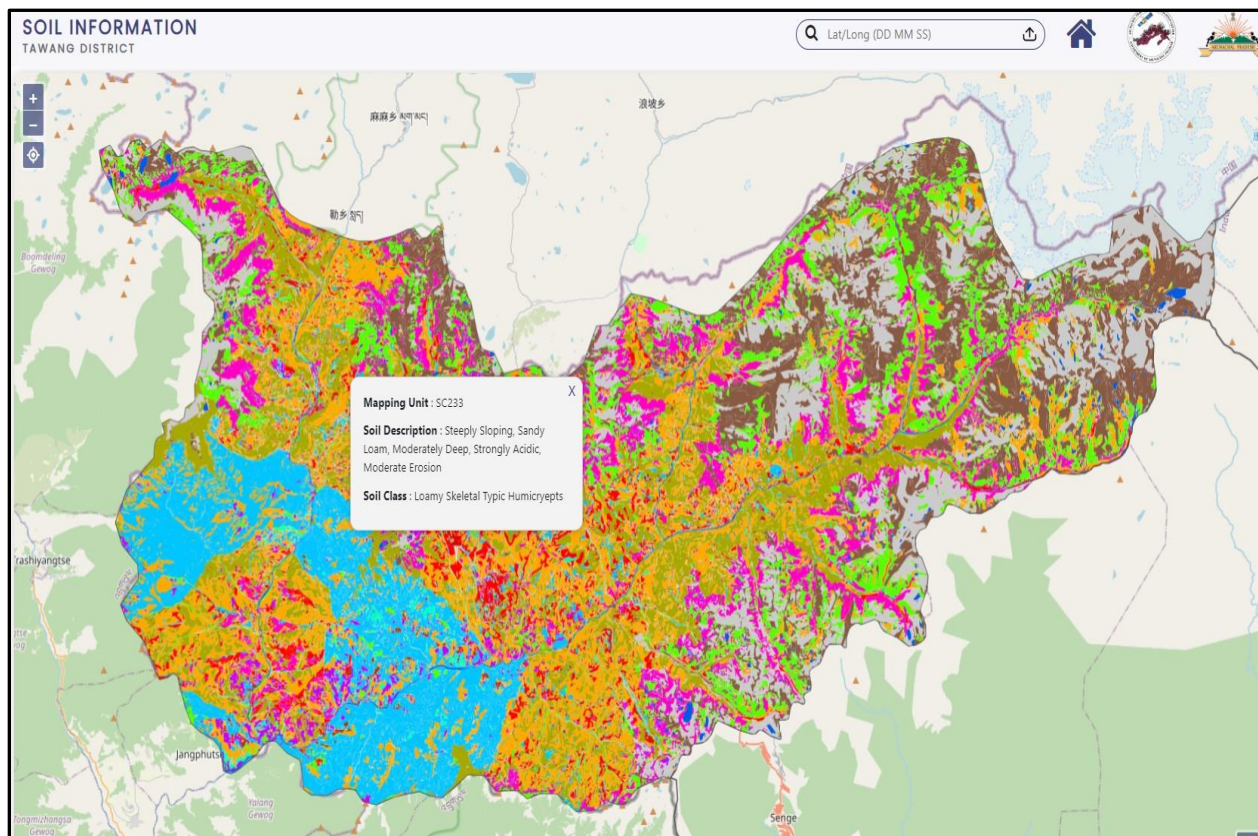
The Layer Control drop-down menu is useful for selecting specific layers in map. Check boxes can be used to see a specific layers by checking or unchecking them.



- The Legend button is useful to see the legend of the specific selected map.



- An attribute pop-up window appears when the user clicks on a map.

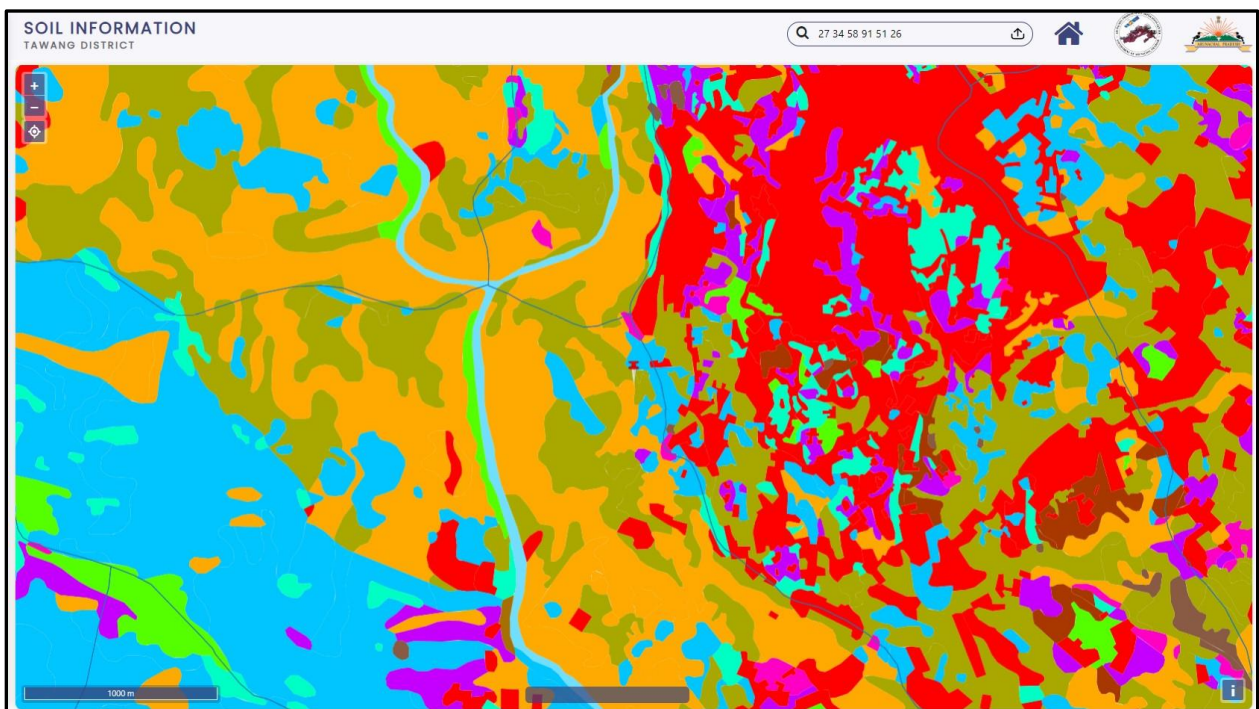


- In the same process user can *Navigate* to other information maps such as
 - Slope information
 - Landuse and Landcover
 - Hydrogeomorphology
 - Land Degradation
 - Land Capability
 - Land Irrigability
 - Action Plan
 - Crop Suitability

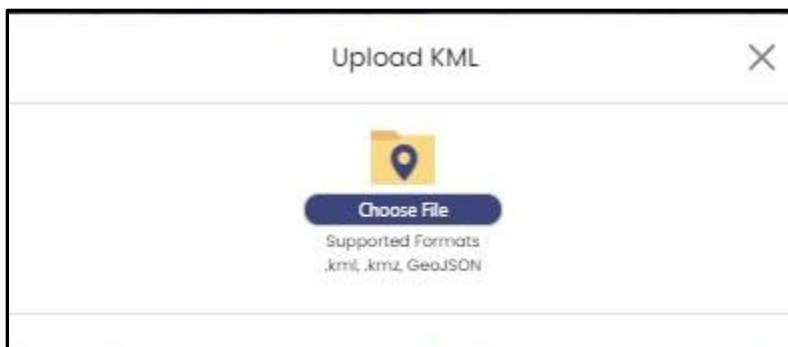
- On every district map on top right side of the screen user finds one box

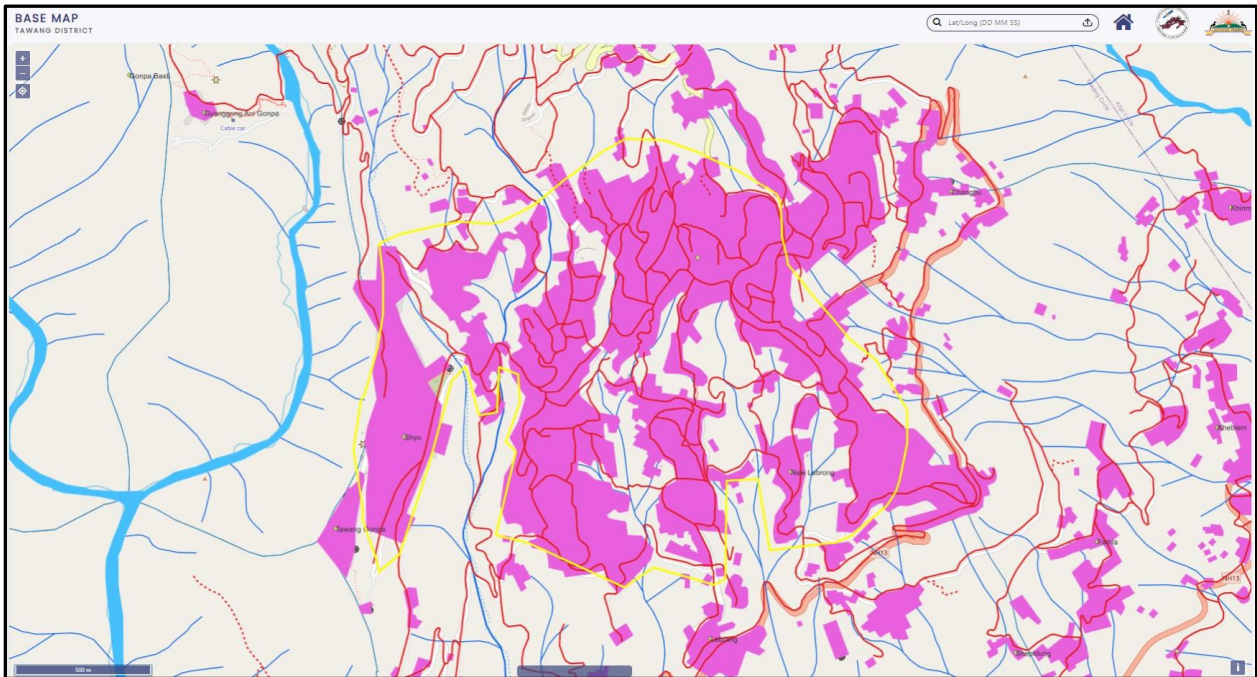
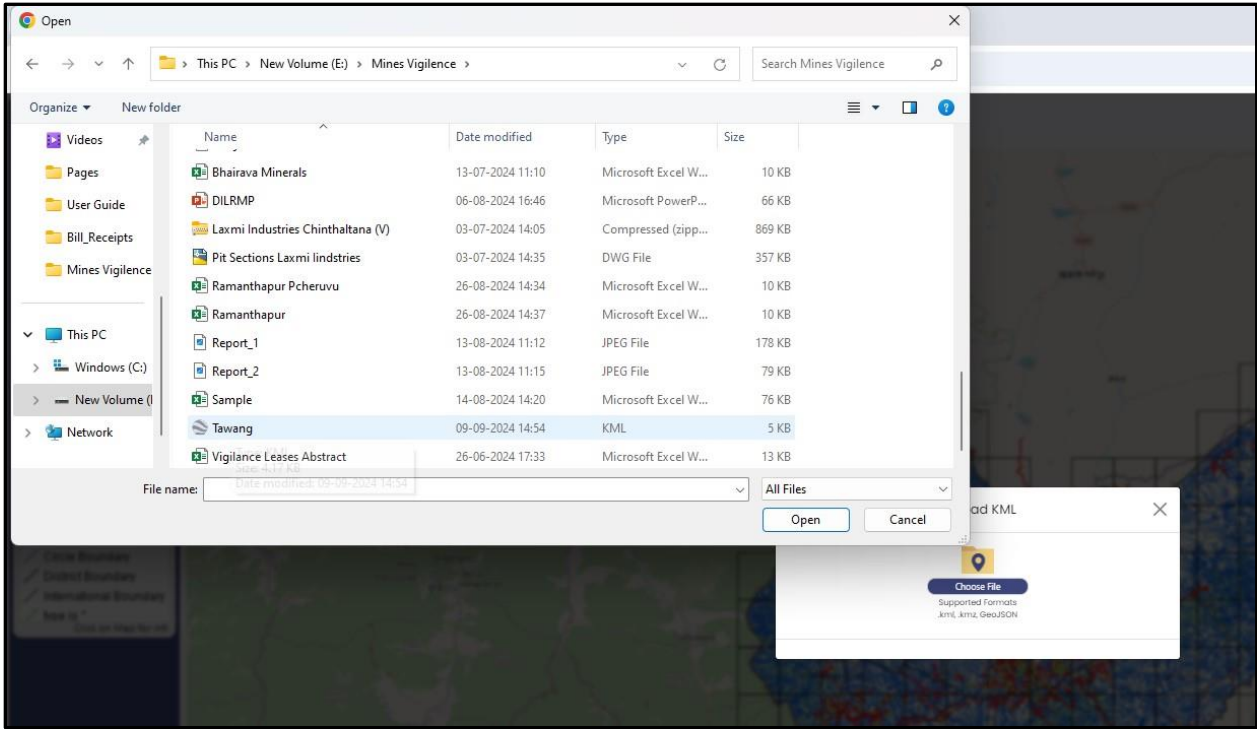


- User can navigate to particular region by entering Latitude and Longitude values in the box.




- User can upload Kml by clicking arrow button in Lat/Long window.





Section -2

- District integrated Maps
- User after selecting district on dashboard
- Below district menu user find button on click it will *navigate* to district integrated map.



LOWER SUBANSIRI DISTRICT

Head Quarters: Ziro

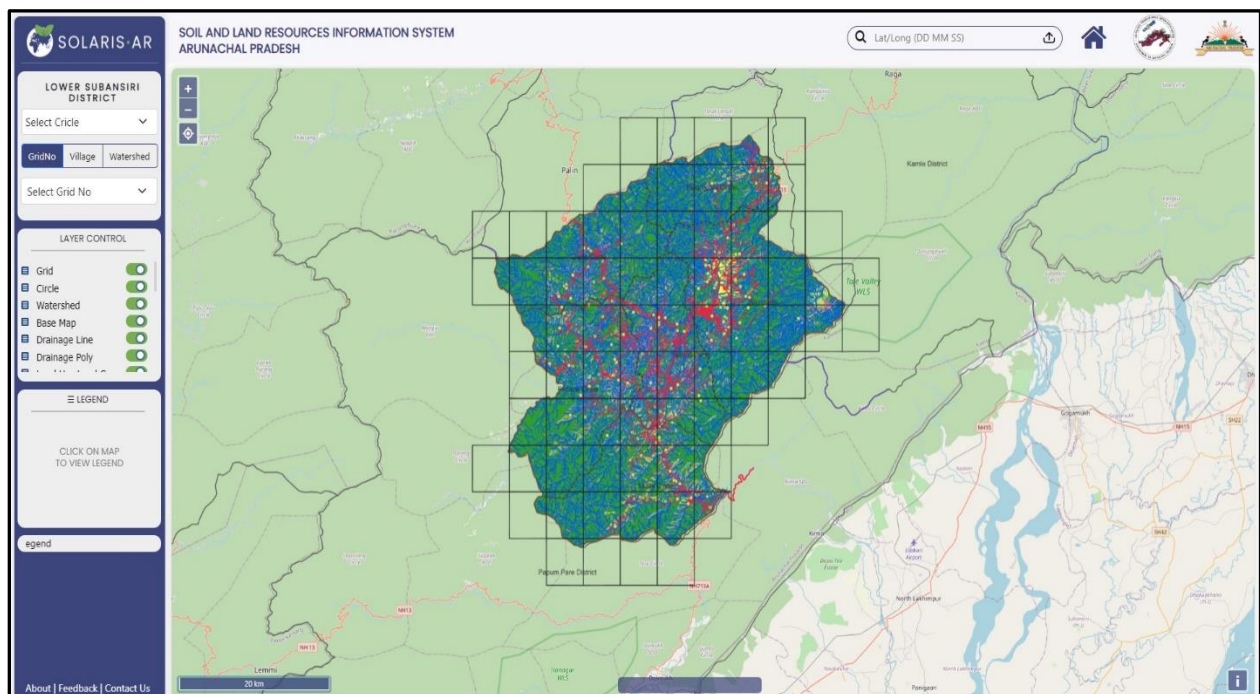
Population : 82839

Area : 1339.33 Sq. km

Revenue Villages : 414

Circle: 7

Block: 3

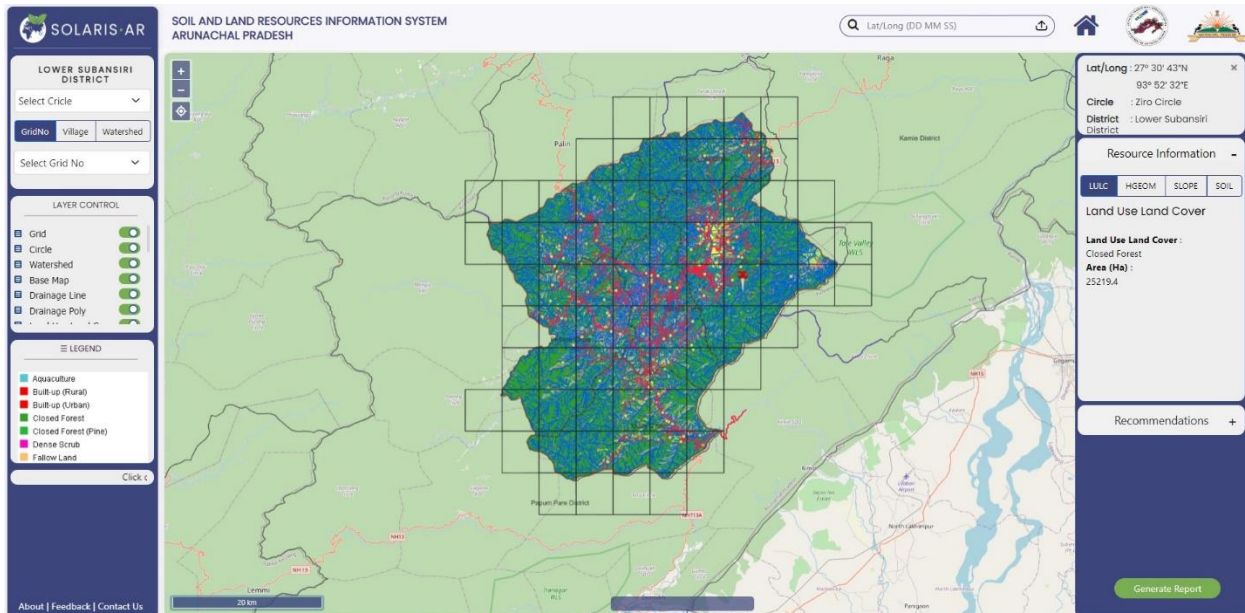


The screenshot displays the SOLARIS-AR web application interface. The main map shows the Lower Subansiri District with a grid overlay and various data layers. The interface includes a search bar at the top right, a sidebar on the left with navigation and layer controls, and a legend at the bottom left. The sidebar contains the following elements:

- LOWER SUBANSIRI DISTRICT**
- Select Circle dropdown
- GridNo | Village | Watershed tabs
- Select Grid No dropdown
- LAYER CONTROL**
- Grid (checked)
- Circle (checked)
- Watershed (checked)
- Base Map (checked)
- Drainage Line (checked)
- Drainage Poly (checked)
- LEGEND**
- CLICK ON MAP TO VIEW LEGEND
- Legend area
- About | Feedback | Contact Us

The map shows the district boundary in black, with a grid overlay. The district is filled with a colorful pattern representing different data layers. The surrounding area is shown in green, with roads and rivers visible. The interface is in English and includes a search bar at the top right with the text "Lat/Long (DD MM SS)".

- An attribute pop-up window appears on right side of screen when the user clicks on a map.



- User finds four resource information buttons on right of the screen.
- LULC (Landuse and Landcover)
- HGEOM (Hydrogeomorphology)
- SLOPE
- SOIL
- On click user will find the details of particular resource map information.
- User on clicking soil button an additional table will pop up showing the soil information.
- On left side of screen user find menu bar where circle and grid can be selected. Layer control menu is also found.

Lat/Long : 27° 30' 43"N ×
 93° 52' 32"E

Circle : Ziro Circle
 District : Lower Subansiri District

Resource Information -

LULC HGEOM SLOPE SOIL

Land Use Land Cover

Land Use Land Cover :
 Closed Forest
Area (Ha) :
 25219.4

Recommendations +

Generate Report

Lat/Long : 27° 30' 43"N ×
 93° 52' 32"E

Circle : Ziro Circle
 District : Lower Subansiri District

Resource Information -

LULC HGEOM SLOPE SOIL

Hydrogeomorphology

Geom Unit :
 Narrow Valley
Lithology :
 Augen Gneiss, Biotite Gneiss & Granite Gneiss
Ground Water Prospects :
 Good

Recommendations +

Generate Report

Lat/Long : 27° 30' 43"N ×
 93° 52' 32"E

Circle : Ziro Circle
 District : Lower Subansiri District

Resource Information -

LULC HGEOM SLOPE SOIL

Slope Info

Slope Percentage :
 15-35
Slope Description :
 Moderately to Steeply Sloping

Recommendations +

Generate Report

Lat/Long : 27° 44' 30"N ×
96° 00' 32"E

Circle : Lathao Circle
District : Namsai District

Resource Information +

Recommendations -

Crop Suitability | Action Plan

Highly Suitable Crops (S1) :
Tea

Moderately Suitable Crops (S2) :
Rubber, Oil Palm, Potato, Turmeric, Arecanut, Agar, Blueberries, Oats, Eucalyptus

Marginally Suitable Crops (S3) :
Paddy, Mustard, Banana, Pine Apple, Cauliflower/Cabbage, Red Sandalwood, Black Pepper, Coffee, Strawberries, Rye, Sweet Potato, Elephant Apple, Bael, Yam, Chicory, Bamboo, Sal, Neem, Chir Pine

Generate Report

Lat/Long : 27° 38' 08"N ×
91° 49' 23"E

Circle : Tawang Circle
District : Tawang

Resource Information +

Recommendations -

Crop Suitability | Action Plan

Mapping Unit :
SC221

Lime Requirement (tons/ha as CaO) to raise the pH to 6.4 :
10.50

Application of Major Nutrients :
Application of 100%, 75% & 125% of recommended doses of N, P & K, respectively

Application of Micro Nutrients :
Application of Ammonium Molybdate (52% MO) as foliar spray (0.5g/lit)

Generate Report

Soil Information

Soil Code	LBAE3E1e1/e2	Exchangeable Sodium (meq/100 g)	0.07
Land Use / Land Cover	Open to Closed Forest	Exchangeable Potassium (meq/100 g)	0.62
Physiography	Valley	CEC (meq/100 g)	28
Parent Material	Gneiss Complex	Base Saturation (%)	82.34
Slope (%)	5-15	Available Nitrogen (kg/ha)	376.32 (Medium)
Drainage Class	Moderately Well	Available Phosphorus (kg/ha)	112.24 (High)
Soil Erosion Status	Nil to Slight to Moderate Erosion	Available Potassium (kg/ha)	537.6 (High)
Soil Depth	Deep	Available Sulphur (ppm)	52.97 (High)
Soil Texture	Sandy Clay Loam	Available Iron (ppm)	29.11 (High)
pH (1:2.5)	7.29	Available Manganese (ppm)	83.58 (High)
EC (dsm-1)	0.48	Available Copper (ppm)	0.96 (High)
Organic Carbon (%)	0.57	Available Zinc (ppm)	4.74 (High)
Exchangeable Calcium (meq/100 g)	12.02	Available Boron (ppm)	0.95 (Medium)
Exchangeable Magesium (meq/100 g)	10.35	Available Molybdenum (ppm)	0.051 (Medium)



Lat/Long : 27° 30' 43"N

93° 52' 32"E

Circle : Ziro Circle

District : Lower Subansiri District

Resource Information

LULC

HGEOM

SLOPE

SOIL

Soil Info

Mapping Unit :

GC521

Soil Description :

Moderately Sloping, Sandy Clay Loam, Deep, Normal, Nil to Slight to Moderate Erosion

Soil Class :

Fine Loamy Typic Dystrudepts

Recommendations

Generate Report

- Users can generate a full **report** of the area by clicking the Generate Report button, which is visible inside the right side popup window.

9/9/24, 3:32 PM
solaris-ar.com/lowersubansiri/apreport.php



Natural Resources Inventory for Micro Level Agricultural Planning
Arunachal Pradesh Space Application Centre
Government of Arunachal Pradesh





District	Circle	Grid	Graticule
Lower Subansiri District	Ziro Circle	G46D14V	27° 30' 51.05094" N 93° 50' 01.24998" E

Soil Information

Soil Code	KLYE1E3e2	Exchangeable Sodium (meq/100 g)	0.03
Land Use / Land Cover	Cultivation	Exchangeable Potassium (meq/100 g)	0.14
Physiography	Structural Hill - Side Slopes	CEC (meq/100 g)	38.8
Parent Material	Gneiss Complex	Base Saturation (%)	46.05
Slope (%)	5-15	Available Nitrogen (kg/ha)	288.51 (Medium)
Drainage Class	Moderately Well	Available Phosphorus (kg/ha)	60.72 (High)
Soil Erosion Status	Moderate Erosion	Available Potassium (kg/ha)	123.2 (Low)
Soil Depth	Deep	Available Sulphur (ppm)	31.5 (Medium)
Soil Texture	Loam	Available Iron (ppm)	163.92 (High)
pH (1:2.5)	5.34	Available Manganese (ppm)	16.76 (High)
EC (dsm-1)	0.12	Available Copper (ppm)	3.50 (High)
Organic Carbon (%)	3.36	Available Zinc (ppm)	1.71 (Medium)
Exchangeable Calcium (meq/100 g)	9.65	Available Boron (ppm)	0.12 (Low)
Exchangeable Magnesium (meq/100 g)	8.05	Available Molybdenum (ppm)	0.06 (Medium)

Crop Suitability

Category	Food Crops	Vegetable Crops	Oil Seeds	Fruit Crops	Spices	Commercial Crops	Highly Tolerant Crops to Acidity	Silvi Culture
Highly Suitable Crops (S1)	-	-	-	-	-	-	-	-
Moderately Suitable Crops (S2)	-	-	-	Kiwi	Cardamom, Black Pepper	-	Blueberries, Strawberries, Rye, Bael, Chicory	Chir Pine
Marginally Suitable Crops (S3)	Paddy, Pulses	Green Leafy Vegetables, Cauliflower, Cabbage, Tomato	Mustard, Sunflower	Guava, Citrus, Banana	-	Sugarcane, Coffee	Gooseberry, Plum, Sweet Potato, Watermelon, Elephant Apple, Chow Chow	Bamboo, Sal, Eucalyptus, Neem

Action Plan

Activity	Recommendations
Soil & Water Conservation Measures	Gap afforestation in the open forest areas and protection and monitoring of closed (dense) forest areas
Lime Requirement (tons/ha as CaO) to raise the pH to 6.4	10.5
Application of Major Nutrients	Application of 100% of recommended dose of N and application of 75% of recommended doses of P & K
Application of Micro Nutrients	Application of 6.25 to 12.5 kg of Borax per ha. and application of Ammonium Molybdate (52% MO) as foliar spray (0.5g/l)

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<https://solaris-ar.com/lowersubansiri/apreport.php>
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