

# MONITORING OF IWMP WATERSHED PROJECTS USING GEO-INFORMATION

## SUMMARY REPORT

KURNOOL -19/2010-11  
Andhra Pradesh

Submitted to NRSC, Balanagar, Hyderabad  
July-2021

**T 0 - T 1 - T 2 - T 3 - T 4 - T 5**



AGRICULTURE & SOIL  
DIVISION  
Andhra Pradesh Space  
Applications Centre (APSAC)  
ITE&C Department Govt. of  
Andhra Pradesh



RURAL DEVELOPMENT AND  
WATERSHED MONITORING  
DIVISION  
Land Resources and Land Use  
Mapping and Monitoring Group,  
Remote Sensing Application Area,  
National Remote Sensing Centre, ISRO



DEPARTMENT OF LAND  
RESOURCES  
Ministry of Rural Development  
Government of India

# C O N T E N T S

- **EXECUTIVE SUMMARY**

01. STUDY AREA
02. SATELLITE & ANCILLARY DATA INCLUDING DRISHTI STATUS
03. MONITORING IN THE PROJECT AREA : Site wise changes in the project
04. CONCLUSIONS

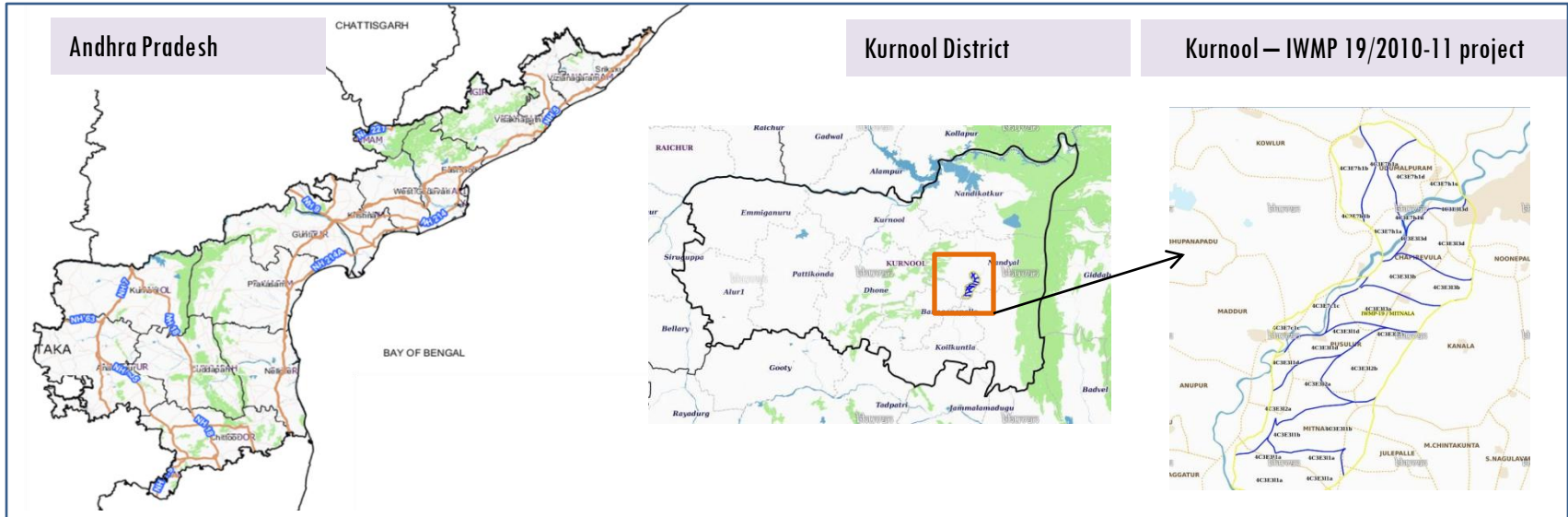
## **E X E C U T I V E   S U M M A R Y**

- Integrated Watersheds Management Project (IWMP) is a flagship programme of Department of Land Resources (DoLR), Ministry of Rural Development (MRD).
- National Remote Sensing Centre (NRSC), ISRO has designed and developed Bhuvan Geo-ICT Web portal tools namely - Srishti and Drishti for monitoring and evaluation of IWMP watersheds. It uses high spatial and temporal resolution sensors viz., Carto-1/2(2.5 m) , LISS-IV(5.8 m color).
- Current summary report gives details of Project - IWMP-19/2010-11, Kurnool District of Andhra Pradesh. The total geographical area of the project is 5,990.88 ha. It comprises of 12 micro watersheds.
- In the project area 268 Drishti photos were uploaded showing 80 check dams/checks & plugins, 1 Farm ponds, 1 agriculture and remaining showing others.
- Major percentage i.e. 87.76 % is covered by the agriculture, 3.41 % is covered scrubland and remaining by other land use classes.

# PROJECT : KURNOOL - IWMP-19/2010-11

## DISTRICT : KURNOOL , STATE : ANDHRA PRADESH

- The study area falls in Nandyal Mandal of Kurnool district of Andhra Pradesh state. The total geographical area of the project is 5,990.88 ha. It comprises of 12 micro watersheds. Location Map of the study area is shown in Figure below. Analysis is done for 2010-11 (T0) period (*Batch -2*) projects taking 2018-19 (T5) period satellite images.



- The climate is tropical with temperatures ranging from 26 °C to 46 °C in the summer and 12 °C to 31 °C in the winter. The average annual rainfall is about 705 millimeters (28 in).
- The average annual rainfall of the district is 665.5mm, which ranges from nil rainfall in January and December to 139.6 mm in September. August and September are the wettest months. The mean seasonal rainfall distribution is 459.1mm in southwest monsoon (June September), 133.7mm in northeast monsoon ( Oct-Dec), 1.9 mm rainfall in Winter (Jan Feb) and 70.8 mm in summer (March-May).

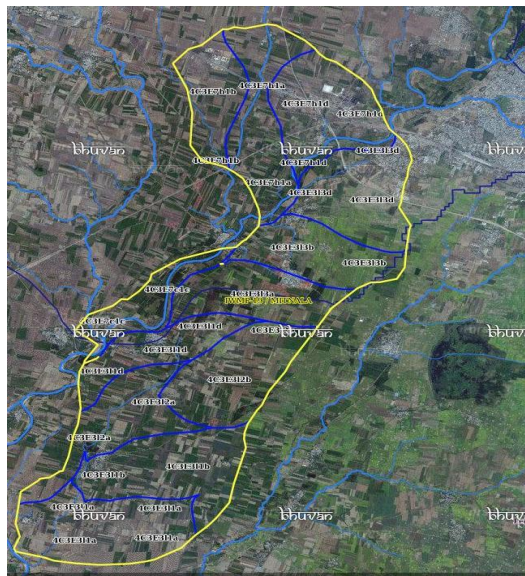
# Satellite Data and Ancillary Data

|                 |         |         |           |
|-----------------|---------|---------|-----------|
| Satellite data* | T0-A**  | T0-B**  | T5        |
|                 | 2010-11 | 2011-12 | 2018-19   |
| LISS IV         | 2010-11 |         |           |
| SCENE 1         |         |         | 25-Mar-19 |
| SCENE2          |         |         |           |
| SCENE 3         |         |         |           |
| SCENE 4         |         |         |           |
| CARTO           | 2010-11 |         |           |
| SCENE 1         |         |         | 25-Mar-19 |
| SCENE2          |         |         |           |
| SCENE 3         |         |         |           |
| SCENE 4         |         |         |           |

## Ancillary Data

|   | Category                | Sub category | Status |
|---|-------------------------|--------------|--------|
| 1 | Thematic maps           |              |        |
|   | LULC ( 1: 10 000)       |              |        |
|   |                         | DRAIANGE     | YES    |
|   |                         | SETTLEMENT   | YES    |
|   |                         | ROADS/RAILS  | No     |
|   | LULC (1: 50 000)        |              |        |
|   |                         | 2005-06      |        |
|   |                         | 2008-09      |        |
| 2 | Activity Plan Maps      |              |        |
| 3 | Drishti Photographs     |              |        |
|   |                         | Total        | 268    |
| 4 | Detailed Project Report |              |        |

## Natural Color Composite overlaid with Project boundaries and high detail stream network



### Legend



Drainage (1:10000 Scale)

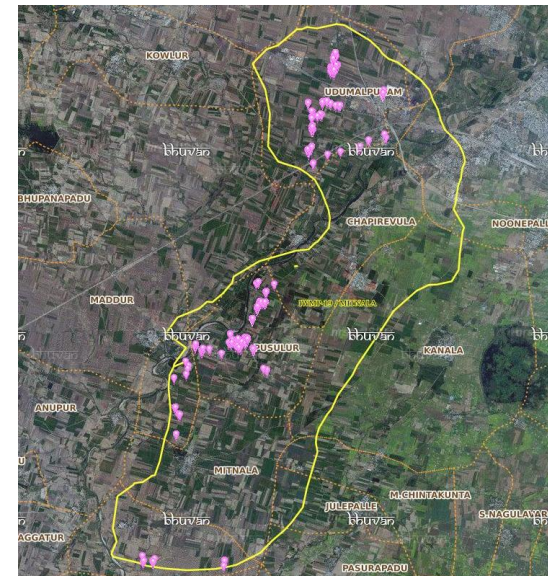


MWS Boundary



Project Boundary

## Natural Color Composite overlaid with Drishti Points



### Drishti Upload Status

## Classification of the Activities

| Sr. No | Activity  | Drishti Photo | Visible on satellite |
|--------|---|---------------|----------------------|
| 1      | Afforestation                                       | 0             | 0                    |
| 2      | Horticulture  | 0             | 0                    |
| 3      | Agriculture   | 1             | 1                    |
| 4      | Blockplanting                                       | 0             | 0                    |
| 5      | Bund planting                                       | 0             | 0                    |
| 6      | Drainage Treatment                                  | 0             | 0                    |
| 7      | Farm ponds/Dug out pit                              | 1             | 1                    |
| 8      | Check dams (Civil work)                             | 0             | 0                    |
| 9      | Checks & Pluguns                                    | 109           | 80                   |
| 10     | Field bunds   | 1             | 1                    |
| 11     | LM (Livelihood Measures)                            | 0             | 0                    |
| 12     | Nallah Bunds/Drainage treatment                     | 0             | 0                    |
| 13     | Percolation tanks / Ground water recharge structure | 0             | 0                    |
| 14     | Production System and Micro-Enterprises             | 0             | 0                    |
| 15     | Livelihood Activities                               | 0             | 0                    |
| 16     | Capacity Building Activities                        | 0             | 0                    |
| 17     | Entry Point Activity                                | 0             | 0                    |
| 18     | Others  | 224           | 185                  |
|        | <b>TOTAL</b>  | <b>336</b>    | <b>268</b>           |

## MONITORING IN THE PROJECT AREA

### Site Wise Changes in the Project

- Impacts of the activities carried out are presented through combination of Drishti and Srishti captures.
- T0 is the baseline period before implementation (2010-11) and T5 is 2018-19 period for monitoring.
- Captures are also provided wherever changes are observed in satellite images, that may match expected activity related impact, even though they don't have Drishti report yet.

Monitoring of activities in Kurnool Dt Andhra Pradesh. IWMP-19/2010-11



T0:2010-11



T1: 30 November 2014



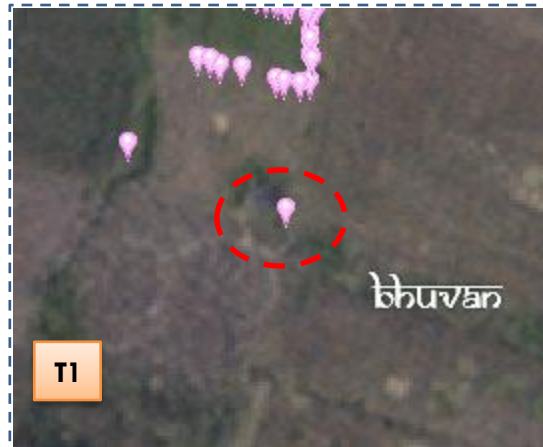
Drishti Sl no. 2464738

MWS : 4C3E311a

Check dam



T0:2010-11



T1: 30 November 2014



Drishti Sl no. 2435712

MWS : 4C3E7h1a

Farm pond



Monitoring of activities in Kurnool Dt Andhra Pradesh. IWMP-19/2010-11



T0: 2010-11



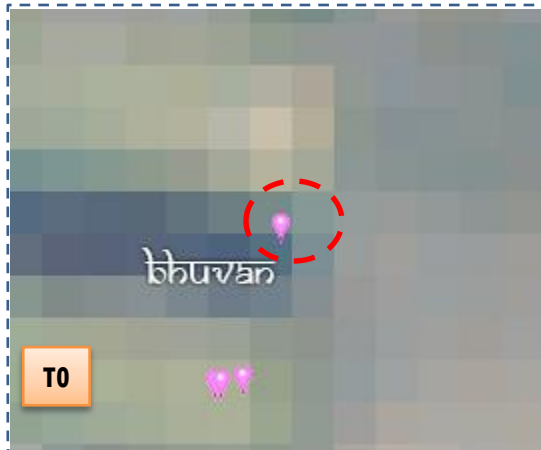
T1: 30 November 2014



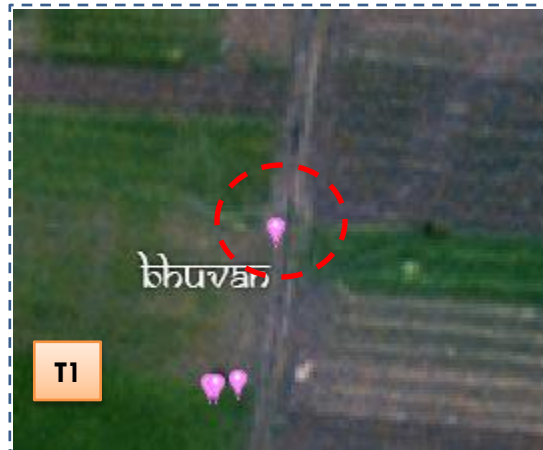
Drishti SI no.154646

MWS : 4C3E7h1a

Others



T0: 2010-11



T1: 30 November 2014



Drishti SI no. 204120

MWS : 4C3E3I1a

Others

# Natural Color Composite – 2010-11 to 2018-19

Natural Color Composite- 2010-11



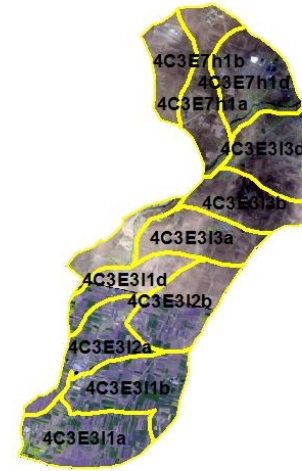
Source:NCC,NRSC

Natural Color Composite-12th February 2015



Source:NCC,NRSC

Natural Color Composite- 19th March 2016



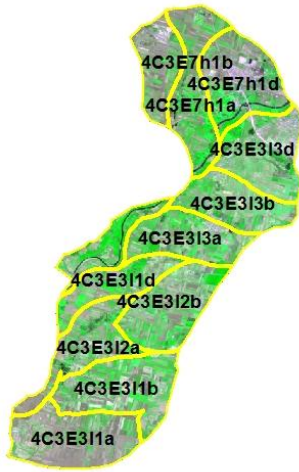
Source:NCC,NRSC

Natural Color Composite- 1st April 2017



Source:NCC,NRSC

Natural Color Composite- 1st March 2018



Source:Sentinel

Natural Color Composite- 25th March 2019



Source:Sentinel

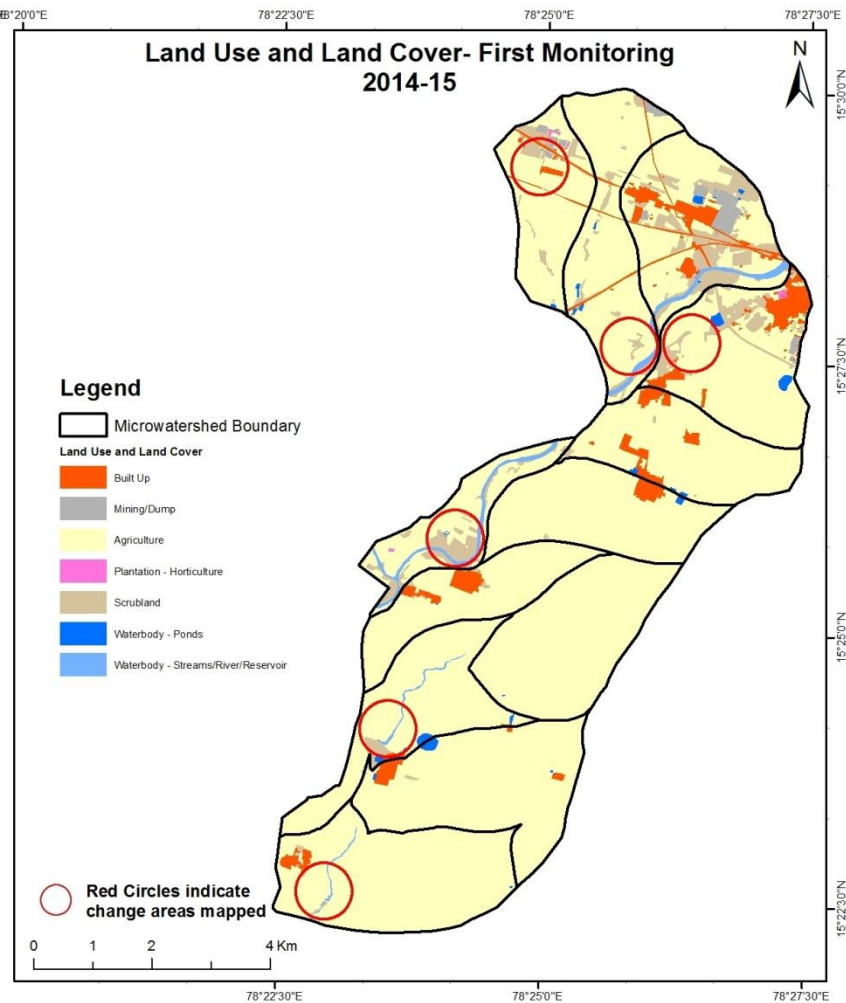
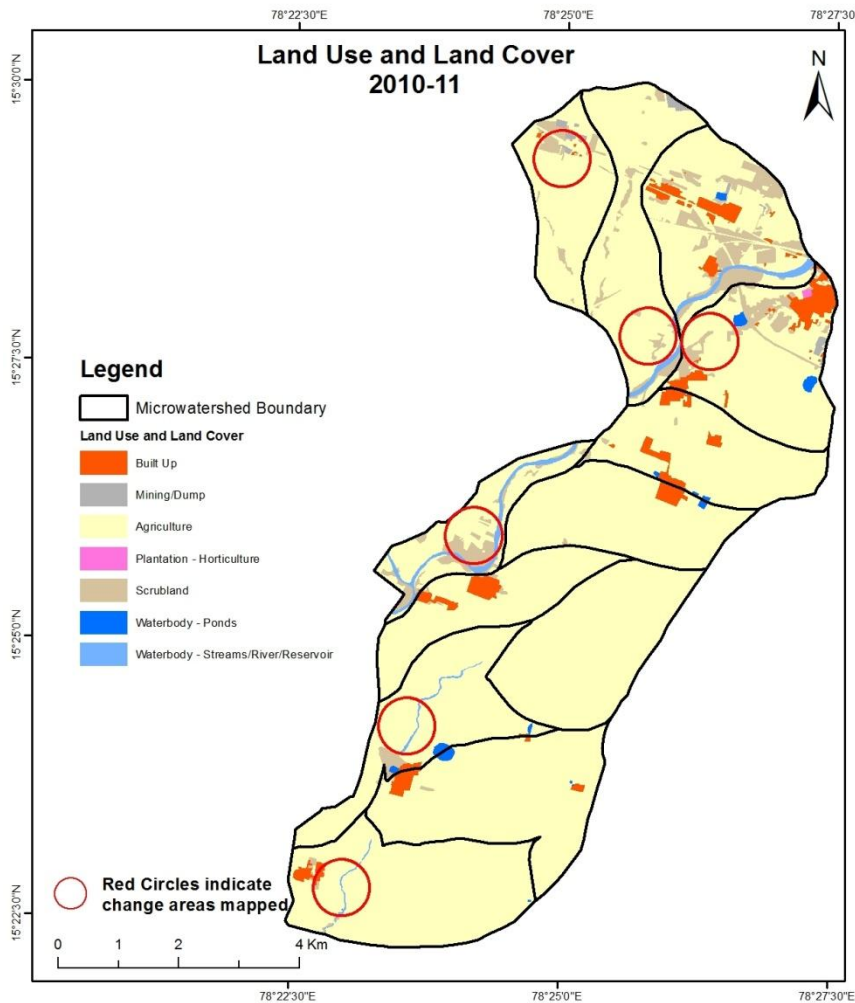
## MONITORING IN THE PROJECT AREA

### Land use and Land cover Changes in the Project

- Change in land use and land cover from T0 to T5 are analyzed in terms of built up, mining/dump, agriculture, plantation- horticulture, forest, barren rocky waterbody-streams/river/reservoir and waterbody -ponds.
- Captures are also provided wherever changes are observed in satellite images, that may match expected activity related impact, even though they don't have Drishti report yet.
- The result obtained for the period T0 to T5 are given in the change matrix table.
- In matrix table column represents the T0 (2010-11) and row represents the T5 (2018-19)

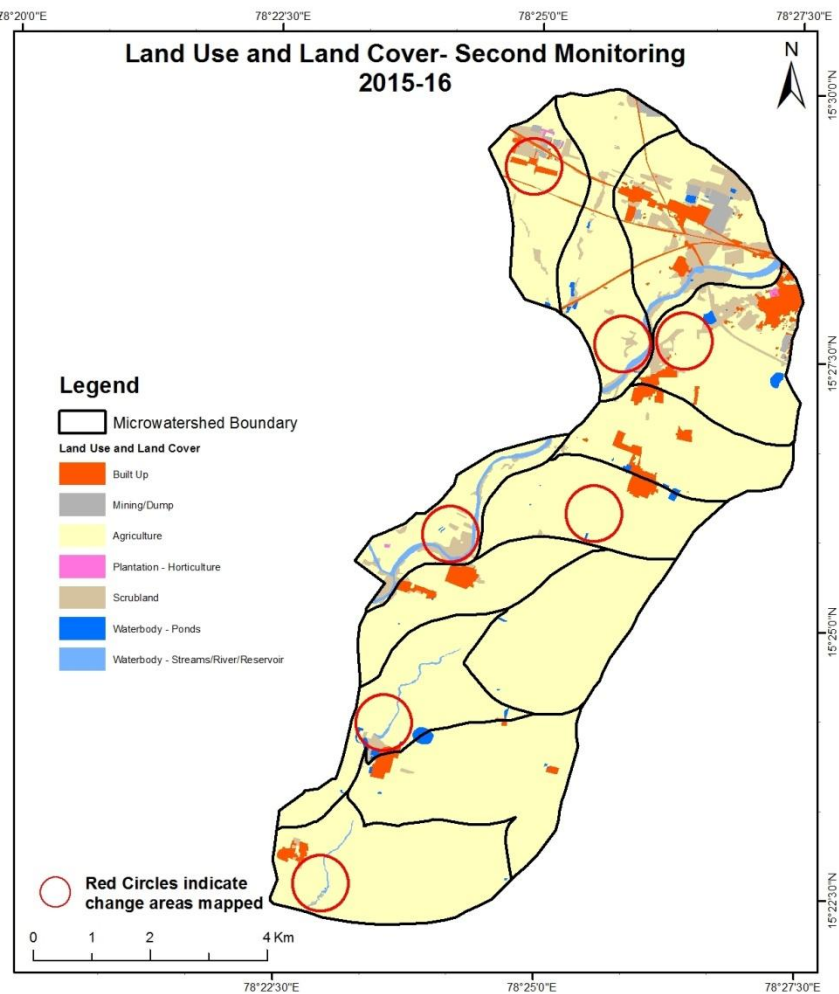
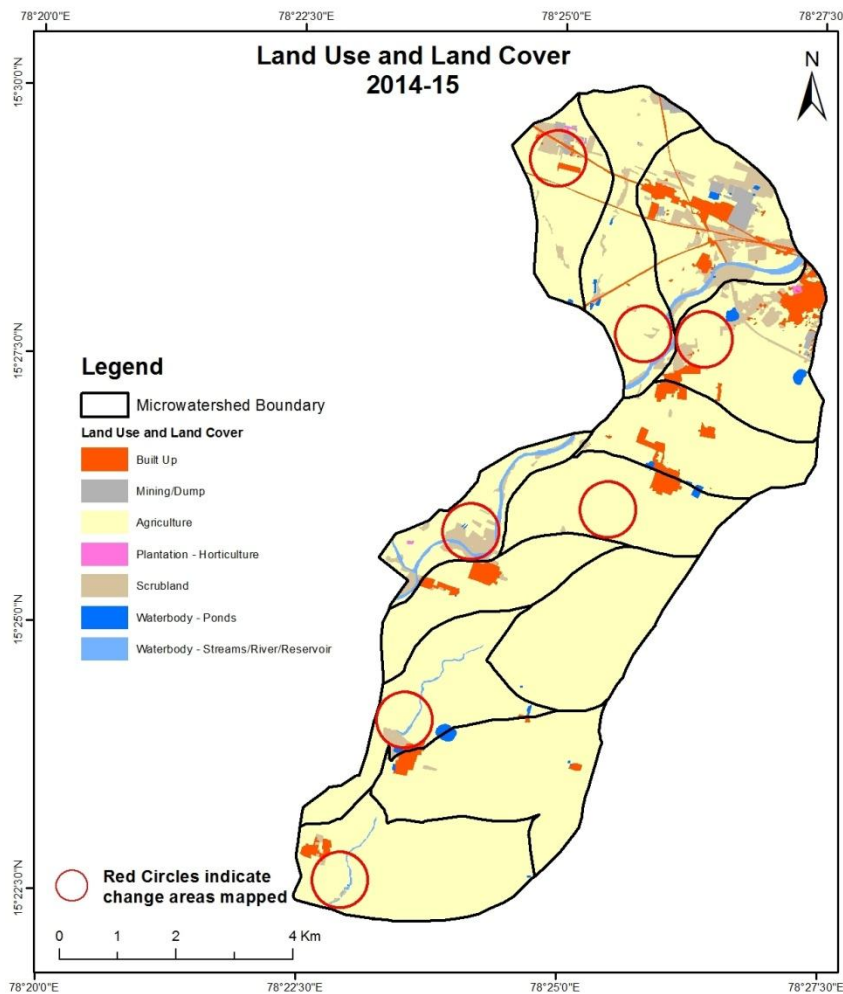
# Comparative assessment of Land Use and Land Cover for Pre and Post IWMP implementation (2010-11 to 2014-15)

Scale: 1:10000



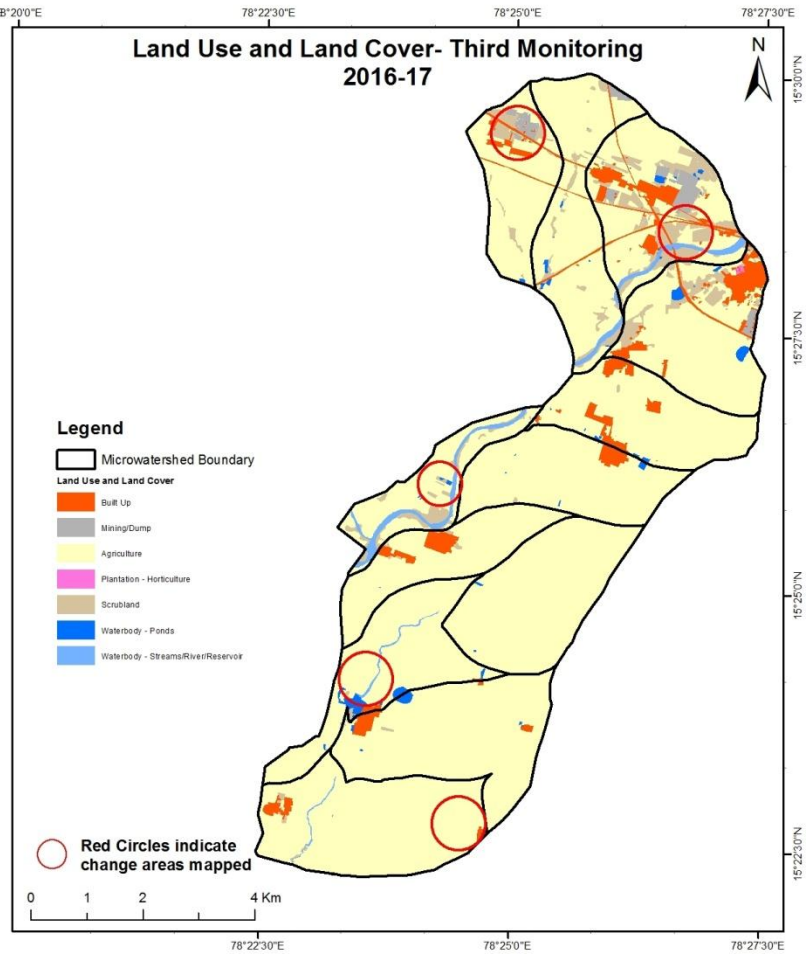
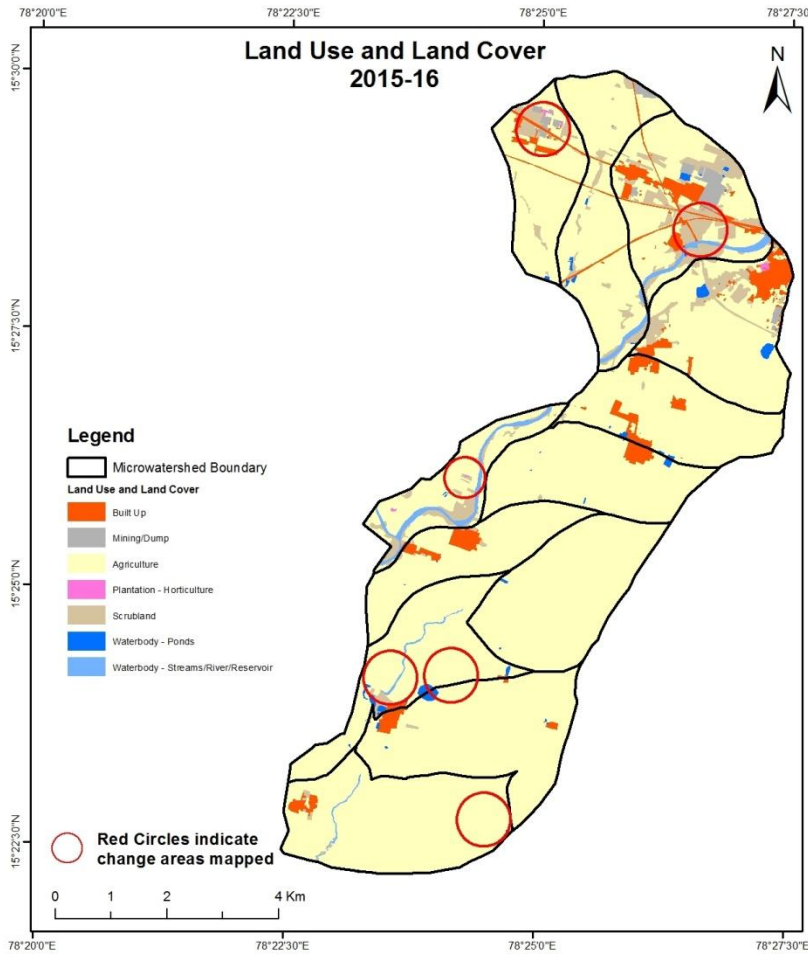
# Comparative assessment of Land Use and Land Cover for Pre and Post IWMP implementation (2014-15 to 2015-16)

Scale: 1:10000



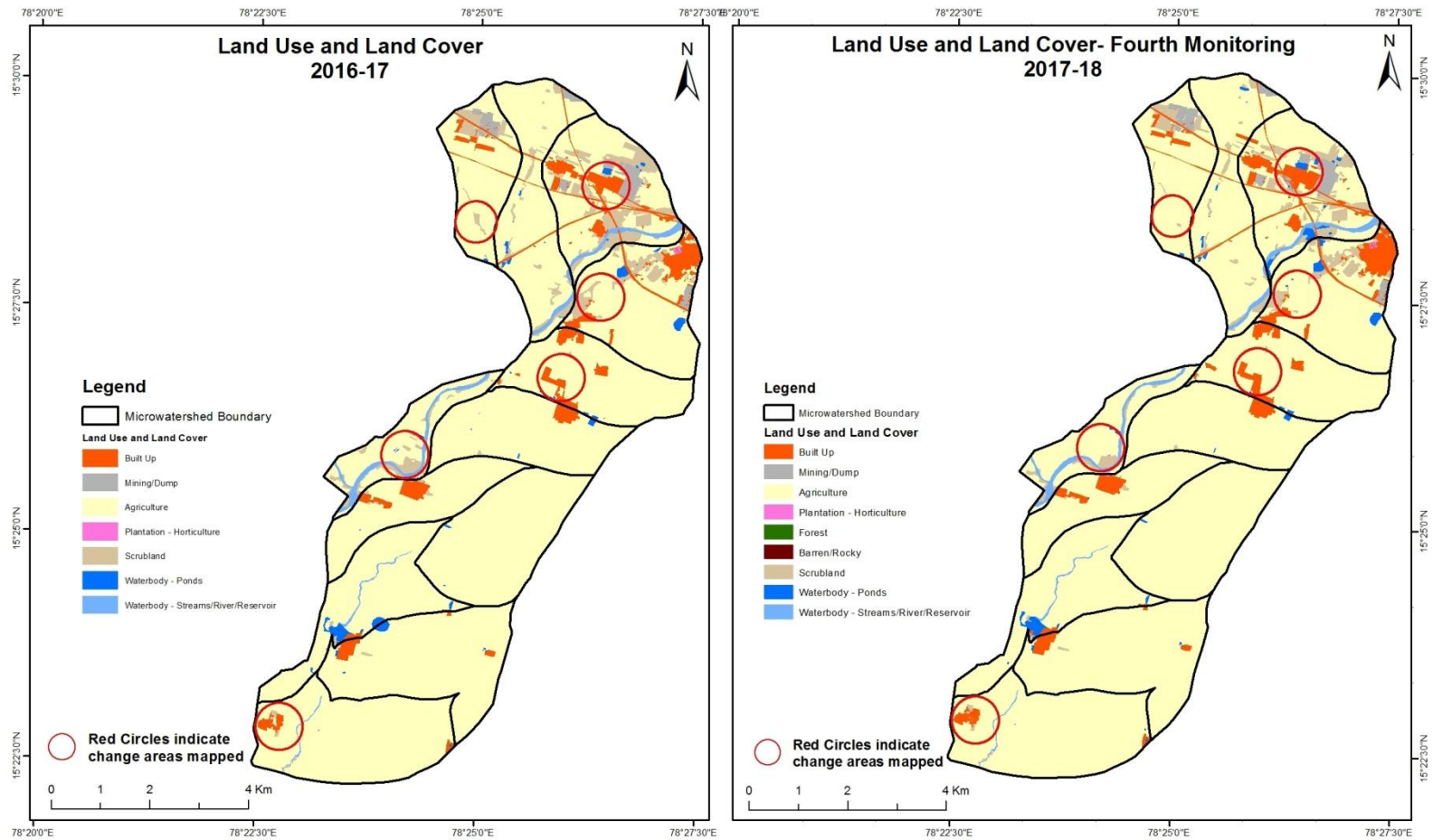
# Comparative assessment of Land Use and Land Cover for Pre and Post IWMP implementation (2015-16 to 2016-17)

Scale: 1:10000



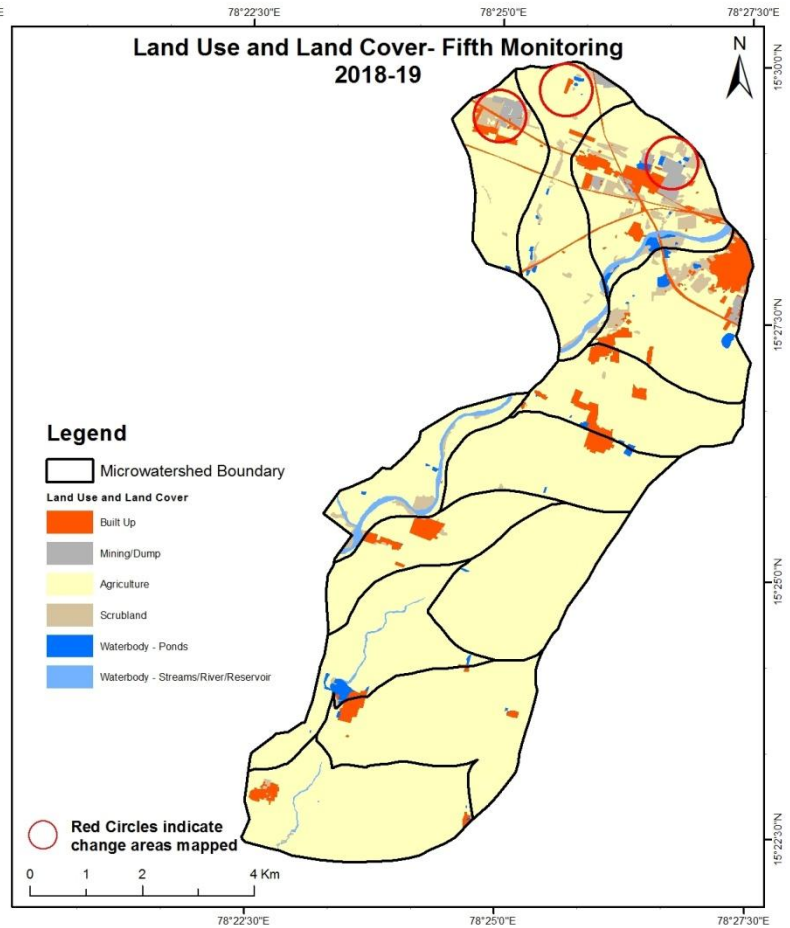
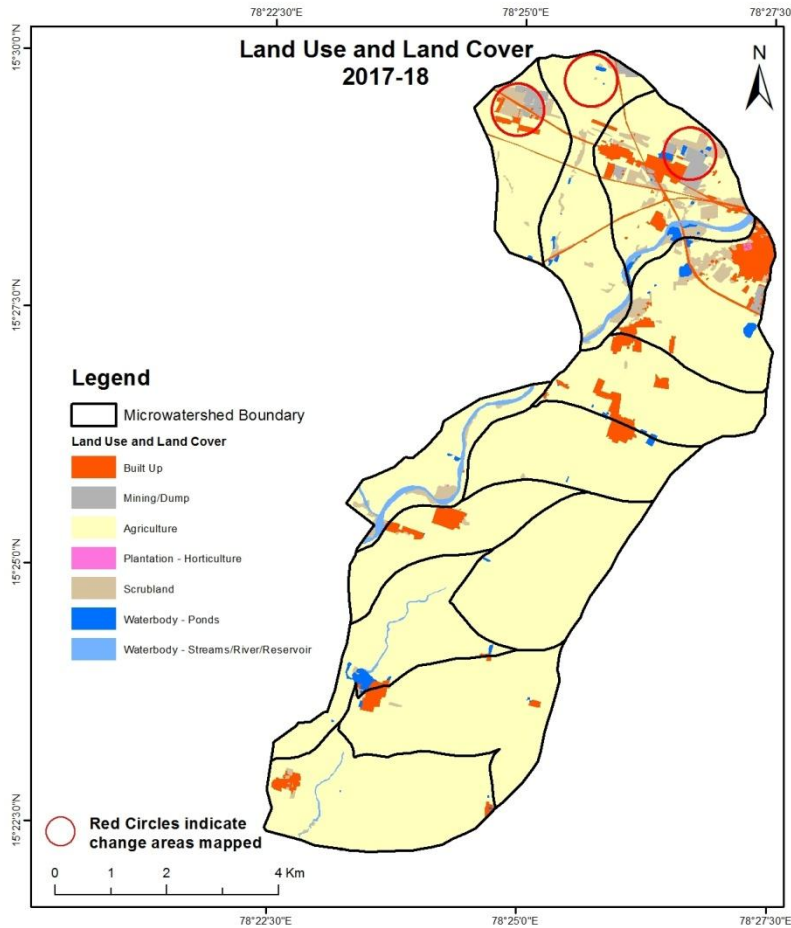
# Comparative assessment of Land Use and Land Cover for Pre and Post IWMP implementation (2016-17 to 2017-18)

Scale: 1:10000



# Comparative assessment of Land Use and Land Cover for Pre and Post IWMP implementation (2017-18 to 2018-19)

Scale: 1:10000





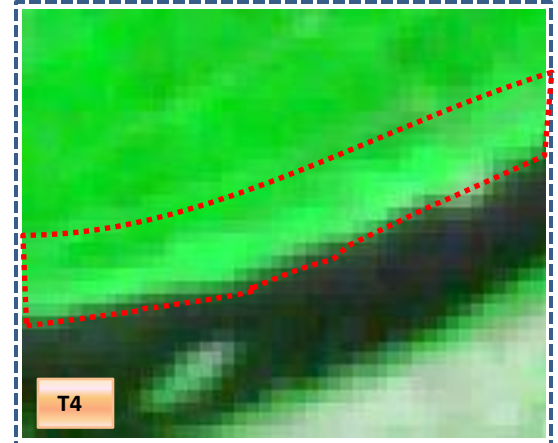
## Land Use and Land Cover changes for Pre and Post treatment dates

### Srubb to Agriculture



T3

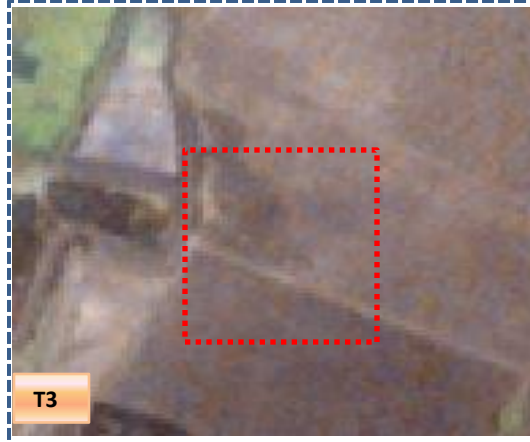
T3: 2016-17(78°24'56.121"E15°26'39.854"N)



T4

T4: 1st March 2018

### Agriculture to Ponds



T3

T3: 2017-18 (78°25'47.058"E 15°29'43.39"N )



T4

T4: 1st March 2018

## Land Use and Land Cover changes for Pre and Post treatment dates

Agriculture to Built-up



T0

T0: 2010-11



T1

T1: 30 November 2014

Scrub to water body



T0

T0: 2010-11



T1

T1: 30 November 2014

**Table showing change matrix depicting Land cover transitions during study period-2010-11 to 2014-15**

| Land cover                          | Monitoring period (T1) |                 |                |                            |        |                      |                 |               |                             |                     | Units in Hectares |  |                |
|-------------------------------------|------------------------|-----------------|----------------|----------------------------|--------|----------------------|-----------------|---------------|-----------------------------|---------------------|-------------------|--|----------------|
|                                     | Built up               | Mining/<br>dump | Agriculture    | Plantation<br>Horticulture | Forest | Forest<br>Plantation | Barren<br>Rocky | Scrub         | Waterbody-<br>Streams/River | Water body<br>Ponds | Grand Total       |  |                |
| <b>Built up</b>                     | 193.89                 |                 |                |                            |        |                      |                 |               |                             |                     |                   |  | 193.89         |
| <b>Mining/dump</b>                  |                        | 20.41           |                |                            |        |                      |                 |               |                             |                     |                   |  | 20.41          |
| <b>Agriculture</b>                  | 65.38                  | 31.28           | 5222.34        | 1.86                       |        |                      |                 |               |                             |                     | 6.94              |  | 5327.81        |
| <b>Plantation<br/>Horticulture</b>  | 0.15                   |                 |                | 1.83                       |        |                      |                 |               |                             |                     |                   |  | 1.98           |
| <b>Forest</b>                       |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Forest<br/>Plantation</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Barren Rocky</b>                 |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Scrub</b>                        |                        |                 | 1.94           |                            |        |                      |                 | 340.97        |                             |                     | 0.14              |  | 343.05         |
| <b>Waterbody-<br/>Streams/River</b> |                        |                 |                |                            |        |                      |                 |               | 77.94                       |                     |                   |  | 77.94          |
| <b>Waterbody –<br/>Ponds</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     | 25.81             |  | 25.81          |
| <b>Grand Total</b>                  | <b>259.42</b>          | <b>51.69</b>    | <b>5224.28</b> | <b>3.69</b>                |        |                      |                 | <b>340.97</b> | <b>77.94</b>                |                     | <b>32.89</b>      |  | <b>5990.88</b> |

- In matrix table diagonal elements represent the both periods in the same class and off diagonal elements represents change in between the classes.
- In T0 105.46 ha of the agriculture area has decreased and it is converted into Built-up, mining/dump, plantation and water body in T1.
- In T1 1.94 ha of the agriculture area has increased from scrubland of T0.
- The additional agriculture are coming from waterbody in T1 represents seasonal agriculture.

**Table showing change matrix depicting Land cover transitions during study period-2014-15 to 2015-16**

| Land cover                  | Monitoring period (T2) |                 |                |                            |        |                      |                 |               |                             |                     |                |
|-----------------------------|------------------------|-----------------|----------------|----------------------------|--------|----------------------|-----------------|---------------|-----------------------------|---------------------|----------------|
|                             | Units in Hectares      |                 |                |                            |        |                      |                 |               |                             |                     |                |
| T1                          | Built up               | Mining/<br>dump | Agriculture    | Plantation<br>Horticulture | Forest | Forest<br>Plantation | Barren<br>Rocky | Scrub         | Waterbody-<br>Streams/River | Water body<br>Ponds | Grand Total    |
| Built up                    | 259.42                 |                 |                |                            |        |                      |                 |               |                             |                     | 259.42         |
| Mining/dump                 |                        | 51.69           |                |                            |        |                      |                 |               |                             |                     | 51.69          |
| Agriculture                 | 6.34                   | 0.33            | 5210.70        | 0.35                       |        |                      |                 |               | 2.92                        | 3.65                | 5224.28        |
| Plantation<br>Horticulture  |                        |                 |                | 3.69                       |        |                      |                 |               |                             |                     | 3.69           |
| Forest                      |                        |                 |                |                            |        |                      |                 |               |                             |                     |                |
| Forest<br>Plantation        |                        |                 |                |                            |        |                      |                 |               |                             |                     |                |
| Barren Rocky                |                        |                 |                |                            |        |                      |                 |               |                             |                     |                |
| Scrub                       | 0.22                   |                 | 14.18          |                            |        |                      |                 | 323.35        | 0.75                        | 2.48                | 340.97         |
| Waterbody-<br>Streams/River |                        |                 |                |                            |        |                      |                 |               | 77.94                       |                     | 77.94          |
| Waterbody –<br>Ponds        |                        |                 |                |                            |        |                      |                 |               |                             | 32.89               | 32.89          |
| <b>Grand Total</b>          | <b>265.98</b>          | <b>52.01</b>    | <b>5224.87</b> | <b>4.05</b>                |        |                      |                 | <b>323.35</b> | <b>81.61</b>                | <b>39.01</b>        | <b>5990.88</b> |

- In matrix table diagonal elements represent the both periods in the same class and off diagonal elements represents change in between the classes.
- In T1 13.59 ha of the agriculture area has decreased and it is converted into Built-up, mining/dump, plantation and water body in T2.
- In T2 14.18 ha of the agriculture area has increased from scrubland of T1.
- The additional agriculture are coming from waterbody in T2 represents seasonal agriculture.

**Table showing change matrix depicting Land cover transitions during study period-2015-16 to 2016-17**

| Land cover                          | Monitoring period (T3) |                 |                |                            |        |                      |                 |               |                             |                     | Units in Hectares |  |                |
|-------------------------------------|------------------------|-----------------|----------------|----------------------------|--------|----------------------|-----------------|---------------|-----------------------------|---------------------|-------------------|--|----------------|
|                                     | Built up               | Mining/<br>dump | Agriculture    | Plantation<br>Horticulture | Forest | Forest<br>Plantation | Barren<br>Rocky | Scrub         | Waterbody-<br>Streams/River | Water body<br>Ponds | Grand Total       |  |                |
| <b>Built up</b>                     | 265.98                 |                 |                |                            |        |                      |                 |               |                             |                     |                   |  | 265.98         |
| <b>Mining/dump</b>                  |                        | 52.01           |                |                            |        |                      |                 |               |                             |                     |                   |  | 52.01          |
| <b>Agriculture</b>                  | 6.39                   | 9.27            | 5206.78        |                            |        |                      |                 |               |                             |                     | 2.43              |  | 5224.87        |
| <b>Plantation<br/>Horticulture</b>  | 0.24                   | 1.33            | 0.53           | 1.59                       |        |                      |                 |               |                             |                     | 0.35              |  | 4.05           |
| <b>Forest</b>                       |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Forest<br/>Plantation</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Barren Rocky</b>                 |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Scrub</b>                        | 11.54                  |                 | 12.55          |                            |        |                      |                 | 289.29        | 4.21                        |                     | 5.76              |  | 323.35         |
| <b>Waterbody-<br/>Streams/River</b> |                        |                 |                |                            |        |                      |                 |               | 81.61                       |                     |                   |  | 81.61          |
| <b>Waterbody –<br/>Ponds</b>        |                        |                 | 0.56           |                            |        |                      |                 |               |                             |                     | 38.45             |  | 39.01          |
| <b>Grand Total</b>                  | <b>284.15</b>          | <b>62.61</b>    | <b>5220.43</b> | <b>1.59</b>                |        |                      |                 | <b>289.29</b> | <b>85.81</b>                |                     | <b>46.99</b>      |  | <b>5990.88</b> |

- In matrix table diagonal elements represent the both periods in the same class and off diagonal elements represents change in between the classes.
- In T2 18.09 ha of the agriculture area has decreased and it is converted into Built-up, mining/dump, plantation and water body in T3.
- In T3 13.65 ha of the agriculture area has increased from plantations, scrubland and water body of T2.
- The additional agriculture are coming from waterbody in T3 represents seasonal agriculture.

**Table showing change matrix depicting Land cover transitions during study period-2016-17 to 2017-18**

| Land cover                          | Monitoring period (T4) |                 |                |                            |        |                      |                 |               |                             |                     | Units in Hectares |  |
|-------------------------------------|------------------------|-----------------|----------------|----------------------------|--------|----------------------|-----------------|---------------|-----------------------------|---------------------|-------------------|--|
|                                     | Built up               | Mining/<br>dump | Agriculture    | Plantation<br>Horticulture | Forest | Forest<br>Plantation | Barren<br>Rocky | Scrub         | Waterbody-<br>Streams/River | Water body<br>Ponds | Grand Total       |  |
| <b>Built up</b>                     | 284.15                 |                 |                |                            |        |                      |                 |               |                             |                     | 284.15            |  |
| <b>Mining/dump</b>                  |                        | 61.43           |                |                            |        |                      |                 |               |                             | 1.18                | 62.61             |  |
| <b>Agriculture</b>                  | 22.16                  | 7.15            | 5186.29        | 0.14                       |        |                      |                 |               |                             | 4.69                | 5220.43           |  |
| <b>Plantation<br/>Horticulture</b>  | 0.11                   |                 |                | 1.48                       |        |                      |                 |               |                             |                     | 1.59              |  |
| <b>Forest</b>                       |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |
| <b>Forest<br/>Plantation</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |
| <b>Barren Rocky</b>                 |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |
| <b>Scrub</b>                        | 2.06                   | 0.24            | 55.55          |                            |        |                      |                 | 220.67        | 0.84                        | 9.94                | 289.29            |  |
| <b>Waterbody-<br/>Streams/River</b> |                        |                 |                |                            |        |                      |                 |               | 85.81                       |                     | 85.81             |  |
| <b>Waterbody –<br/>Ponds</b>        | 0.05                   |                 | 10.63          |                            |        |                      |                 |               |                             | 36.31               | 46.99             |  |
| <b>Grand Total</b>                  | <b>308.53</b>          | <b>68.82</b>    | <b>5252.46</b> | <b>1.62</b>                |        |                      |                 | <b>220.67</b> | <b>86.65</b>                | <b>52.13</b>        | <b>5990.88</b>    |  |

- In matrix table diagonal elements represent the both periods in the same class and off diagonal elements represents change in between the classes.
- In T3 34.14 ha of the agriculture area has decreased and it is converted into Built-up, mining/dump, plantation and water body in T4.
- In T4 66.18 ha of the agriculture area has increased from scrubland and waterbody of T3.
- The additional agriculture are coming from waterbody in T4 represents seasonal agriculture.

**Table showing change matrix depicting Land cover transitions during study period-2017-18 to 2018-19**

| Land cover                          | Monitoring period (T5) |                 |                |                            |        |                      |                 |               |                             |                     | Units in Hectares |  |                |
|-------------------------------------|------------------------|-----------------|----------------|----------------------------|--------|----------------------|-----------------|---------------|-----------------------------|---------------------|-------------------|--|----------------|
|                                     | Built up               | Mining/<br>dump | Agriculture    | Plantation<br>Horticulture | Forest | Forest<br>Plantation | Barren<br>Rocky | Scrub         | Waterbody-<br>Streams/River | Water body<br>Ponds | Grand Total       |  |                |
| <b>T4</b>                           |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Built up</b>                     | 308.53                 |                 |                |                            |        |                      |                 |               |                             |                     |                   |  | 308.53         |
| <b>Mining/dump</b>                  |                        | 68.82           |                |                            |        |                      |                 |               |                             |                     |                   |  | 68.82          |
| <b>Agriculture</b>                  | 7.80                   |                 | 5242.21        |                            |        |                      |                 |               |                             |                     | 2.45              |  | 5252.46        |
| <b>Plantation<br/>Horticulture</b>  | 1.48                   |                 | 0.14           |                            |        |                      |                 |               |                             |                     |                   |  | 1.62           |
| <b>Forest</b>                       |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Forest<br/>Plantation</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Barren Rocky</b>                 |                        |                 |                |                            |        |                      |                 |               |                             |                     |                   |  |                |
| <b>Scrub</b>                        | 0.61                   | 0.29            | 15.17          |                            |        |                      |                 | 204.22        |                             |                     | 0.39              |  | 220.67         |
| <b>Waterbody-<br/>Streams/River</b> |                        |                 |                |                            |        |                      |                 |               | 86.65                       |                     |                   |  | 86.65          |
| <b>Waterbody –<br/>Ponds</b>        |                        |                 |                |                            |        |                      |                 |               |                             |                     | 52.13             |  | 52.13          |
| <b>Grand Total</b>                  | <b>318.42</b>          | <b>69.11</b>    | <b>5257.51</b> |                            |        |                      |                 | <b>204.22</b> | <b>86.65</b>                |                     | <b>54.97</b>      |  | <b>5990.88</b> |

- In matrix table diagonal elements represent the both periods in the same class and off diagonal elements represents change in between the classes.
- In T4 10.26 ha of the agriculture area has decreased and it is converted into Built-up and water body in T5.
- In T5 15.31 ha of the agriculture area has increased from plantation and scrubland of T4.
- The additional agriculture are coming from waterbody in T5 represents seasonal agriculture.

# Conclusion

1. DPR of the project is uploaded on to Bhuvan Portal.
2. The LULC shows that there is an increase in Crop land, Built up area, Reservoir / Tanks & decrease in Scrubland as presented in the change matrix for different years.
3. There is an increase of 37.88 Hectares in Reservoir / Tanks area as compared between baseline LU/LC data 2010-11 (T0) & 2018-19 (T5) years.
4. There is an increase of 0.59, 32.03 & 5.05 Hectares From T1 to T2 , T3 to T4 & T4-T5 and there is an decrease of 103.53 & 4.44 Hectares From T0 to T1 & T2-T3. The overall decrease of 70.29 Hectares in Crop land area as compared between baseline LU/LC data 2010-11 (T0) & 2018-19 (T5) years.
5. There is a decrease of 138.84 Hectares in Scrubland area as compared between 2010-11 (T0) & 2018-19 (T5) years.
6. Farm ponds (1) is visible on IWMP Bhuvan Srishti portal out of Bhuvan Drishti photo of Farm ponds (1) verified from the portal.