APPENDIX

Appendix-I

Land Use/ Land Cover Interpretation Key Using Satellite Data

S.No	Land Use/ Land Cover Category	Tone/ Colour	Size	Shape	Texture	Pattern	Location	Association	Season	Remark
1.	2	3	4	5	6	7	8	9	10	11
1.	Town/Village	Dark bluish green in the core and bluish on the periphery	Small to big	Irregular & discount-inous	Coarse & mottled	Clustered to scattered and non-contiguous	Plains, Plateaus, on hill slopes, road, rail canal etc.	Surrounded by agricultural lands, forest cover, wastelands, netwrok of river road and rail etc.	Nov. to Feb.	Built-up land can be of big or small size sattement, industrial structures, buildings or any other artifact physical spread or sprawl along with density of transport netwrok are useful surrogates to classify it as Town or Village. Perceptible land transformation can be noticed around built up land.

Cont...2

1.	2	3	4	5	6	7	8	9	10	11
2.	Thermal Power Plant	Bluish to Creamy white	Small to big	Regular	Coarse & mottled	Non-contiguous	Plains	Surrounding by Built-up land	Nov. to Feb.	Thermal Power can be big (STPS) and small (TPS) in size. Along with transport network are useful surrogated to classify it as STPS or TPS
3.	Coal Dump yard	Dark Black	Small	Irregular	Smooth to Medium	Dispersed	Along Mine, Railway track, Road etc.	Surrounding by Mines/ Builtup areas	Nov. to Feb.	Coal Dump yard along the transport netwrok and mining areas.
4.	Agricultural Land	Bright red to red	Varying in size	Regular to irregular	Medium to smooth	Contiguous to non-contiguous	Plains, hill slopes, valleys, wastelands etc.	Amidst irrigated (Canal, tank, well etc.) and un-irrigated (rainfed/dry farming arable lands, proximity to rivers/ streams/ reservoir etc.	Nov. to Feb.	It consists of differet crops grown in different seasons under different farming and land tenural systems.

Cont....3

1.	2	3	4	5	6	7	8	9	10	11
5.	Forest Dense	Dark red to red	Varying in size	Irregular discont-inuous	Smooth to medium depending up on crown density	Contiguous to non-contiguous	Medium relief, hill slopes	Different forest types/ sub-types of species	Nov. to Feb.	These are broad leaved tropical forests which seasonally shed their leaves annually. Dry forest trees are subject to wild forest fires particularly during summar/autumn. These occur on the lower elevations and slopes than the evergreen/semi-evergreen forest. It accounts for more than 40% of the crown cover.
6.	Open/ Degraded Forest	Light red to dark brown (Subject to canopy cover)	Varying in size	Irregular, dis-cont-inuous	Coarse to mottled	Contiguous to non-contiguous	Hill slopes, isolated hills and foot slopes	Hills slopes having skeletal soil, different forest types/ sub types and where abiotic interference	Nov. to Feb.	It accounts for less than 40% of the tree cover and are also called as open degraded forests. The degradation is due to biotic and abiotic disturbances caused to dense forest cover. It contributes to land degradation found on hill slopes.

Cont....4

1.	2	3	4	5	6	7	8	9	10	11
7.	Scrub Forest	Dark brown (Subject to canopy cover	Varying in size	Discontinuous	Mottled	Non-contiguous	Isolated hills and foot slopes and within notified forest areas	Skeletal soil, different forest types/ sub-types and where abiotic interference	Nov. to Feb.	It account for less than 20% vegetative cover in the form of bushes/scrub. The degradation is due to biotic and abiotic disturbances caused to open/degraded forest cover. It contributes to land degradation found on uplands and on foot slopes within soil cover.
8.	Forest Blank	Light yellow to light brown	Small	Regular to Irregular	Coarse to mottled	Non-contiguous dispersed/ scattered	Hills slopes and hills tops	Amidst forest cover and slopes inhabited and accessible.	Nov. to Feb.	Forest blanks are openings without any tree cover in forest areas. These result due to tree felling for timber, grazing, cultivation, habitation etc. It contributes to deforestation and soil erosion.

Cont....5

1.	2	3	4	5	6	7	8	9	10	11
9.	Forest Plantation	Light red to red	Varying in size	Regular to Irregular	Smooth to medium	Contiguous to non-contiguous	Uplands, foot slopes and within and outside the notified area	Forest plantation of different types and sub-types, area with thin soil cover.	Nov. to Feb.	Forest plantation consists of a variety of trees which occur both within and outside the notified forest areas. These provide timber, protect soil from erosion and provide greenery to the environment. Occuring amidst forest, it gives a mixed spectral response.
10.	Active Mine	Dark blackish to light blackish	Small to big.	Irregular and non-cont-iguous	Course to mottled	Scattered/ Dispersed	Plateau/ hill slopes/ plains	Surrounded by Mine Dumps/ Forest etc.	Nov. to Feb.	These are the areas where mining is going on for extraction of coal.
11.	Abandoned Mine	Blackish to brown	Small to big	Irregular Non-cont-iguous	Course	Scattered/ Dispersed	Plains	Surrounded by Mine Dumps/Mine out area have impounded water	Nov. to Feb.	These are the areas left out after mining without any further management. The mine out area is fill by rainwater appear in dark black in the middle of the mining areas.

Cont....6

1.	2	3	4	5	6	7	8	9	10	11
12.	Mining Dump	Light brown to light creamy white	Big.	Irregular and cont-iguous	Mottled	Contiguous	Plateau/ hill slopes	Surrounded by forest	Nov. to Feb.	These are the areas where waste spoil of subface material was dumped becomes artificial heaps of overburden extrated to mine coal.
13.	Mining dump with plantation	Light red to red	Small to medium	Regular with sharp edges	Course to medium	Dispersed non- cont-iguous	Mine dumps	Surrounded by overburden dumps	Nov. to Feb	Plantation consists of a variety of trees/ bushed on the overburden dumps of mine out material are seen very prominently on the imagery.
14.	Land with or without scrub	Light yellow to brown to greenish size blue (subject to surface moisture and cover)	Varying in size	Irregular, discontin uous	Coarse to mottled (subject to vegetation cover)	Contiguous dispersed in patches	Terrain with varying lithology and landforms	Gentle relief with moderate slope in plains and food hills and surrounded by agricultural lands	Nov. to Feb.	Thin veneer of soil cover on the top supports, scrub and grass or devoid of vegetation where surface erosion is dominant. Such lands occur more in dry lands, foot hill areas, undulating uplands.

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1.	2	3	4	5	6	7	8	9	10	11
15.	Barren rocky/ Stony waste/ Sheet-rock area	Greenish blue to yellow to brownish (subject to varying rock type)	Varying in size	Irregular and discont-inuous	Very coarse to coarse and medium	Linear to contiguous and dispersed	Steep isolated hillocks, slopes/crest, plateau and eroded plains	Barren and exposed rock/stony wastes, lateritic out-crops, mined areas and quarried sites, boulders	Nov to Feb.	These are rock exposures of different rock types which occur as massive rocks, boulders, stony waste etc. in hill forests, plateau, plains etc. These are barren and are devoid of soil cover and vegetation.
16.	Flyash Pond	Light blue	Small/ Medium	Regular	Smooth	Dispersed	In lowland, plains/ offshore of reservoir	Admist wasteland lowlands, reservoirs	Nov. to Feb.	These are impounded water-boidies where flyash generated after combustion of coal in the Thermal Power Plant are disposed off along with coal slurrry.
17.	Tank/ Reservoir	Light blue to dark blue (subject to weeds/vege tation)	Small/ medium to large	Regular to irregular	Smooth to mottled (subject to vegetation)	Non-contiguous dispersed	Tanks in lowlands/ plains, reservoirs surrounded by hills and across rivers.	Amidst cultivated lands, low lands reservoirs with hilly terrain	Nov. to Fen.	These are impounded water bodies in low lands; plains, across river. Surface water spread of reservoir/ tank very from season to season. These act as the source of irrigation, power generation and flood control.

Cont....8

1.	2	3	4	5	6	7	8	9	10	11
18.	River/Stream	Light blue to dark blue	Long narrow to wide	Irregular sinuous	Smooth to medium	Contiguous, non-linear to dendritic/ sub-dendritic, sub-ractangular, sub-paraller etc.	Natural rivers/ streams, (perennial and non-perennial)	Drainage pattern on hill slopes, flood plains, uplands etc. also with vegetation along the banks and in river bed.	Nov. to Feb.	These are water courses in the channels of different dimensions and lengths. It may be perennial on non-perennial river or stream. These exhibit different drainage pattern depending on surface lithology, landform, climate etc. Excess run-off of water results in overflow of river/ stream banks causing floods
19.	Transport	Very dark to dark bluish green, light yellow for minor roads, red if vegetation along the road	Small in width for roads and narrow for rail	Regular with straight/ sharp and smooth curves	Smooth to fine	Linear to sinous and contiguous	On all types of terrain across water bodies agricultural lands connecting settlements.	Settlement nodes, amidst and around built-up developed areas etc.	Nov. to Feb.	It provides connectivity linkages between settlements and accelerates development.