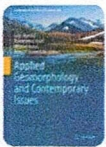


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# Assessment of Land Use and Land Cover Change in the Purulia District, India Using LANDSAT Data

| Chapter | First Online: 04 September 2022



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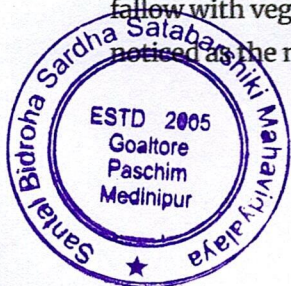
Pritha Das , [Prasenjit Bhunia](#) & [Ramkrishna Maiti](#)

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## Abstract

The analysis of land use and land cover change has become necessary and urgent in the field of man–environment relation or resultant global environmental change. The present study analysed temporal and spatial changes of land use and land cover (LULC) in Purulia district covering an area of 6300 km<sup>2</sup> by comparing classified LANDSAT satellite images of 1990 and 2020 coupled by land use transition matrix and Markov Chain model to derive functional information of the spatio-temporal change of the LULC classes. The same analysis was performed at the watershed level. The results show that all selected LULC classes have changed from 1990 to 2020. About 113 km<sup>2</sup> of dense forest (i.e. 21% of the total forest area) has been lost whereas, 452 km<sup>2</sup> of fallow (i.e. 35% of the total fallow land) has been lost because of afforestation and expansion of agriculture. The conversion of dense forest to fallow with vegetation and fallow to fallow with vegetation were the major processes of deforestation and afforestation respectively. The loss of dense forest and gain of fallow with vegetation were lumped with several govt. plantation programmes in the last few years. The transition from fallow to agriculture and from dense forest to fallow with vegetation were the dominant LULC transition processes. The probability of built-up area (98%), fallow with vegetation (96%), and waterbodies (95%) to remain in the same LULC was high. Fallow was noticed as the most disturbed land cover followed by dense forest and agriculture. Future efforts should be



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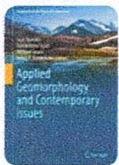


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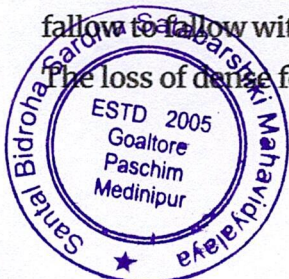
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Irrigation schemes	Number of schemes implemented				Irrigation potential utilised (in Ha.)				Share in total irrigation
	2nd MI (1993–94)	3rd MI (2000–01)	4th MI (2006–07)	5th MI (2013–14)	2nd MI (1993–94)	3rd MI (2000–01)	4th MI (2006–07)	5th MI (2013–14)	
Dugwells	17,133	13,322	3611	3048	5302	4026	2083	4362.5	6.2
Deep tube wells	NIL	NIL	NIL	275	NIL	NIL	NIL	14,838.12	21.49
Medium tube well	NIL	NIL	NIL	14	NIL	NIL	NIL	9.91	0.01
Shallow tube wells	11	2	15	28	12	3	10	26.22	0.4
Surface lift schemes	440	313	539	2016	2676	3444	8180	6517.01	9.5

Source Minor Irrigation Census (MIC) of 1993–94, 2000–01, 2006–07 and 2013–14. Ministry of Jal Shakti, Dept. of Water Resources, RD & GR, Government of India

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