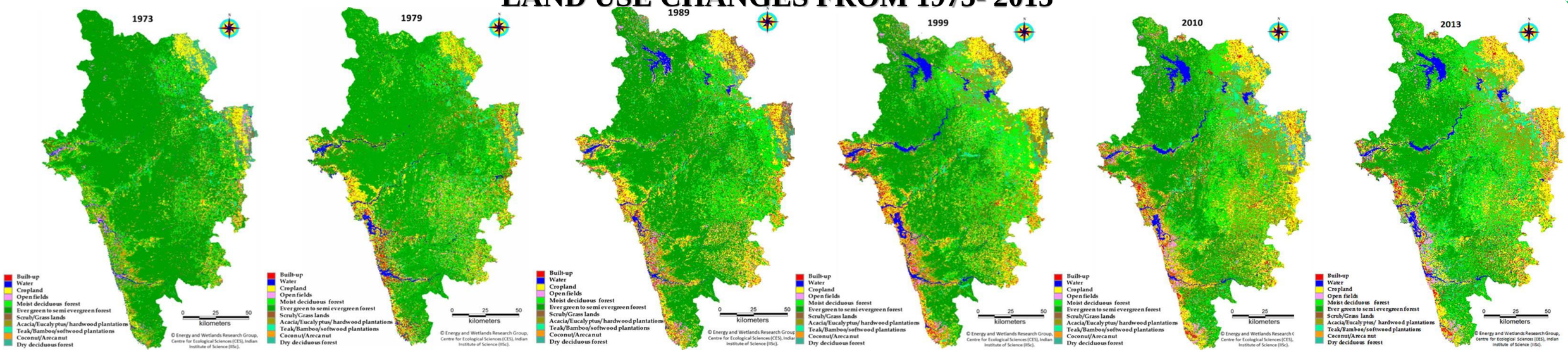
Visualising Landscape Dynamics – Central Western Ghats

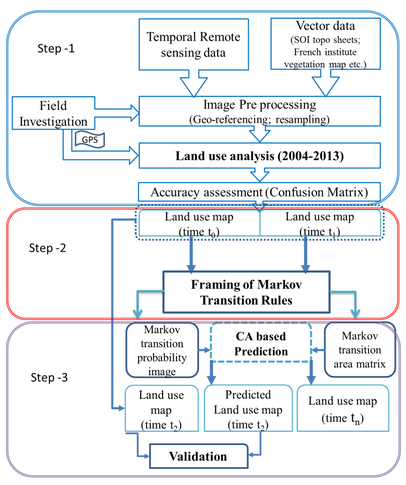
Ramachandra T V, Chandran M D S, Joshi N V, Bharath Setturu

Energy and Wetlands Research Group
Centre for Ecological Sciences,
Indian Institute of Science, Bangalore.

LAND USE CHANGES FROM 1973- 2013

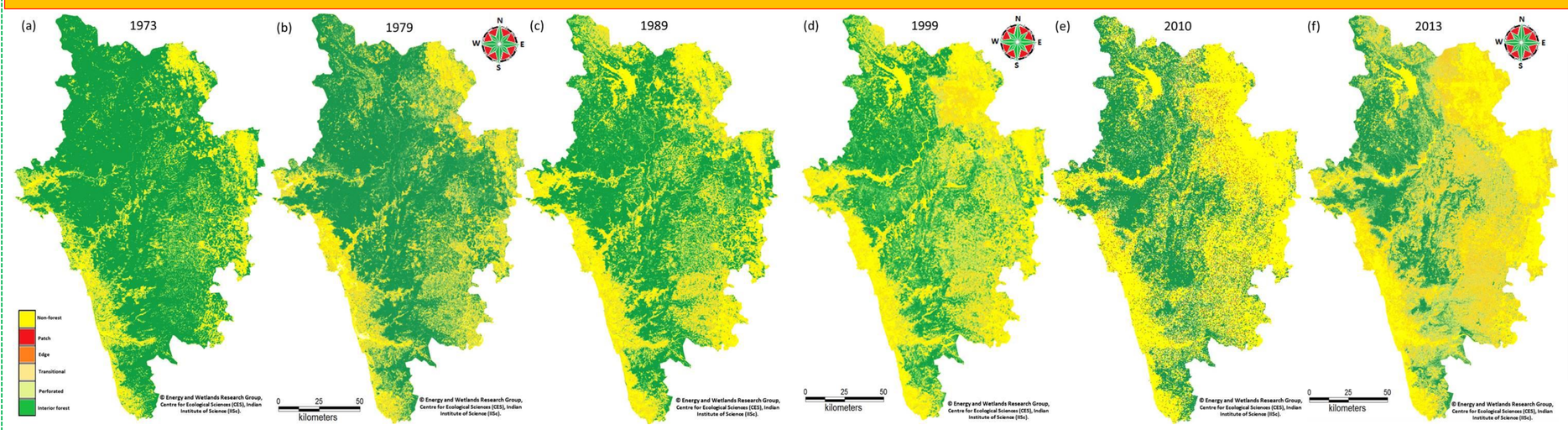


METHOD



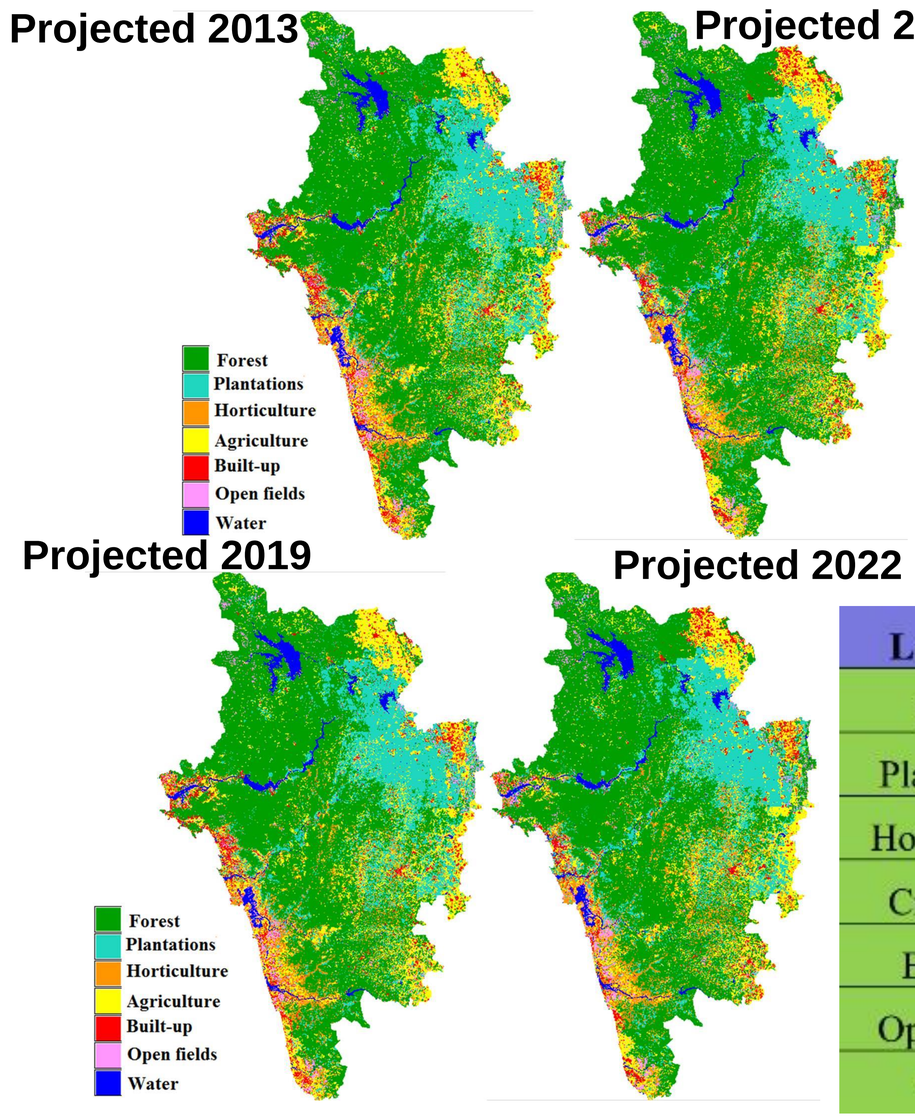
Year	1973		1979		1989		1999		2010		2013		Changes (1973-2013)	
Category	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%	Ha	%	Gain (Ha)	Loss (Ha)
Built-up	3886	0.38	9738	0.95	12,982	1.26	21,635	2.1	28,491	2.77	31589	3.07	27703	
Water	7,681	0.75	18527	1.8	16,604	1.61	32,983	3.21	26,119	2.54	28113	2.73	20432	
Crop land	71,990	7.0	103163	10.02	121,167	11.77	138,458	13.45	148,187	14.4	145395	14.13	73405	
Open fields	14071	1.37	15988	1.55	34,783	3.38	21,945	2.13	30,812	2.99	37660	3.66	23589	
Moist deciduous forest	95,357	9.27	102967	10.01	143,849	13.98	179,075	17.4	166,266	16.15	161,996	15.74	66639	
Evergreen to semi evergreen	696,978	67.73	589762	57.31	531,872	51.68	423,062	41.11	367,064	35.66	330,204	32.08		-366774
Scrub/grass	38,109	3.7	58936	5.73	44,123	4.29	47,366	4.6	35,158	3.42	40402	3.93	2293	
Acacia/Eucalyptus/ hardwood plantations	40,905	3.97	50321	4.89	55,694	5.41	73,977	7.19	119,717	11.63	122927	11.94	82022	
Teak/ Bamboo/ softwood plantations	13997	1.36	20896	2.03	21,937	2.13	38,588	3.75	44,794	4.35	67111	6.52	53114	
Coconut/ Areca nut / Cashew nut plantations	20,702	2.01	29675	2.88	32,227	3.13	43,623	4.24	53,646	5.21	53,993	5.25	33291	
Dry deciduous forest	25,410	2.47	29113	2.83	13,848	1.35	8374	0.81	9008	0.88	9873	0.96		-15537
Total	1029086													

FOREST FRAGMENTATION ANALYSIS



Fragmentation type	1973	1979	1989	1999	2010	2013
Patch	0.31	0.36	1.3	1.75	1.48	2.98
Transitional	1.68	1.98	3.29	3.97	3.41	5.78
Edge	6.79	7.32	12	16.35	16.33	17.48
Perforated	1.64	1.8	1.38	1.11	0.91	0.87
Interior	72.95	64.42	53.33	40.74	33.99	25.62
Non-Forest	16.64	24.13	28.7	36.07	43.88	47.3

VISUALISATION OF FUTURE CHANGES 2013 - 2022

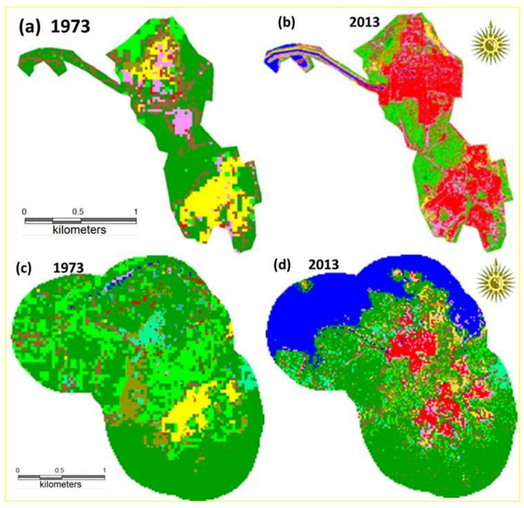


Land use	2013	2016	2019	2022
Forest	52.86	49.87	47.07	44.87
Plantations	18.13	18.8	18.26	17.98
Horticulture	5.83	6.47	724	7.53
Crop land	13.65	13.37	13.76	13.9
Built up	3.63	5.4	7.6	9.15
Open lands	3.02	3.41	3.47	3.97
Water	2.87	2.69	2.6	2.65

The Cellular Automata CA–Markov (Markov-cellular automata with temporal remote sensing data) model has been applied for the landscape visualisation and future land use transitions with respect to each land use category using loop time of 3 years, and was continued for 2013 to 2022 to provide insights in terms of change quantification.

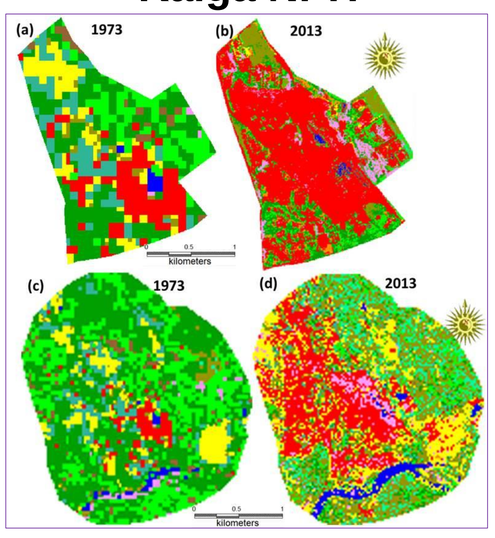
DEVELOPMENTAL PROJECTS AND THEIR IMPACTS

West coast Paper mill



S.No.	Particulars.	Area in Ha.
1	The forest area released for cultivation by 3 men committee from 1964 to 1969	6042.500
2	Forest area released as per special G.O.No.AFD.116 of 16/4/69.	11593.342
3	Forest area released as per G.O.No.AFD-282-FGL74 of 17/19-12-1974.	3399.400
4	Forest area released for long lease.	162.100
5	Hangami Lagan in Notified area.	8034.450
6	Extension of Gouthana.	390.400
7	Forest area released for township.	1096.900
8	Mining area leased & area actually in operation.	1591.250
9	Released to House sites to Houseless (1972-1979)	366.000
10	Rehabilitation of Tibetans displaced Ryots of Sharavathi Ghataprabha & Malaprabha, Gowli families etc.	4548.170
11	Area under submersion & other Project. 1. Kali Hydro Project. 2. Bedti Project (for colony) 3. Other irrigation tanks etc.	14602.000 300.000 303.365
12	Released to KSFIC for Napier Hybrid grass cultivation (Sirsi Division)	441.450
13	Released to KAMCO (Dairy & fruit processing Unit)	153.993
14	Released to KSFIC for Pineapple cultivation.	163.320
15	Karnataka State Veneers Ltd.	24.000
16	Power transmission lines.	677.979
17	For establishment of Industries.	95.000
18	Area released to Horticulture department (1969-70).	71.847
19	Released to Agricultural University, Dharwad.	214.000
20	Sharavathi Tail Race.	700.000
21	Kaiga Atomic Power Project.	732.000
22	Sea Bird Naval Base Project.	2259.000
23	Rehabilitation of Sea Bird out seas.	643.720
24	Area released for non-agriculture & other purposes.	394.870
25	Konkan Railway.	272.140
26	Area released for improvement & widening of AnkolaHubli Road.	49.431
27	Area released for rehabilitation of displaced persons of KHEP & Kaiga Project.	316.410
28	Area released to regularise the encroachments, which have taken place before27-04-1978.	2845.446
29	Area released to construction of 400 KVDC alternate transmission line between Kaiga NPP and 200 KV substation at Narendrain favour of M/s. P.G.C.I.L, Karnataka.	330.00
	TOTAL	62814.483

Kaiga NPH



SIGNIFICANT FINDINGS

- Deforestation in the district is evident from the decline of evergreen forest.
- Spatial extent of interior forest in the district is 25.62%.
- Unplanned developmental activities and encroachment of forest lands are the main drivers of deforestation.

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Dr. T V Ramachandra,
Convener - ENVironmental Information System [ENVIS]
URL: http://www.ces.iisc.ernet.in/energy,
Email: cestvr@ces.iisc.ernet.in; energy@ces.iisc.ernet.in,
Phone: 91-080-22933099/2293 3503 (extn. 101/107).