

Land and Forest Cover Change in Chure: What is the role of Community Forestry?



Prepared by:

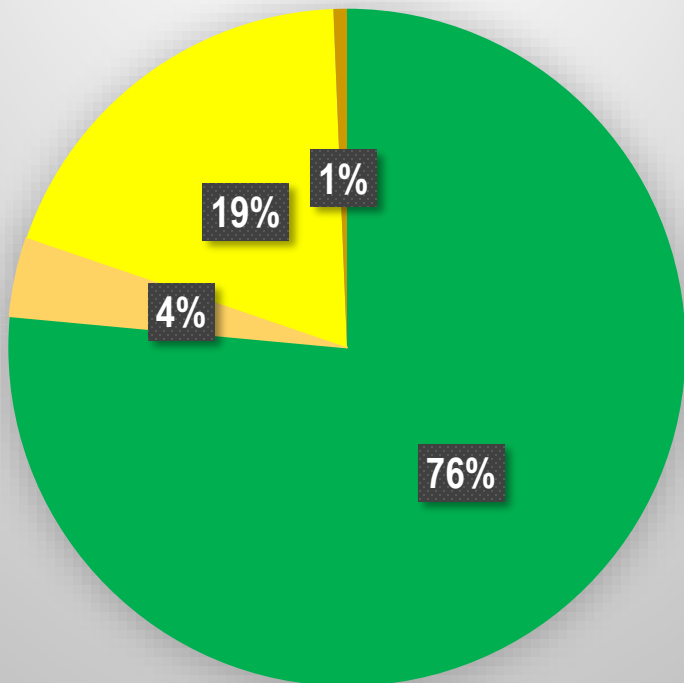
Dr. Bharat K Pokharel

Dr. Dharam raj Uprety

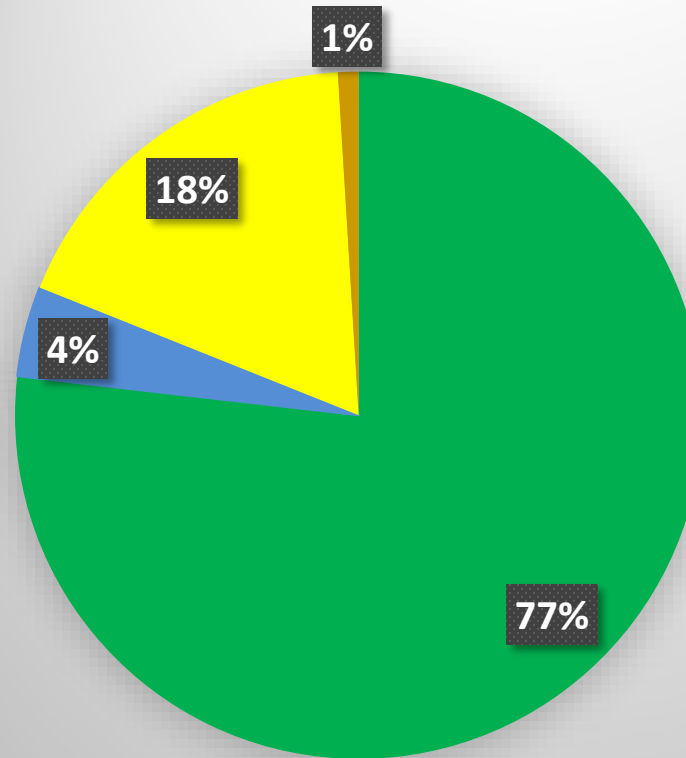
Rabin Raj Niraula

Main Message 1

1992



2014

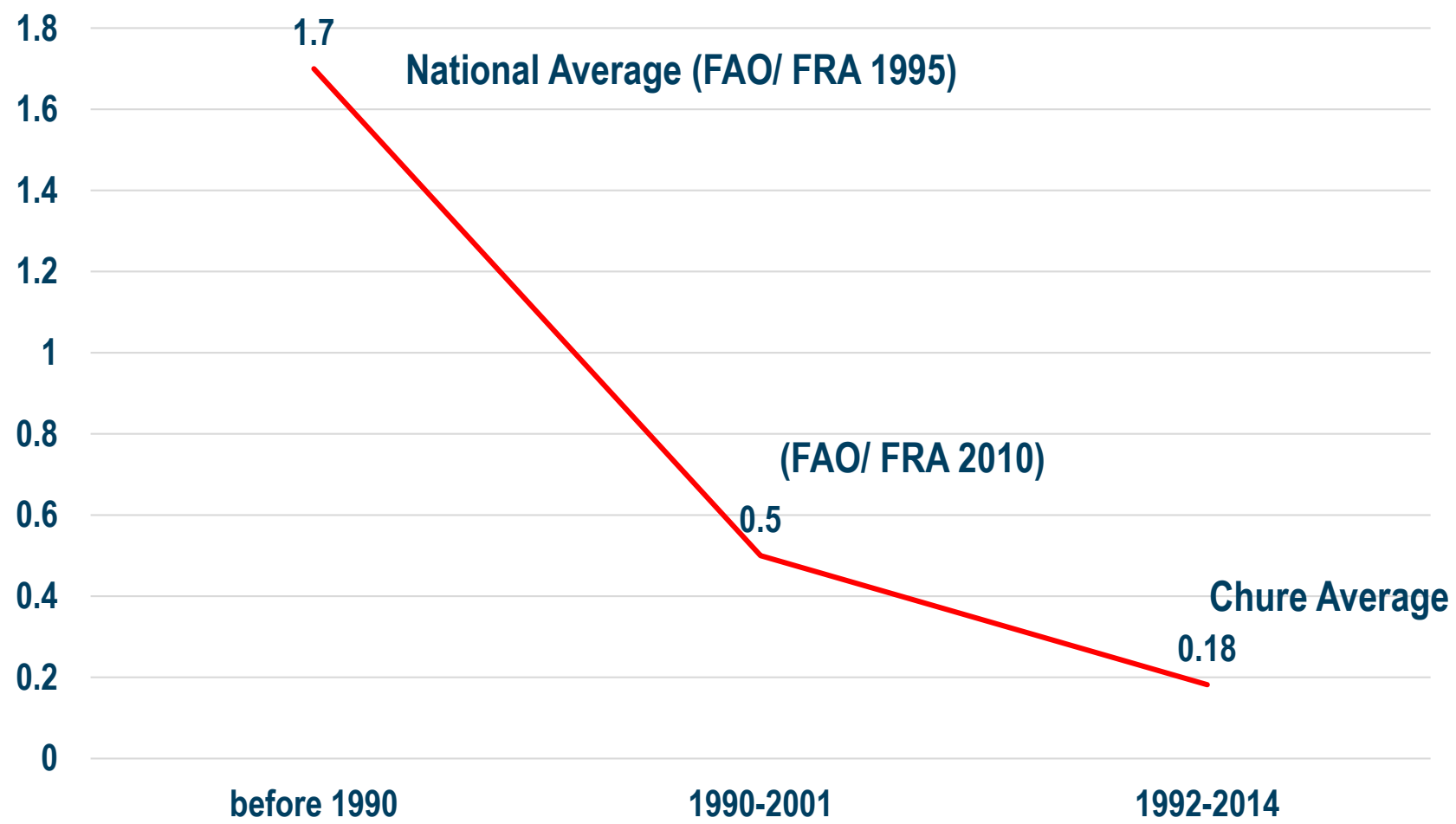


- Forest (Dense/Sparse/bushes/Grass)
- Waterbodies/Riverbed
- Cultivated
- Barrenland

Forest has increased in Chure region

Main Message 2

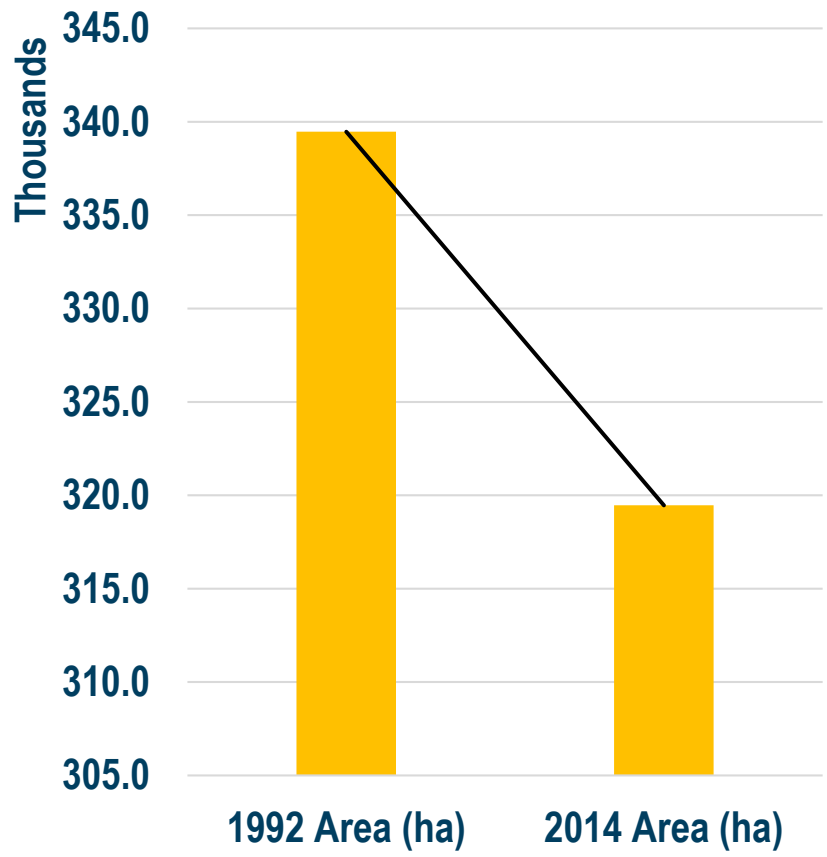
Deforestation rate



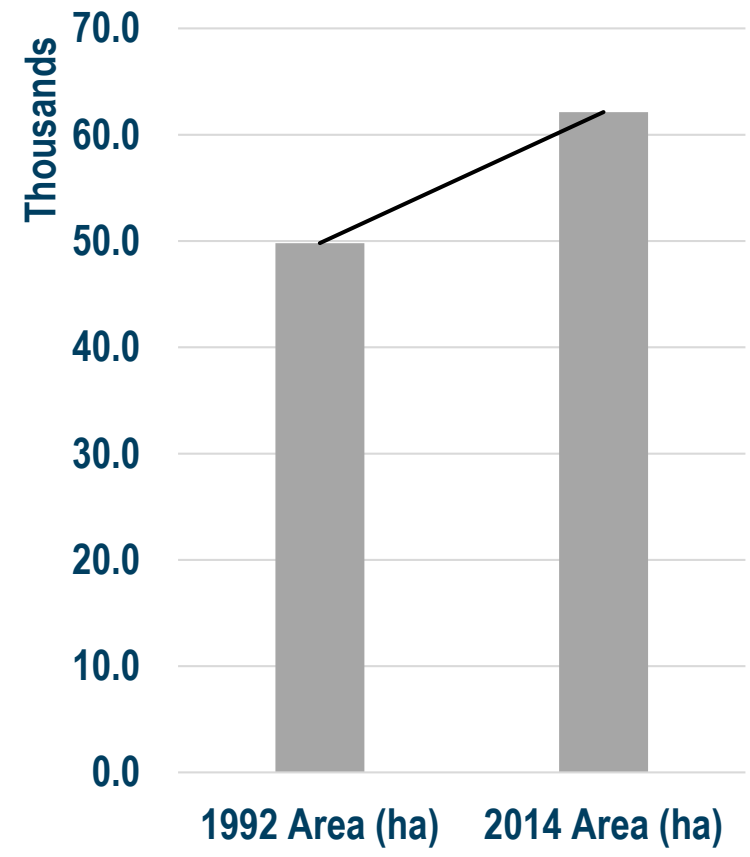
Deforestation rate has tremendously decreased

Main Message 3

Cultivated Land



Riverbed



Chure area has undergone huge decrease in cultivation area with an increase in riverbed

Main Message 4

Five best green performing districts

- Argakhachi
- Palpa
- Kanchanpur
- Kapilbastu
- Rupandehi

Five bad performing districts

- Siraha
- Dhanusa
- Sunsari
- Ilam
- Mahottari

Main Message 5

- Community Forest is comparatively best performer regime than other regimes
- Deforestation rate outside community forest is almost 60% higher
- Forest outside CF has deforestation rate of 0.22% per year. If this trend continues, it takes about 455 years to completely deforest outside CF
- Forest inside CF has deforestation rate of 0.13% per year. If this trend continues, it takes about 770 years to completely deforest CF

Background

It is understood that Chure has variety of degradation and deforestation issues which needs intervention to manage in future but the outcomes of community forestry, as myriads of research claims to improve the forest condition should not be overlooked.

It becomes highly important and relevant to inform all stakeholders with the results of change in forest, positive or negative, where it occurred and the possible drivers.

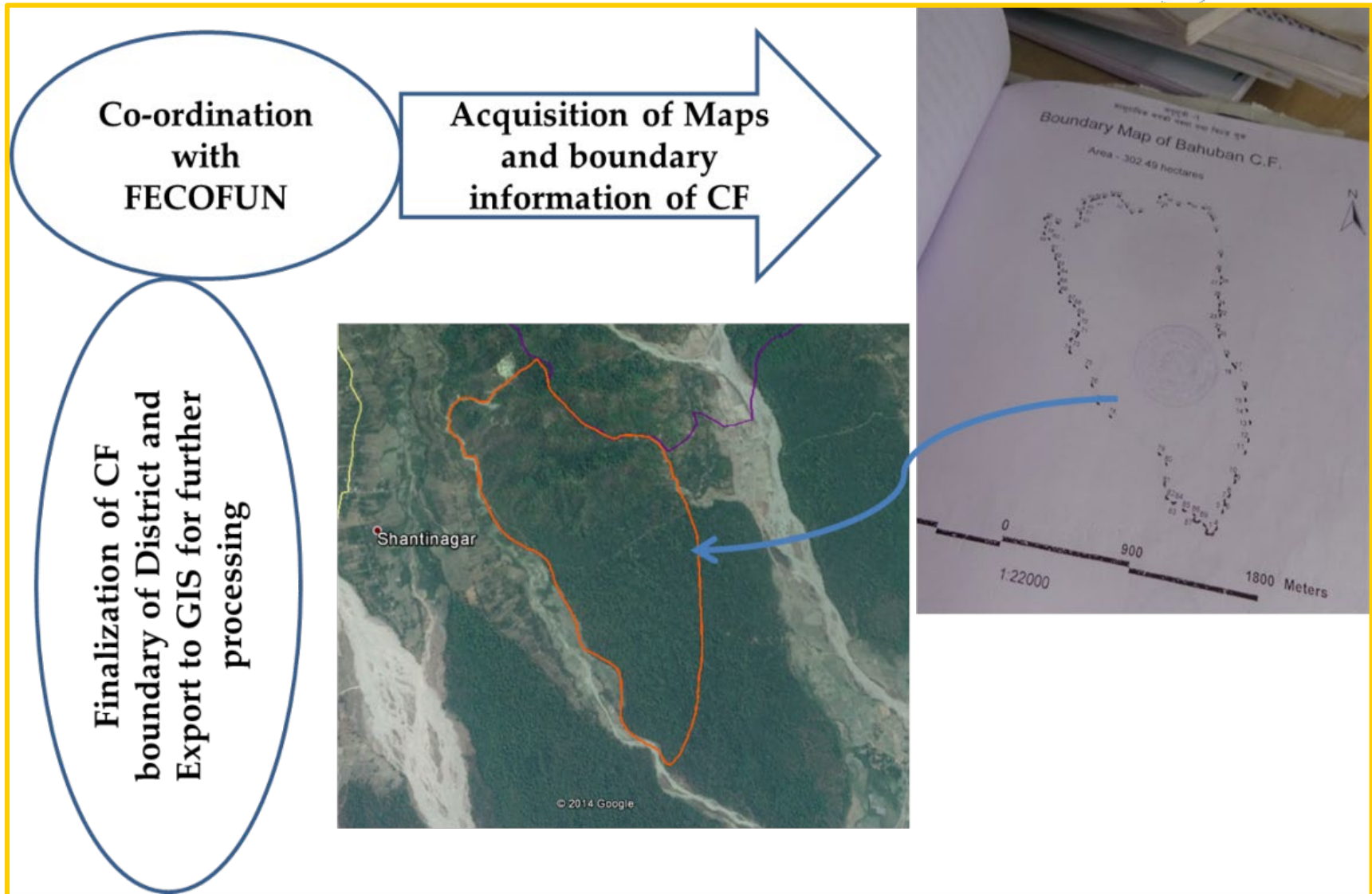
Limitations

As much is expressed about deforestation and degradation in chure, some cases from bhabar zone could be the major contributors, which is not reflected in this study; as it covers chure (Siwaliks) boundary only

Aim

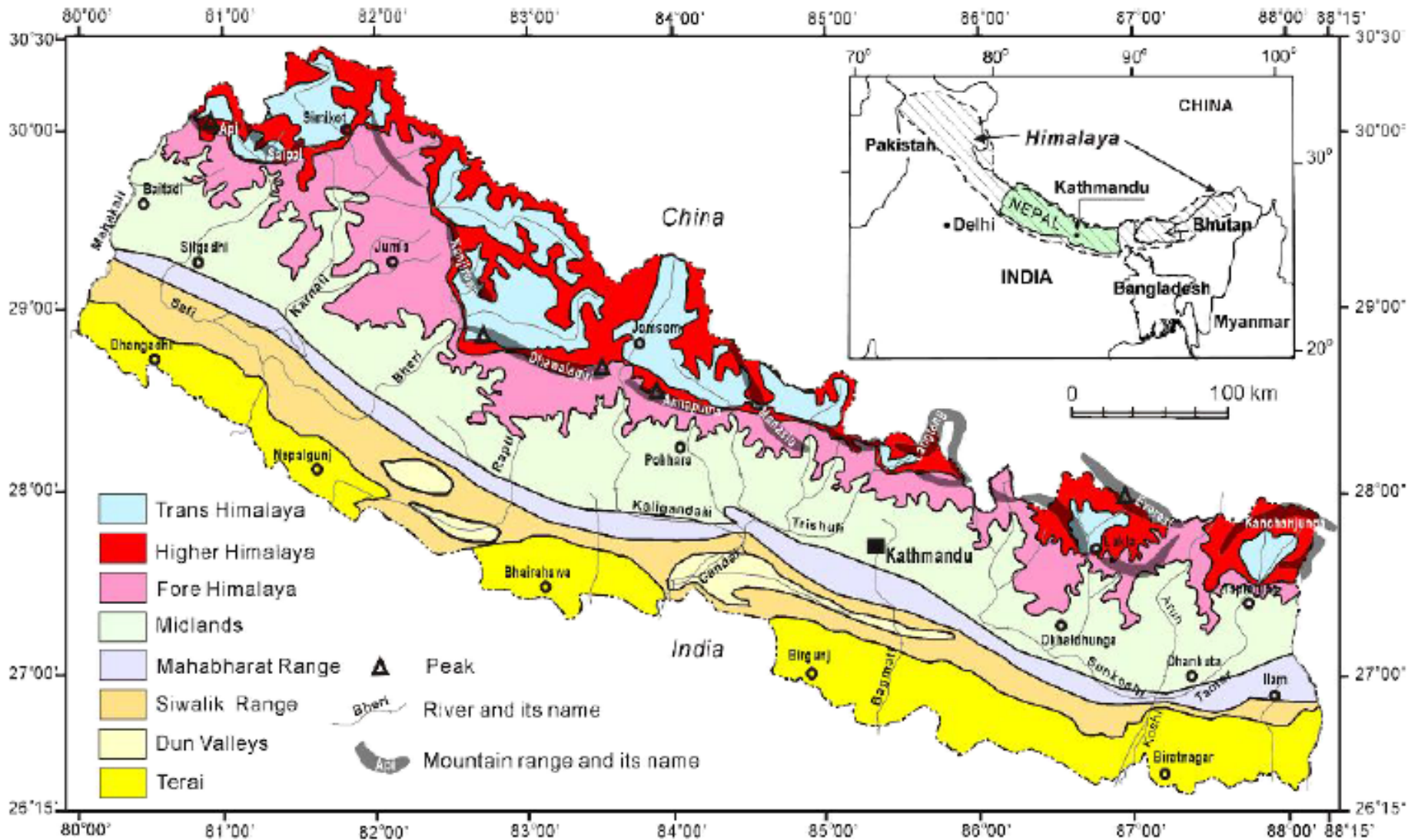
The aim of this study is to demarcate community forests in chure and assess the forest cover change inside community forest and chure as a whole.

The change as an indicator is supposed to provide measurement of performance of CFUG against other forest management regimes.

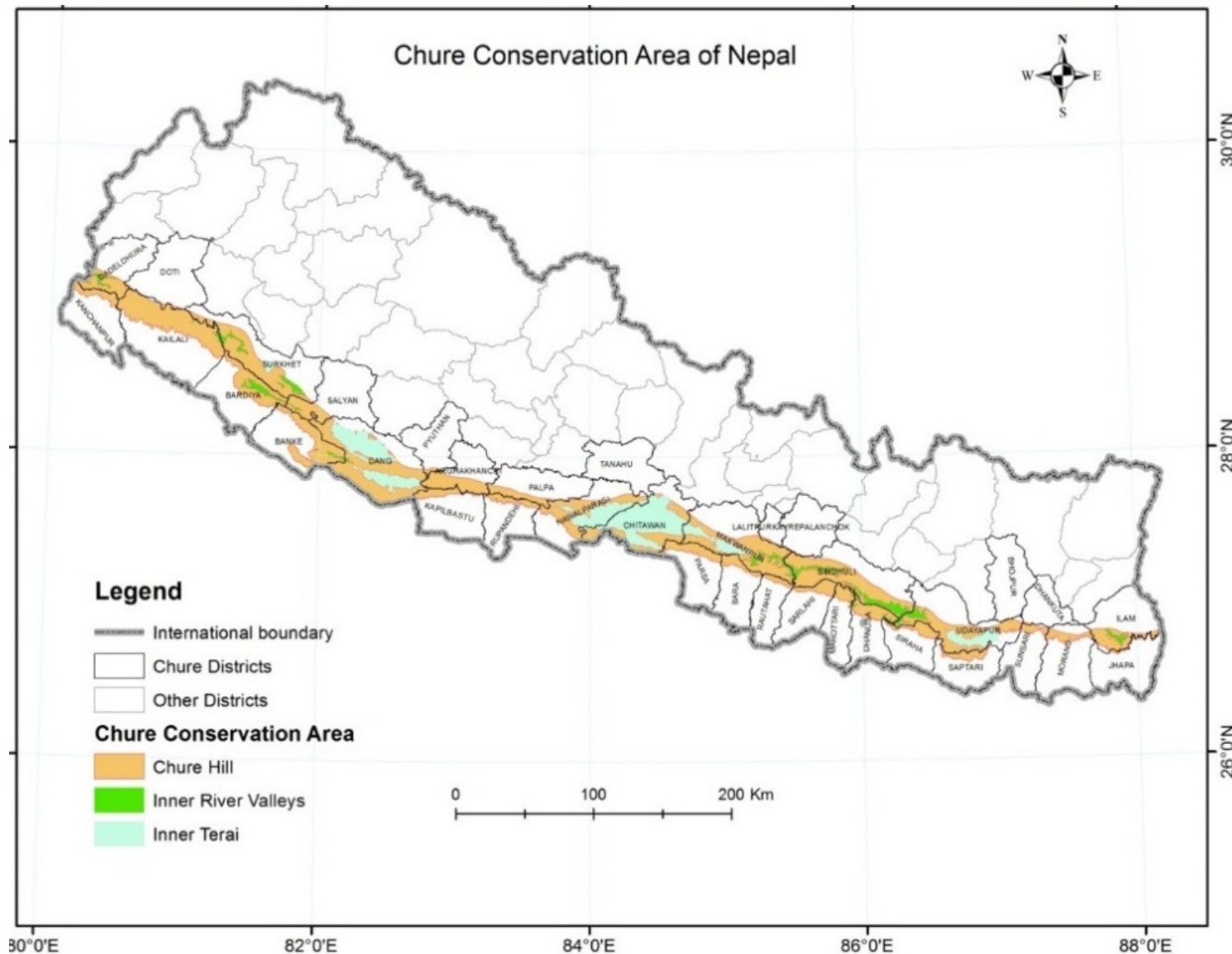


This project draws on rapid mapping of CFUGs in 36 Chure district with local support

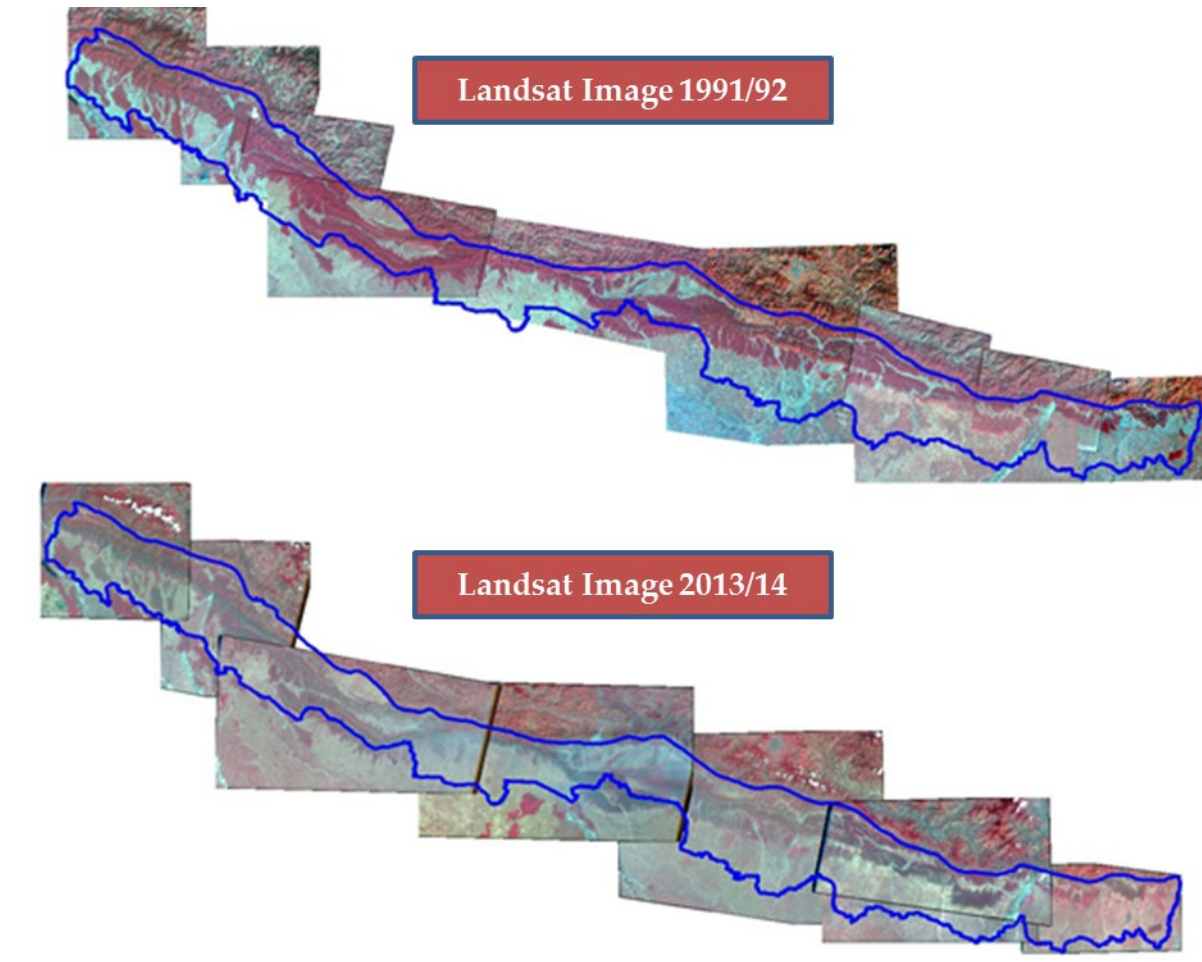
Geological divisions of Nepal



Chure covers 12.7% of Nepal's land area



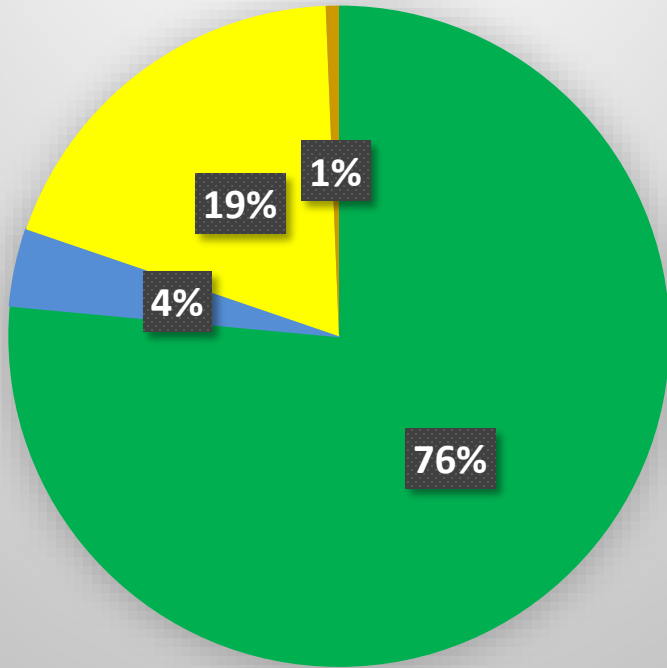
Opportunities



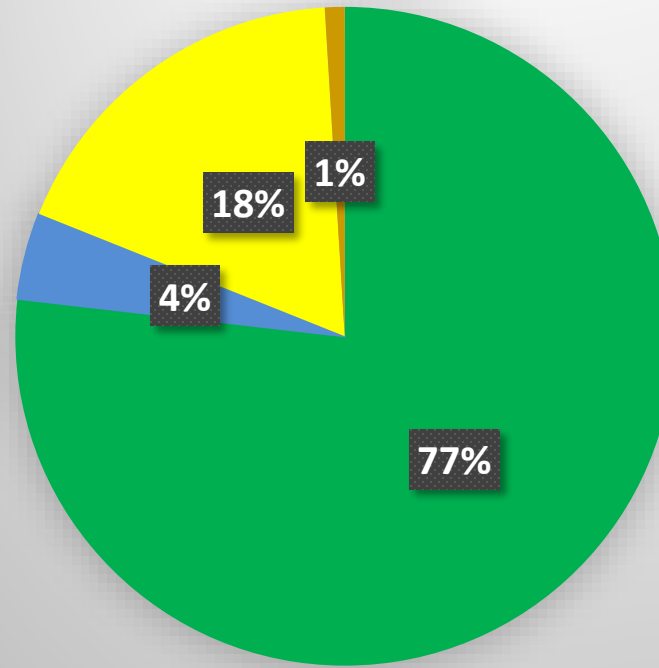
-Satellite imageries are available from USGS to compare decadal changes

Land use pattern in Chure: 1992 & 2014 compared

1992



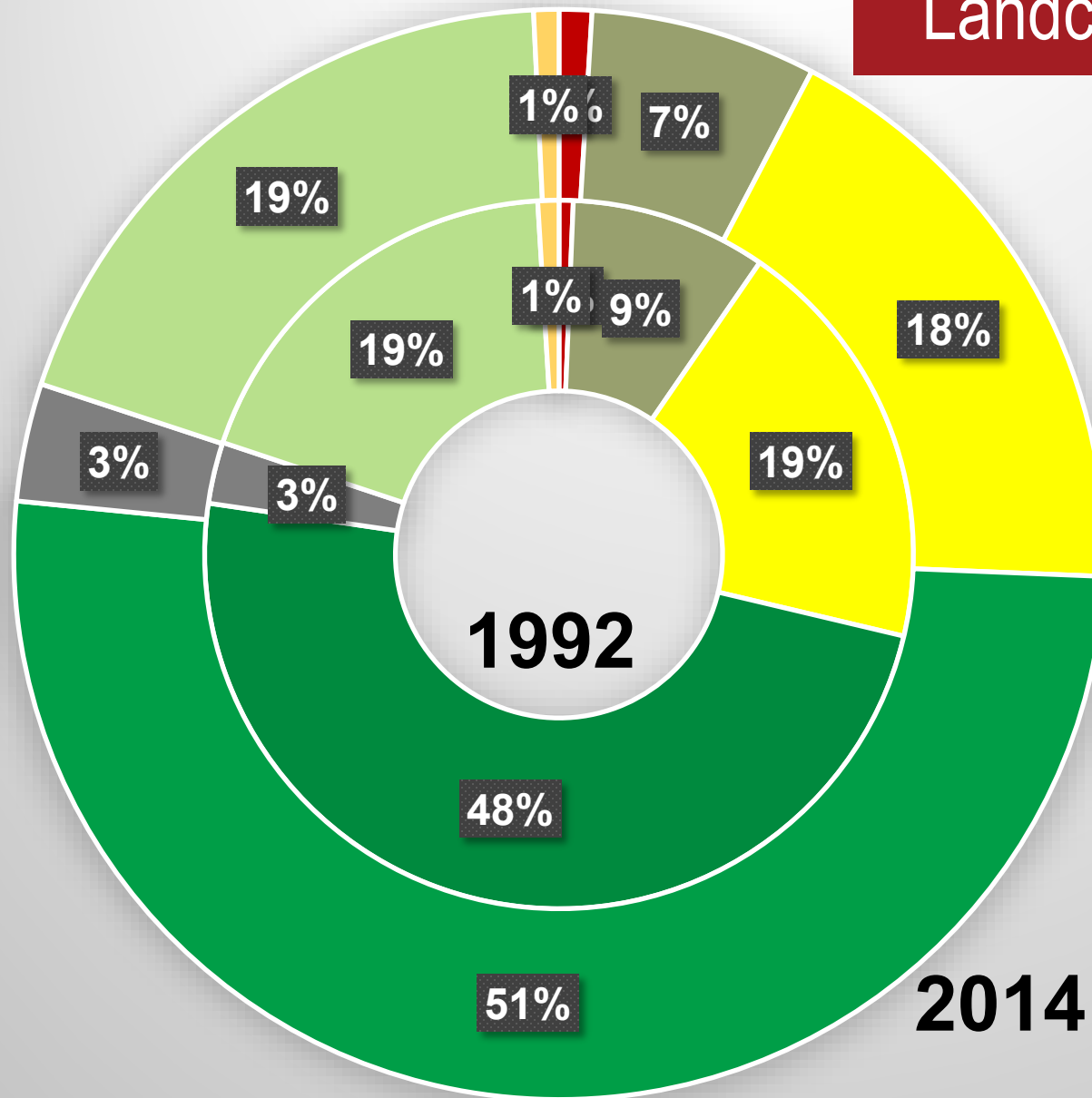
2014



- Forest (Dense/Sparse/bushes/Grass)
- Waterbodies/Riverbed
- Cultivated
- Barrenland

Forest actually increased in Chure area during 1992 to 2014

Landcover Change



- Barren Land
- Bushes/Grass
- Cultivated Land
- Dense Forest
- Riverbed
- Sparse Forest
- Waterbodies

Landcover change in chure

Table: Landcover change in Chure between 1992 and 2014

	Sum of 1992 Area (ha)	Sum of 2014 Area (ha)	Change Area (ha)	Rate of Change per year
Dense Forest	863190.7	905163.4	41972.6	0.22
Sparse Forest	336001.8	341145.3	5143.5	0.07
Bushes/Grass	158814.5	119120.2	-39694.3	-1.30
Cultivated Land	339471.3	319463.6	-20007.7	-0.28
Barren Land	11433.6	17215.8	5782.2	1.88
Waterbodies	17059.0	13265.8	-3793.2	-1.14
Riverbed	49800.5	62132.6	12332.1	1.01

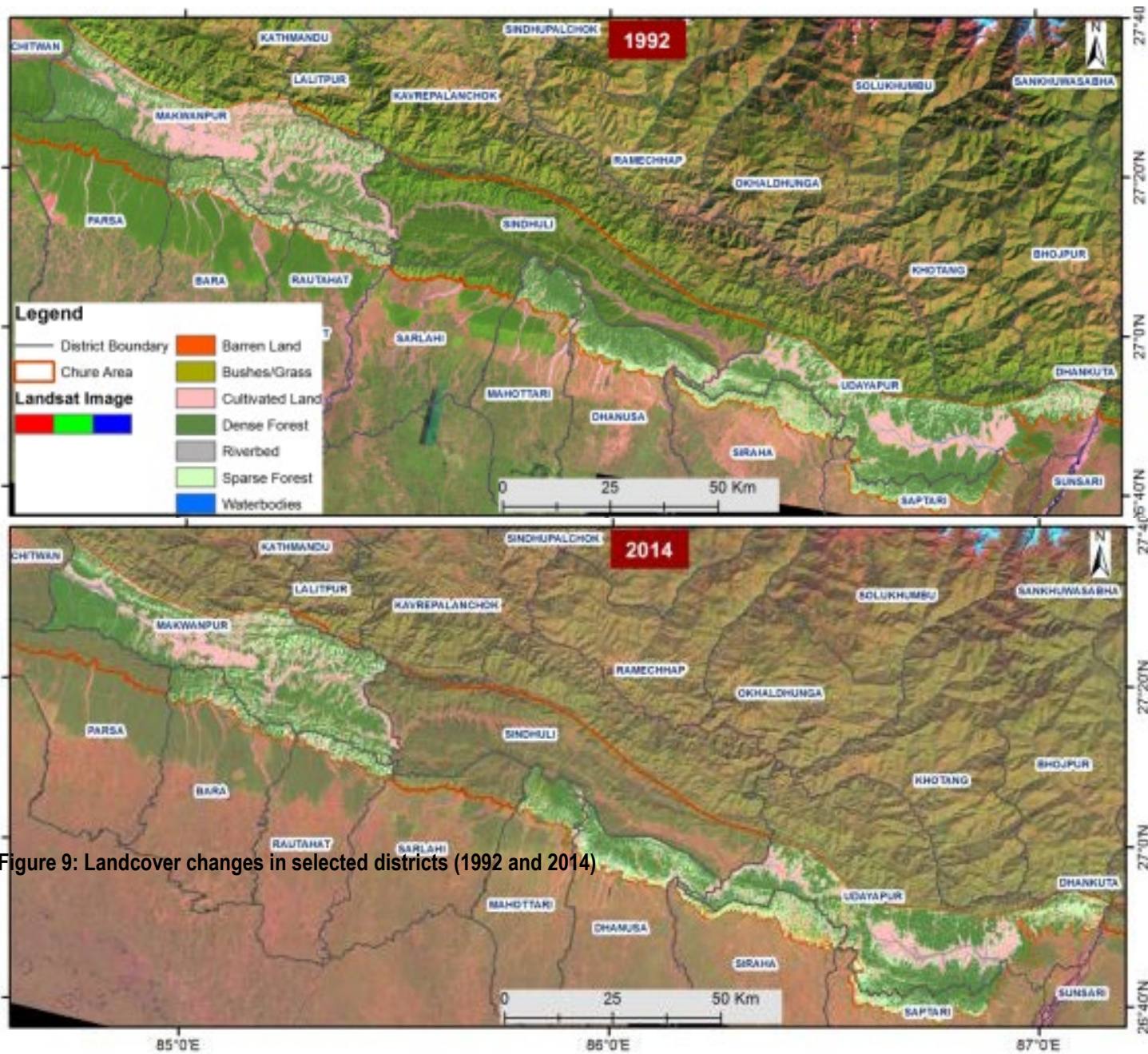
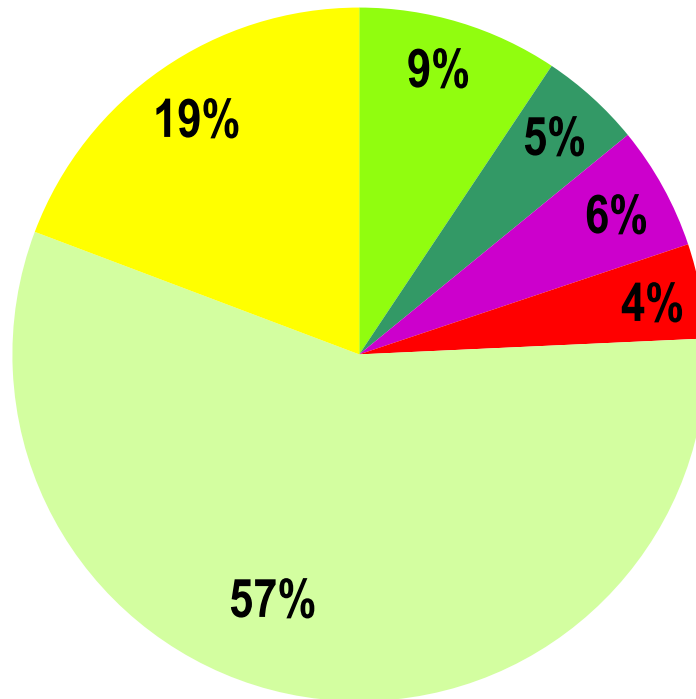


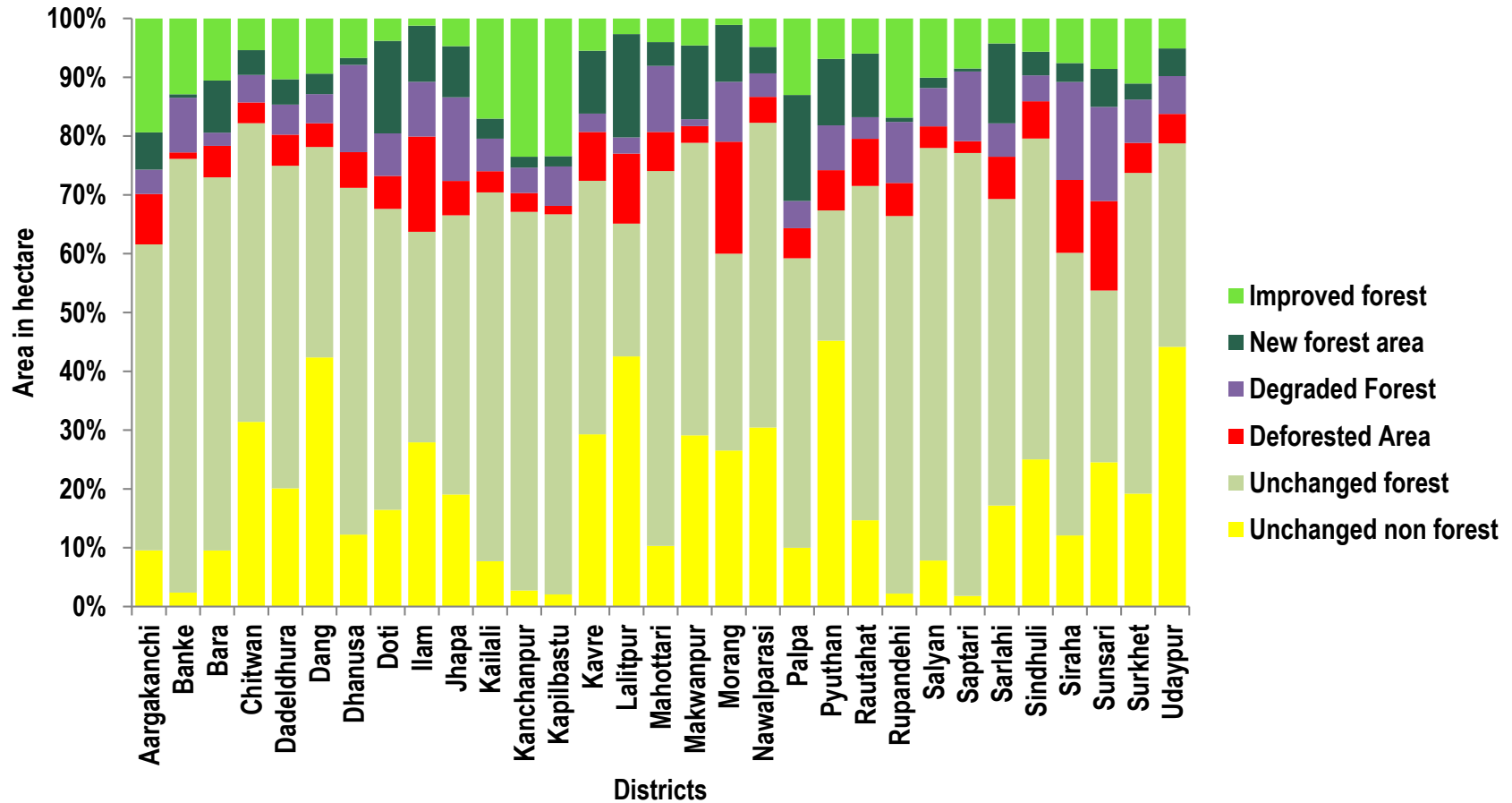
Figure 9: Landcover changes in selected districts (1992 and 2014)

Forest Cover change in Chure

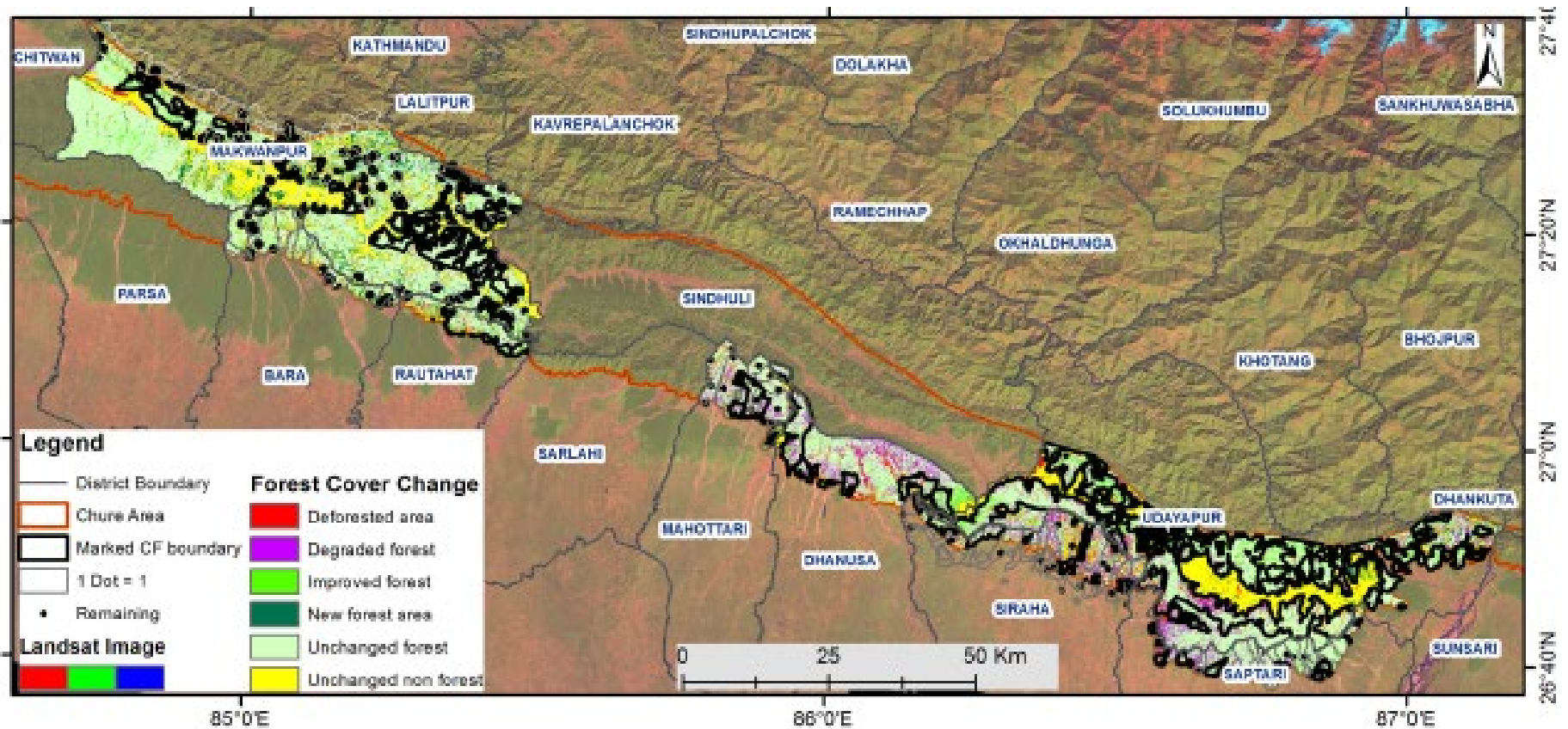


- Improved forest
- New forest area
- Degraded Forest
- Deforested Area
- Unchanged forest
- Unchanged non forest

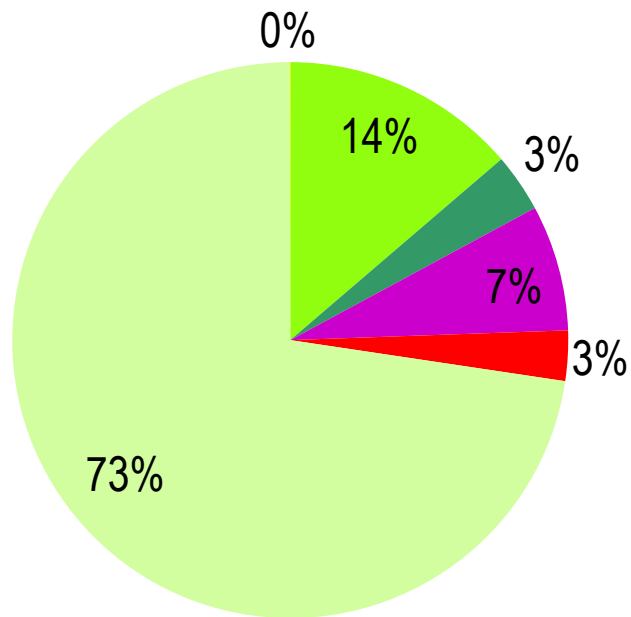
Forest Cover change in each districts



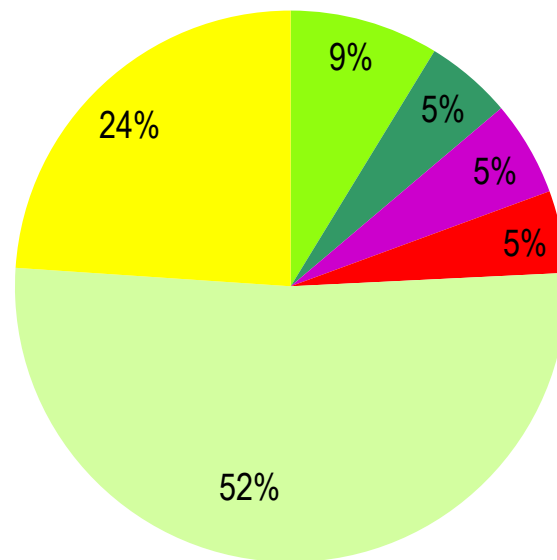
Changes inside and outside CF



Forest Cover change comparison inside and outside CF

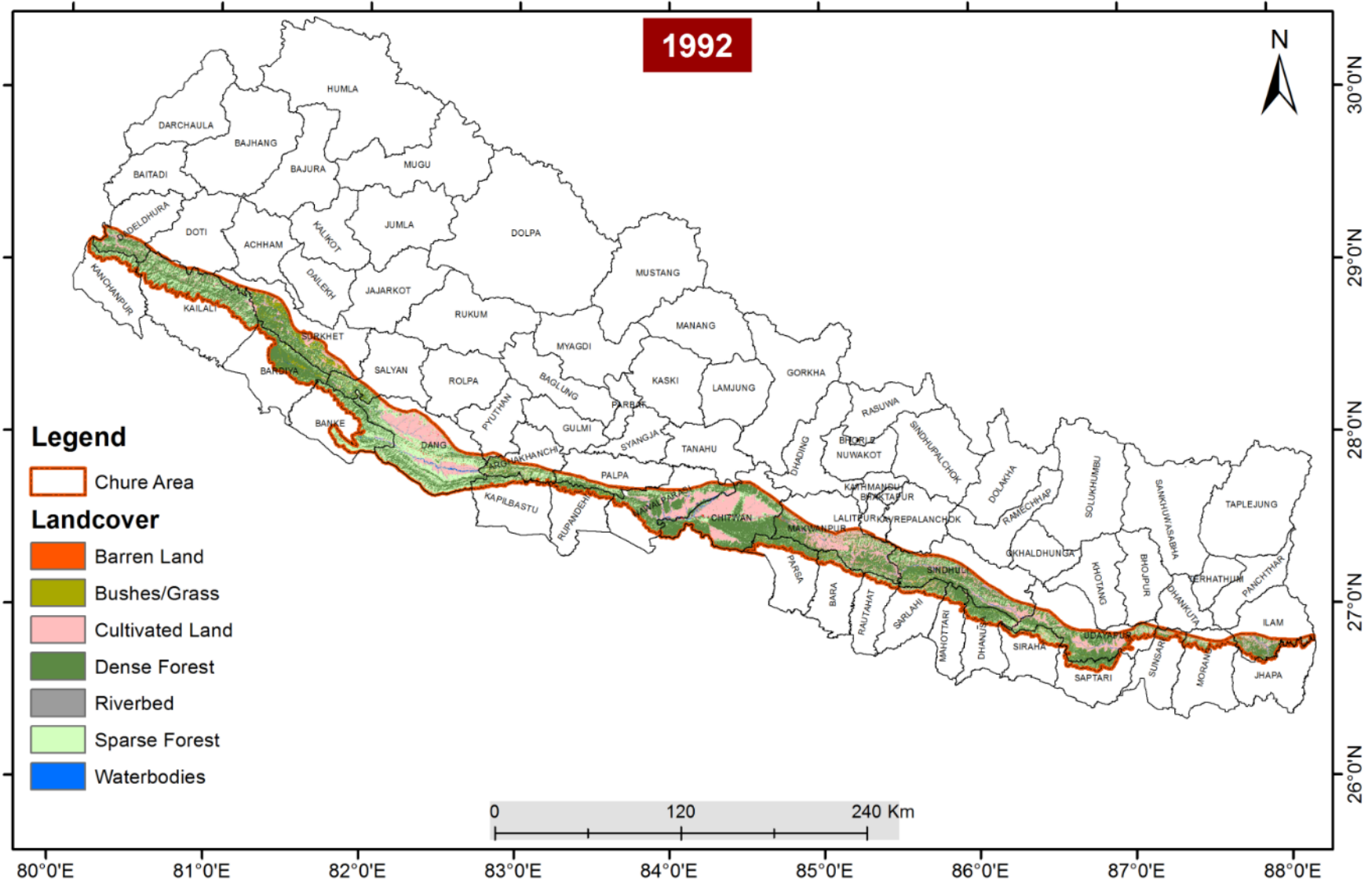


a)inside CF



b)outside CF

- Improved forest
- New forest area
- Degraded Forest
- Deforested Area
- Unchanged forest
- Unchanged non forest




2014










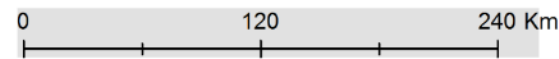
30°0'N
29°0'N
28°0'N
27°0'N
26°0'N

Legend

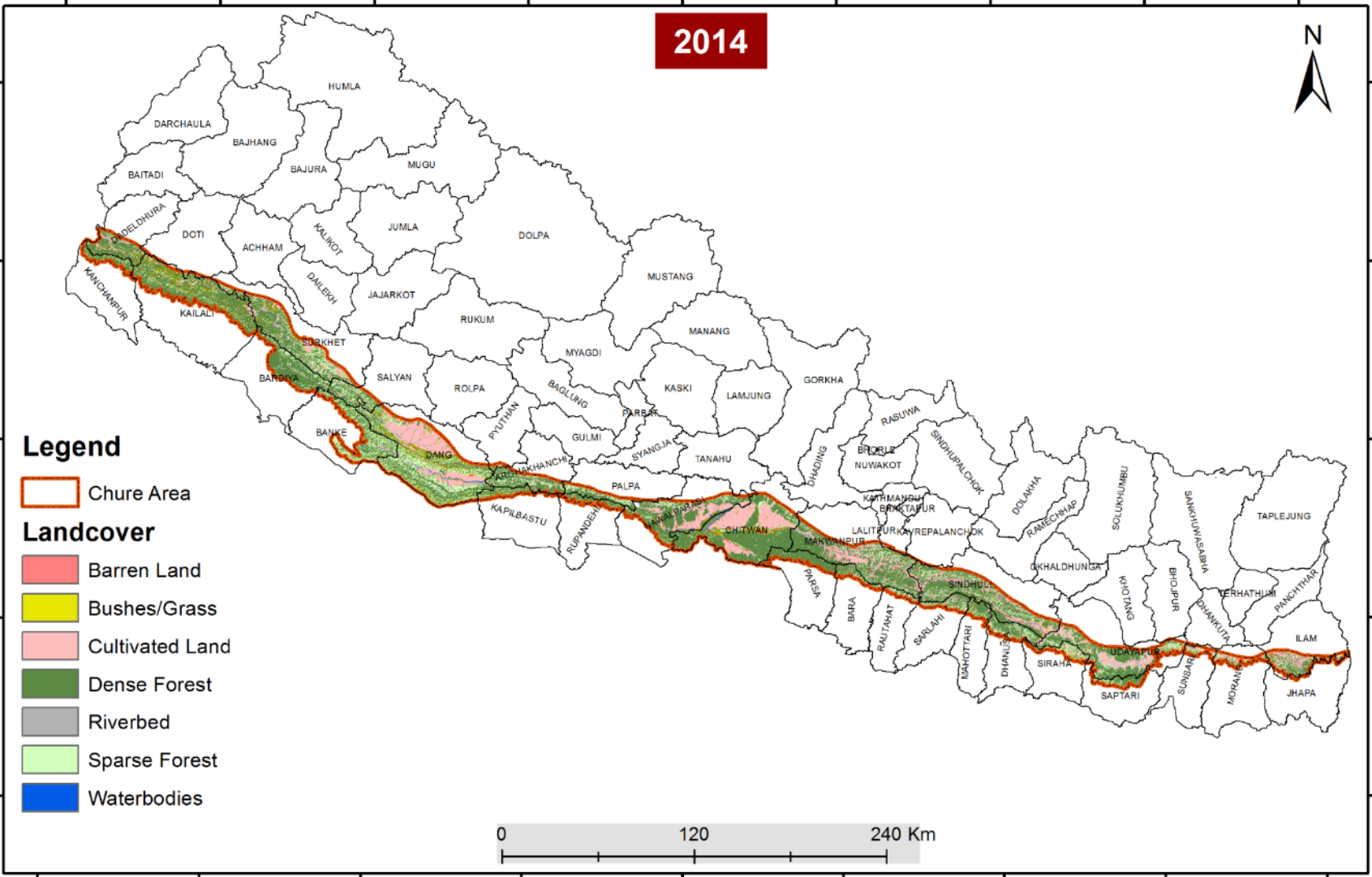
 Chure Area

Landcover

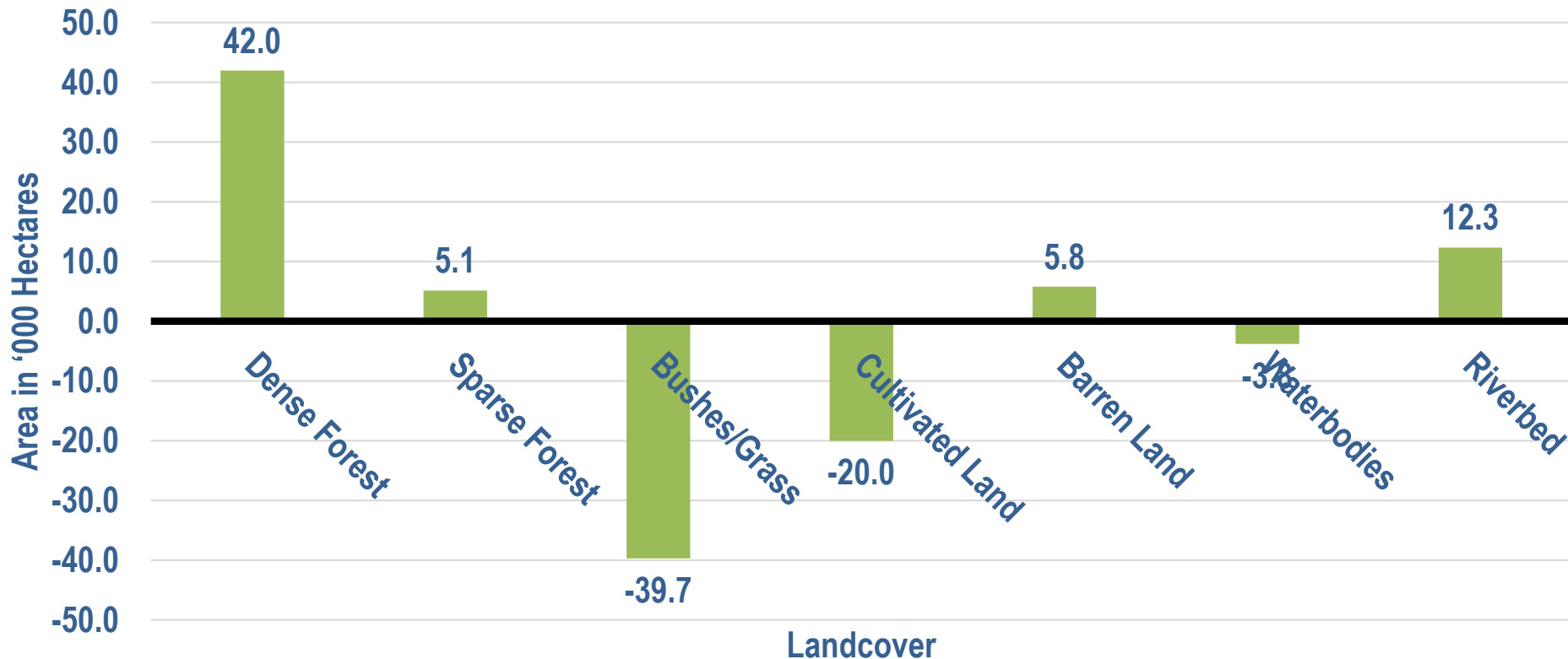
-  Barren Land
-  Bushes/Grass
-  Cultivated Land
-  Dense Forest
-  Riverbed
-  Sparse Forest
-  Waterbodies



80°0'E 81°0'E 82°0'E 83°0'E 84°0'E 85°0'E 86°0'E 87°0'E 88°0'E

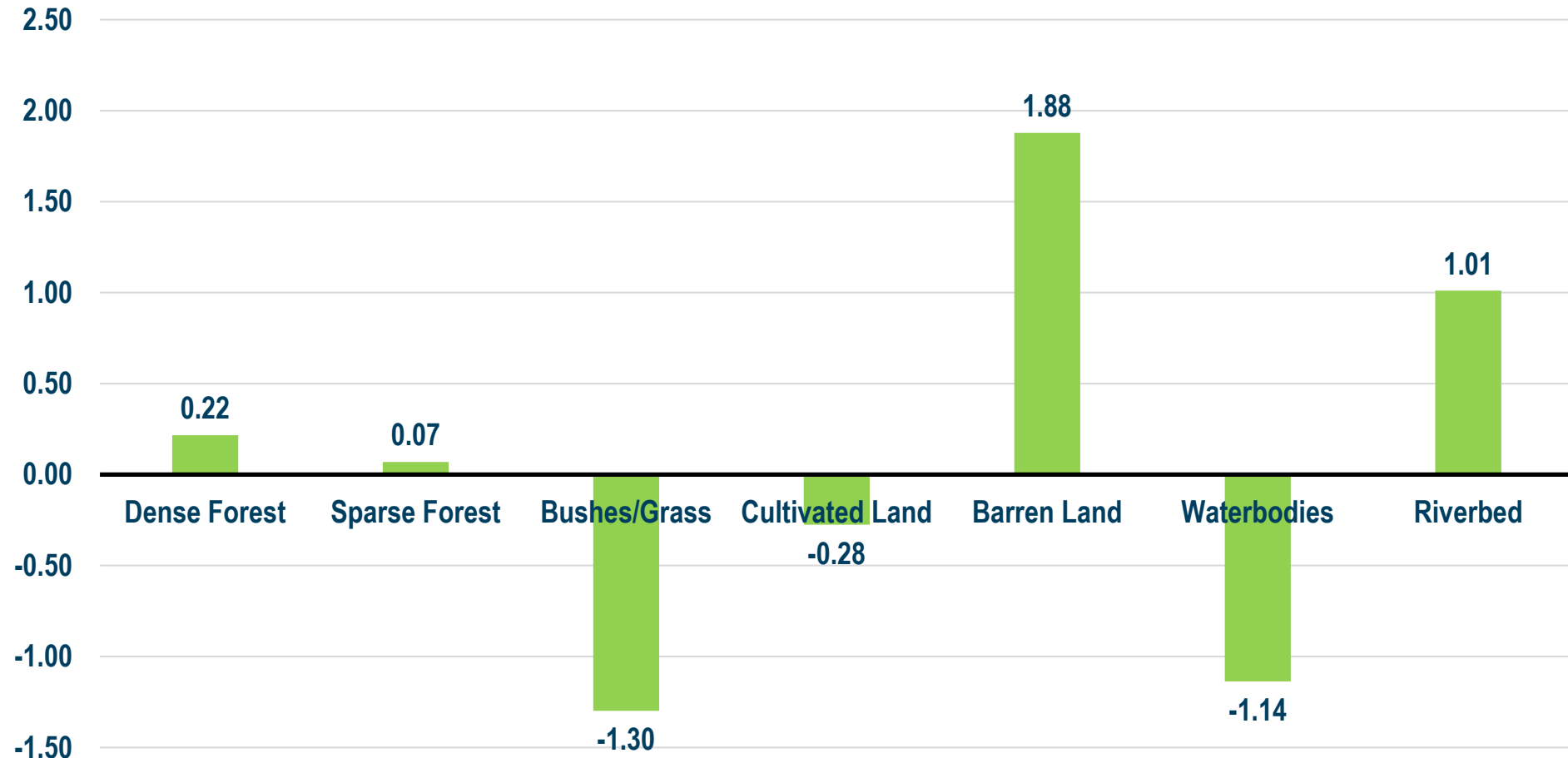


Total Change in Chure



A total of 42,000 hectares of Dense forest has increased in Chure

Rate of Change per year



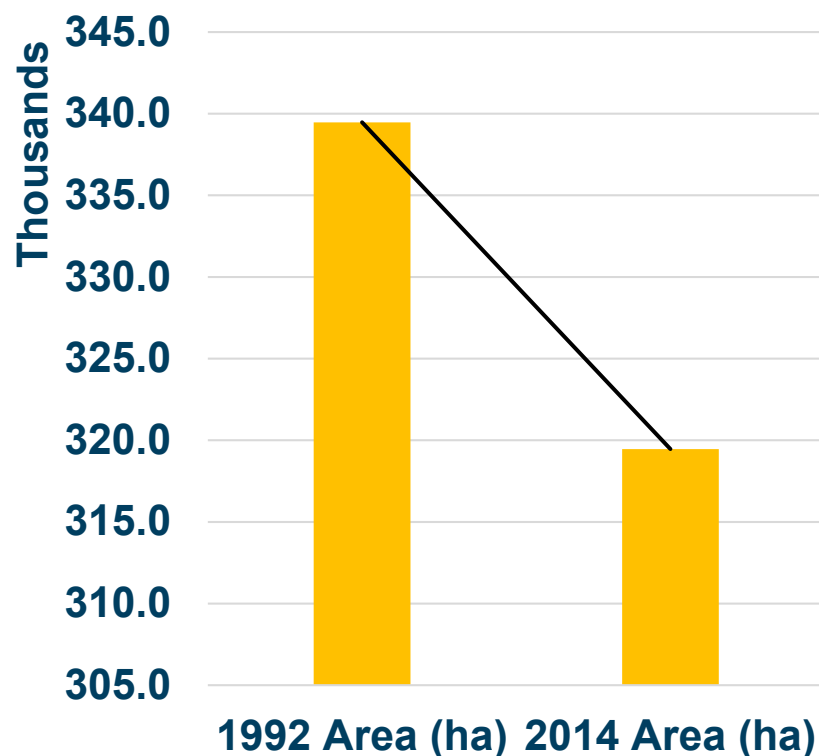
Barren Land is increasing at the rate of 1.88% per year

Riverbed is increasing at the rate of 1.01% year per year

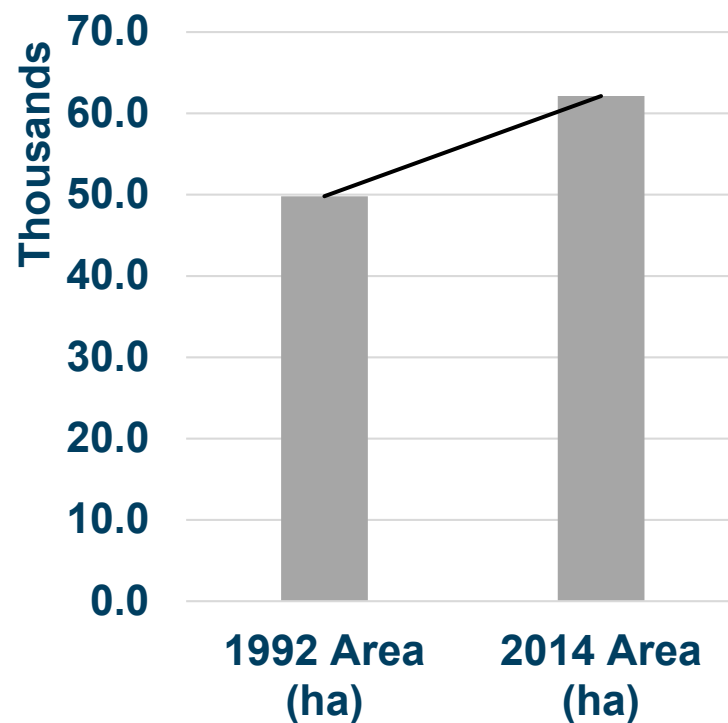
Cultivation has decreased

	Sum of 1992 Area (ha)	Sum of 2014 Area (ha)	Change	Rate of Change per year
Cultivated Land	339471.3	319463.6	-20007.7	-0.3
Riverbed	49800.5	62132.6	12332.1	1.6

Cultivated Land



Riverbed



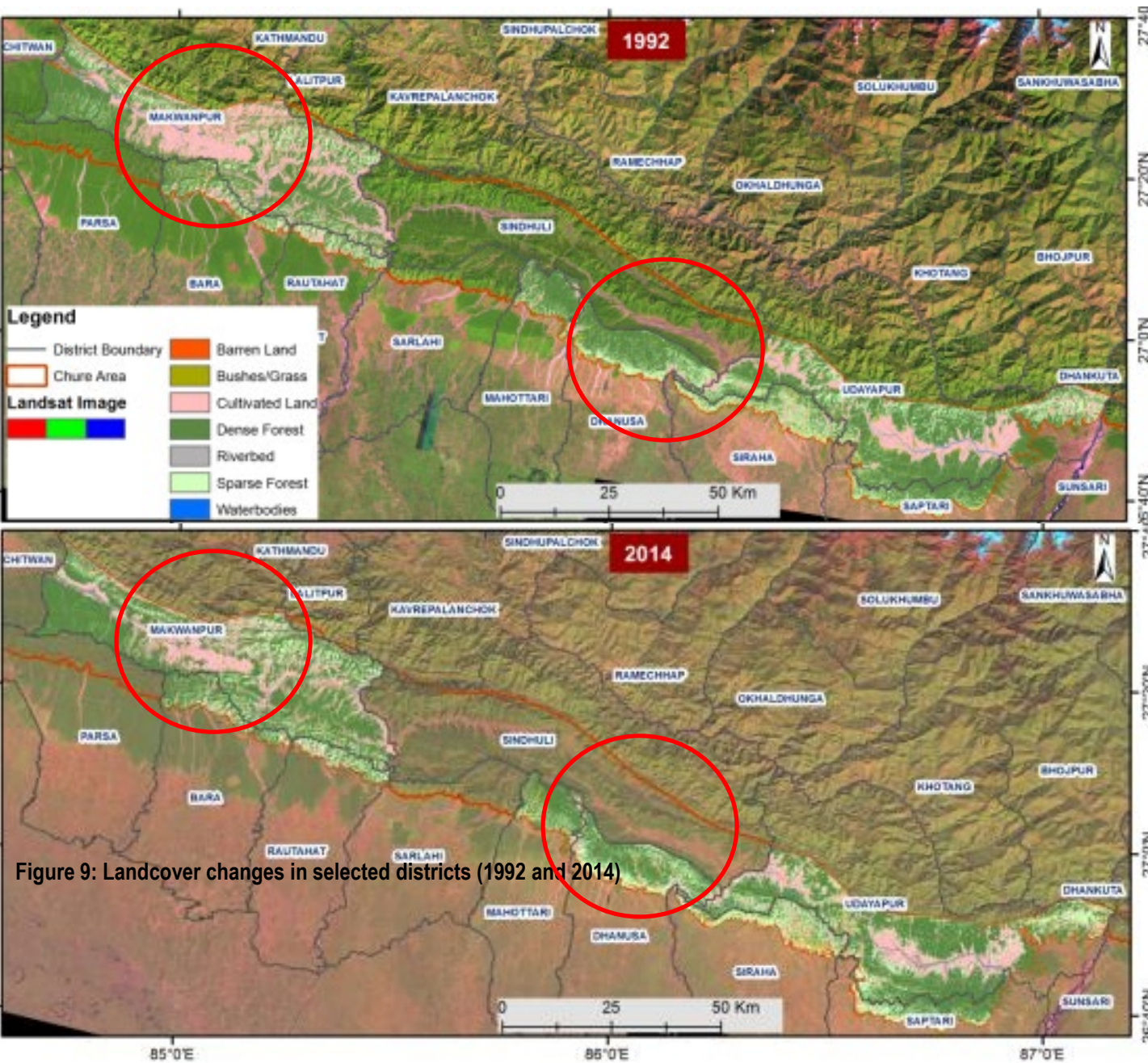
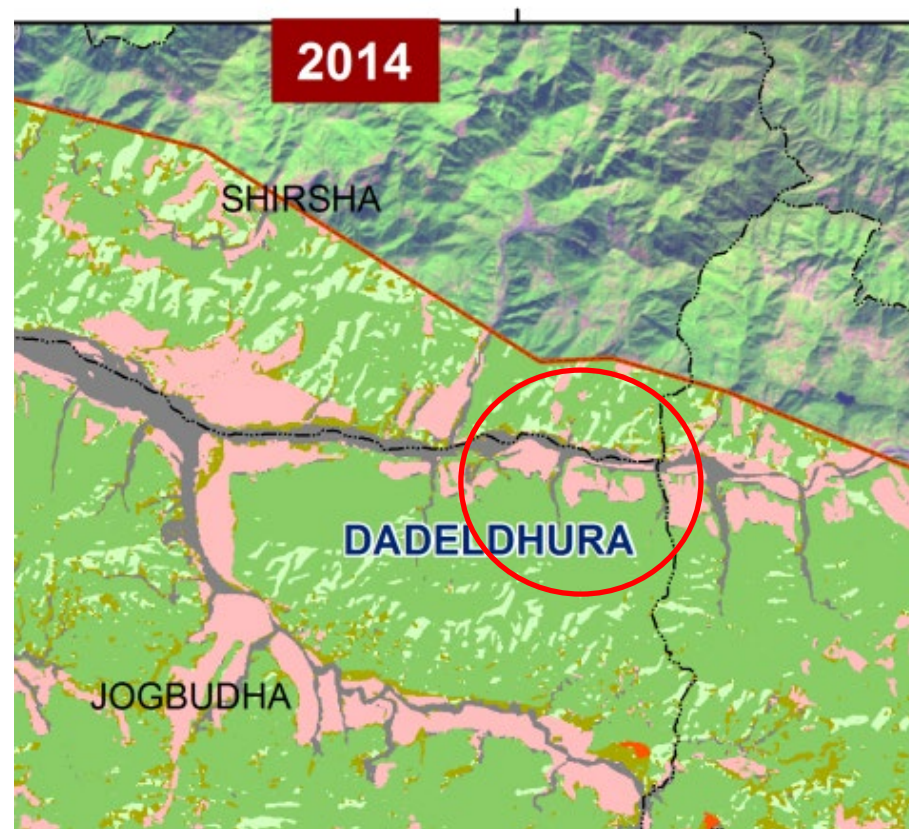


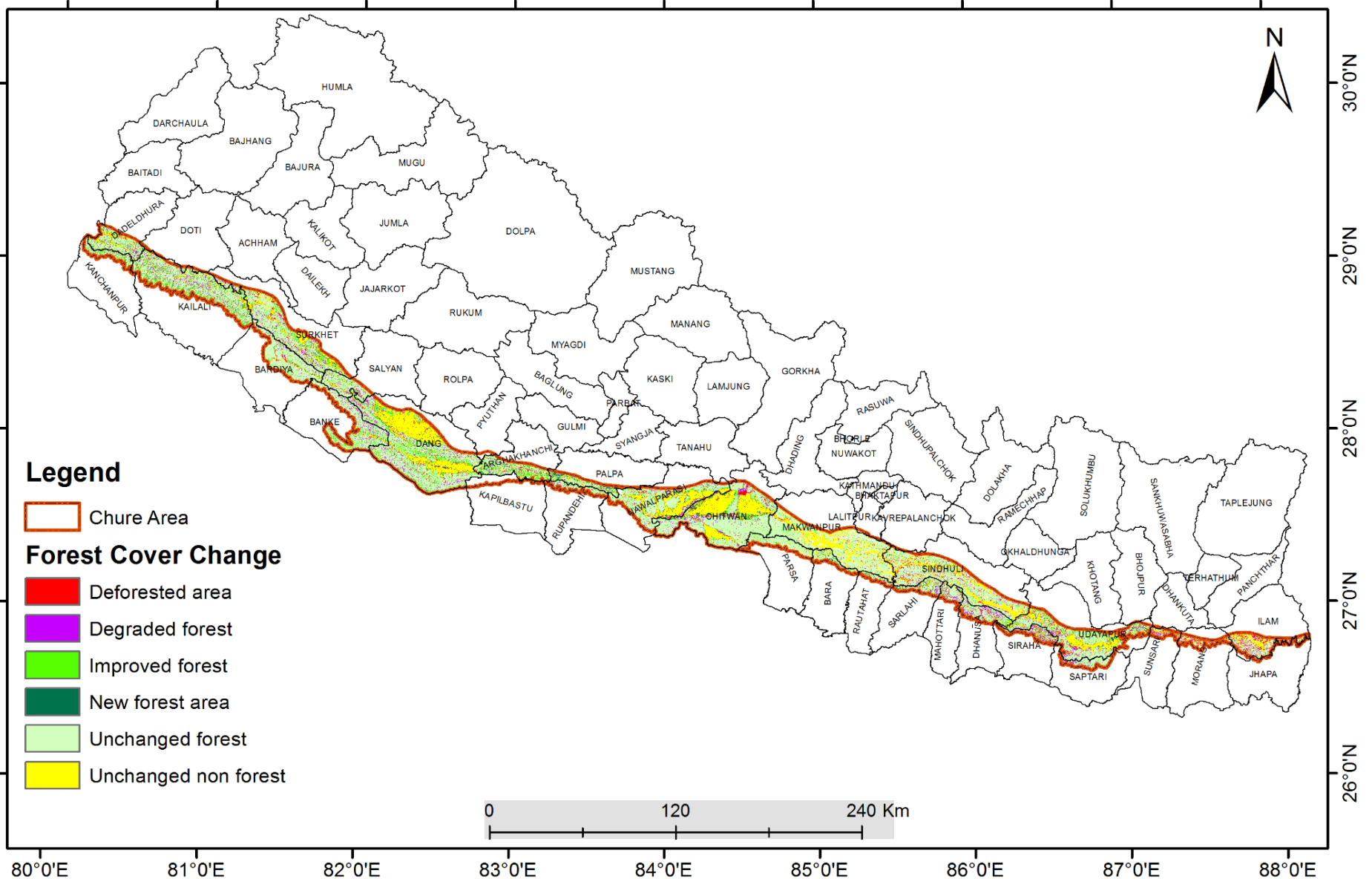
Figure 9: Landcover changes in selected districts (1992 and 2014)

Dadeldhura (1992 – 2014)

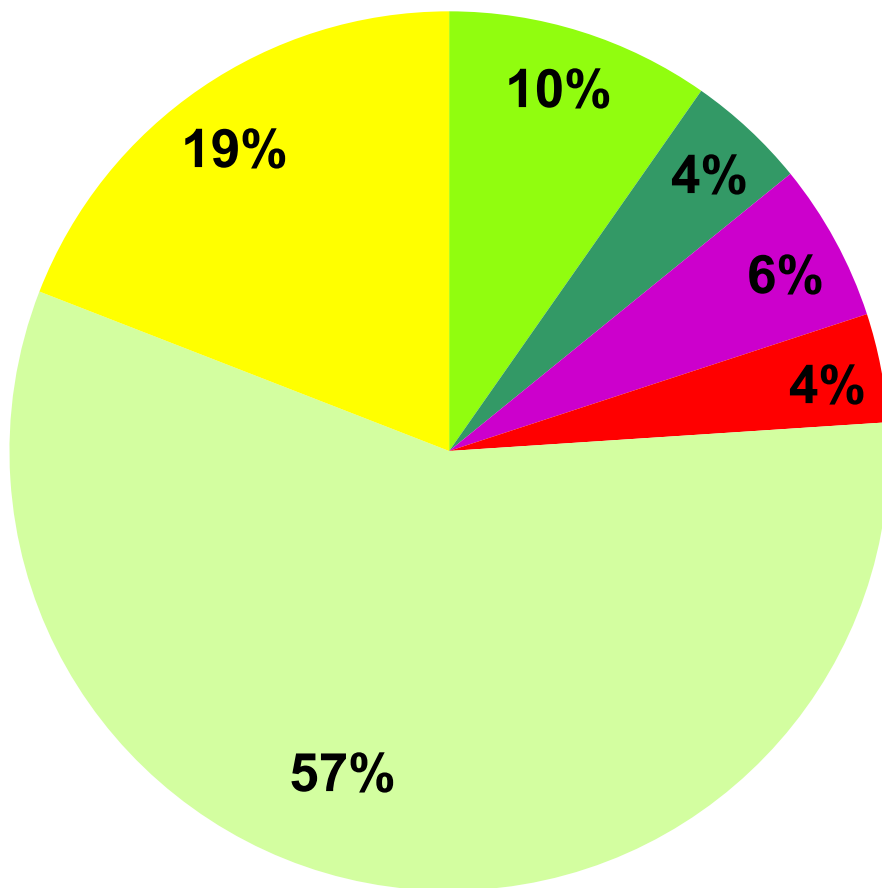


		1992		2014		Rate of Change	
Landcover		Area (ha)	%	Area (ha)	%		
Forest	Dense Forest	23987.2	54.2	25731.0	58.1	0.3	
	Sparse Forest	5177.3	11.7	2932.2	6.6	-2.6	
	Bushes/Grass	4073.5	9.2	4350.8	9.8	0.3	
Non Forest	Cultivated Land	7337.0	16.6	6516.2	14.7	-0.5	
	Barren Land	87.3	0.2	51.1	0.1	-2.4	
	Riverbed	1475.0	3.3	2557.3	5.8	2.5	
	Waterbodies	144.9	0.3	122.1	0.3	-0.8	

CHANGING FOREST IN CHURE

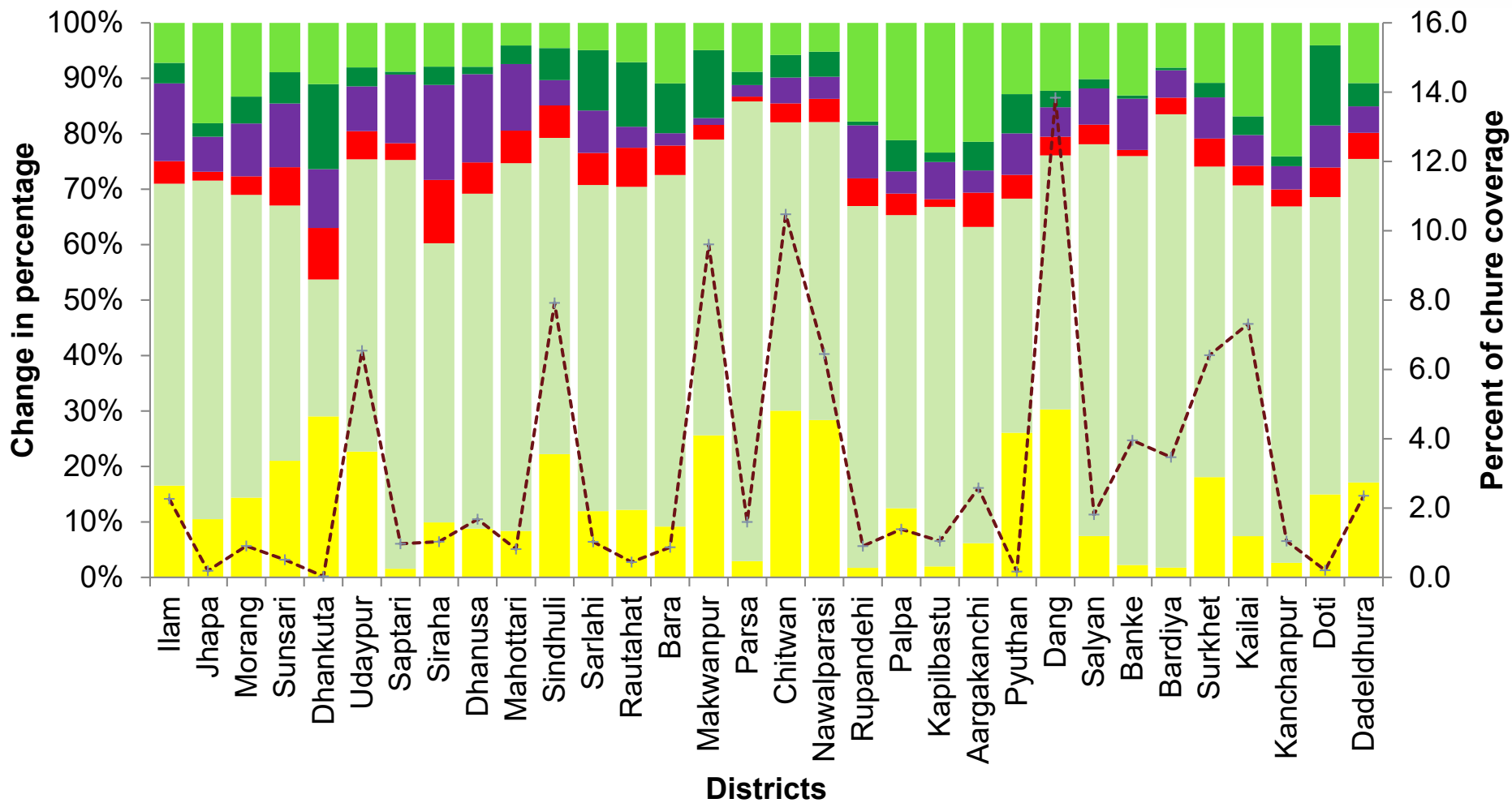


Forest Cover Change



- Improved forest
- New forest area
- Degraded Forest
- Deforested Area
- Unchanged forest
- Unchanged non forest

Forest Cover Change in each districts



- Unchanged non forest
- Unchanged forest
- Deforested Area
- Degraded Forest
- New forest area
- Improved forest
- + x Percentage of Chure area

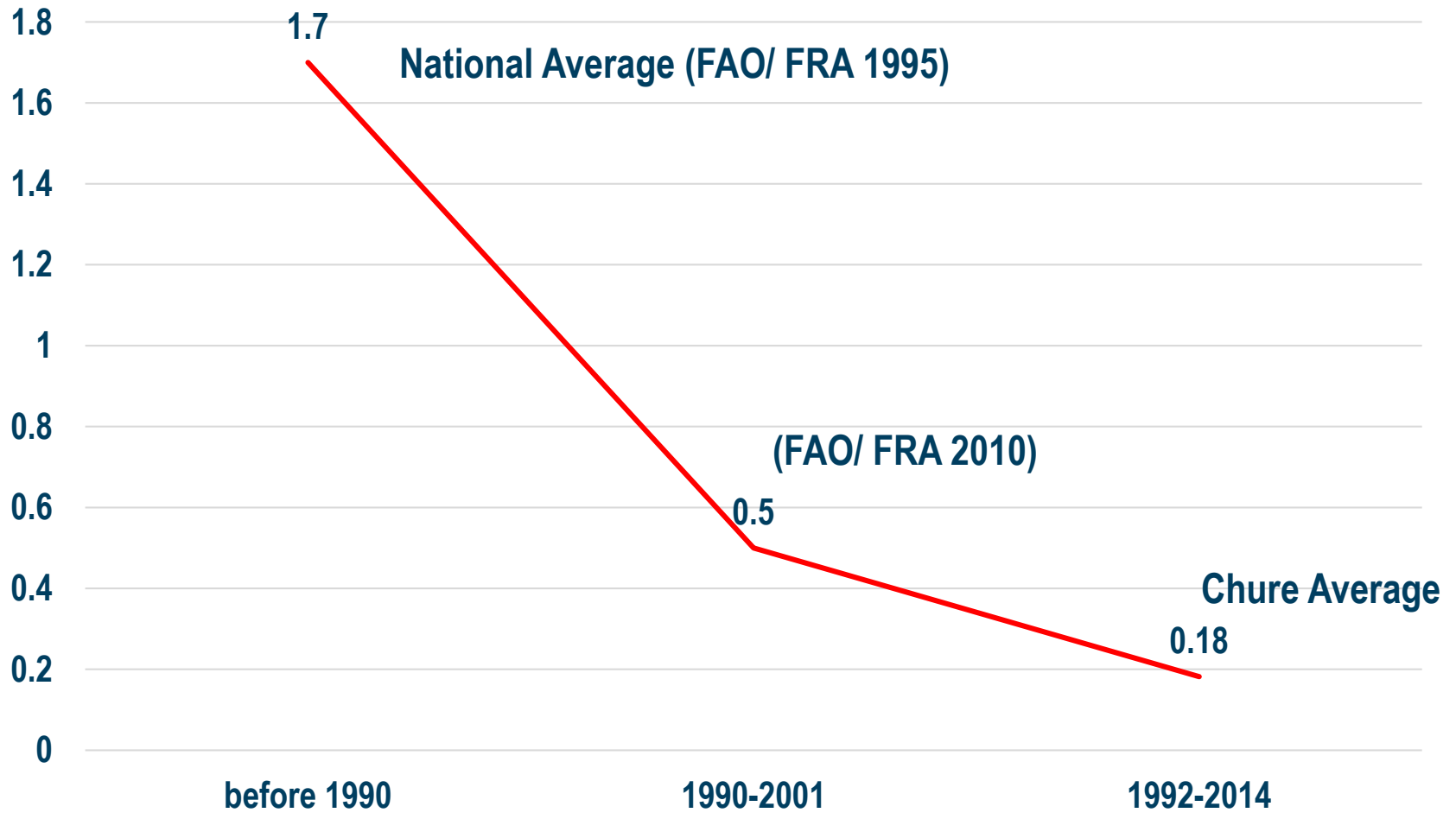
The most feared and exaggerated deforestation in chure by 1.7% per year actually was the FAO national average of deforestation for the period of 1978 to 1994 (MoFSC, 2009).

We found, deforestation rate in chure was only around 0.18% per year, still improvement exists better than that.

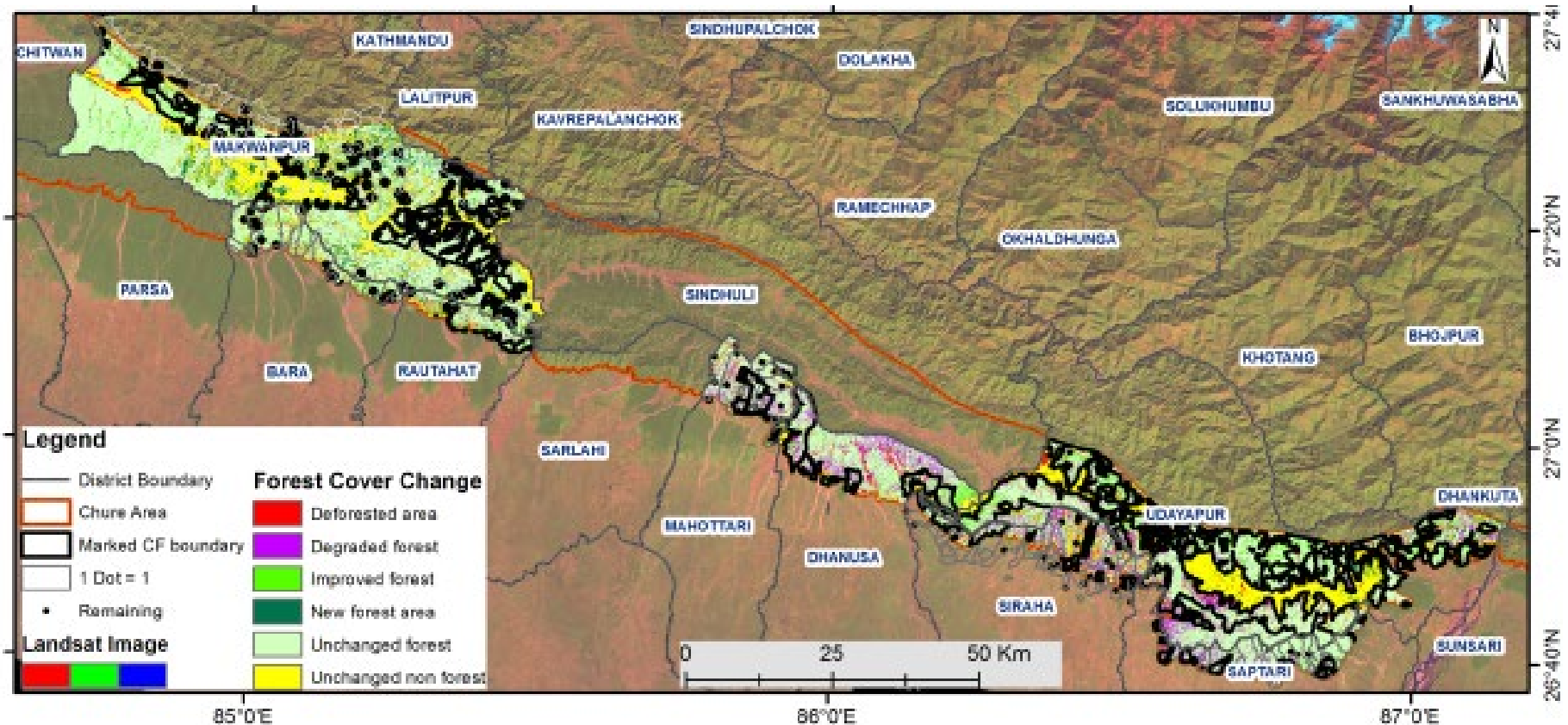
Good News: Nepal's deforestation rate is tremendously reduced



Deforestation rate

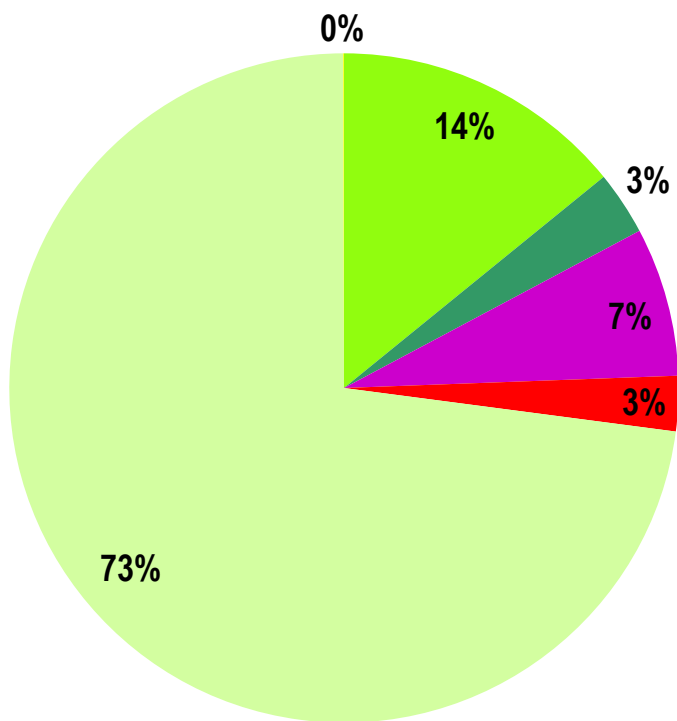


Changes inside and outside CF

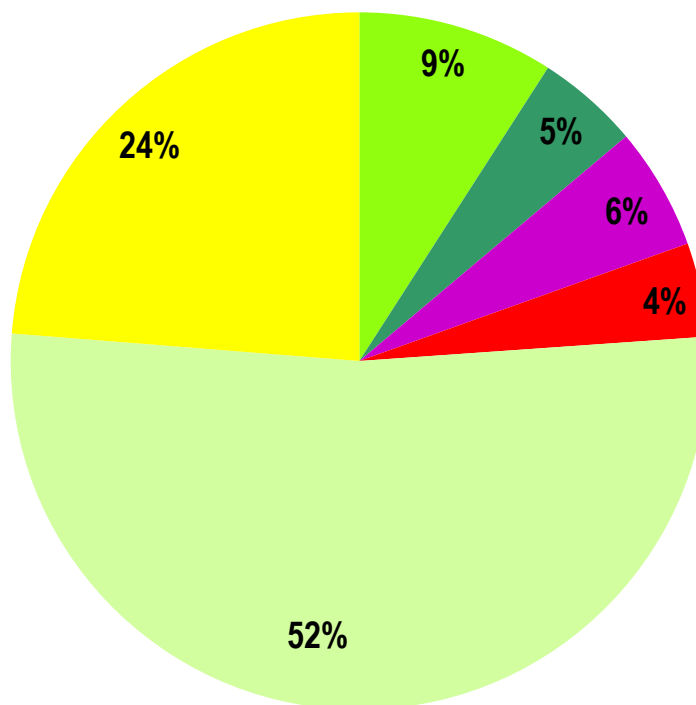


Black lines represent boundaries of Community forests acquired

Forest Cover change comparison inside and outside CF



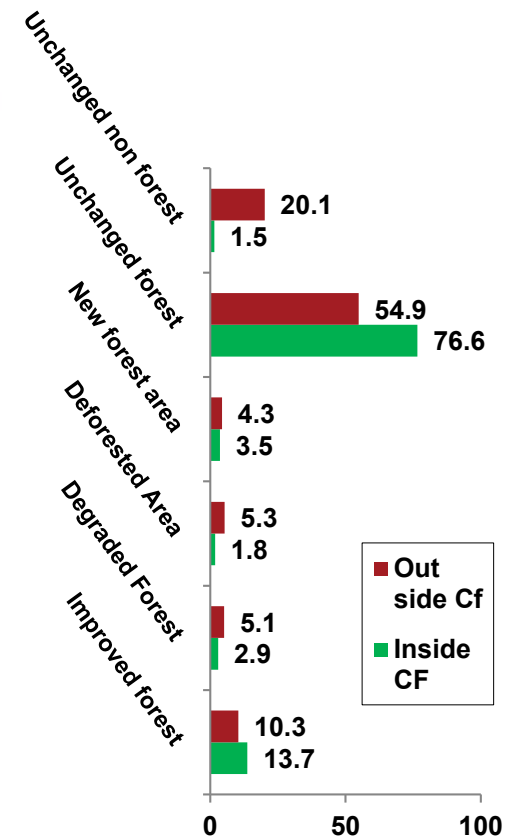
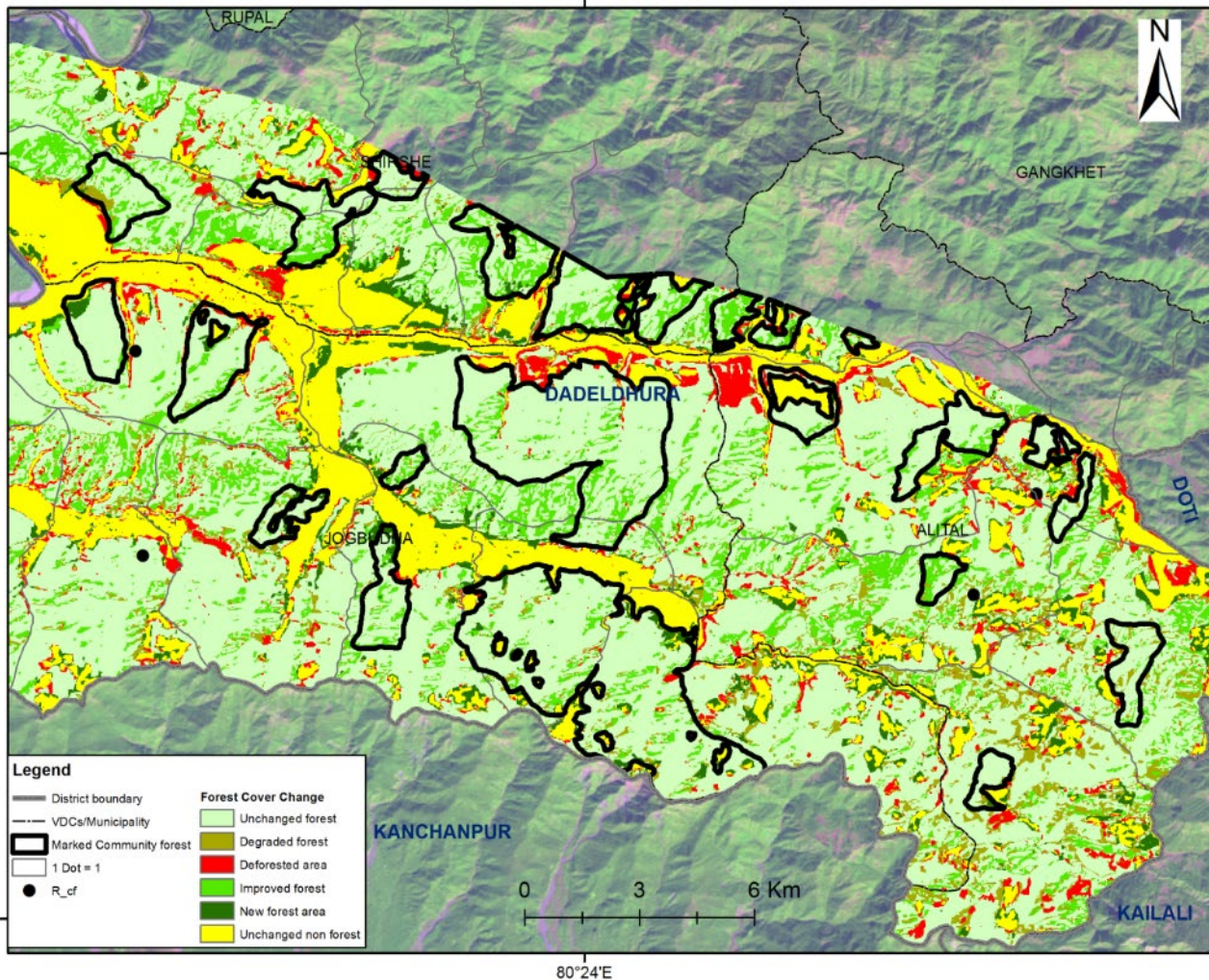
a)inside CF



b)outside CF

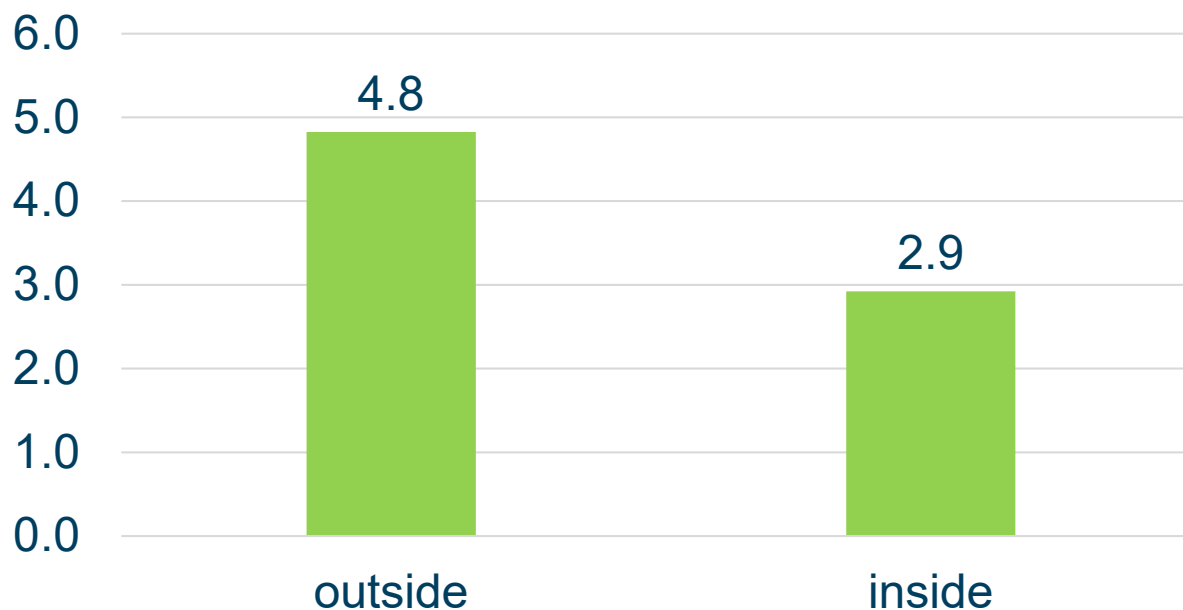
- Improved forest
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CF's contribution



Future?

Percentage of Deforested area in 22 years



0.22% per year

- It takes 455 years to completely deforest outside CF

• 0.13% per year

- It takes 770 years to completely deforest CF

Major Findings

- Community Forest is comparatively best performer regime than other regimes (with 14% improvement)
- Deforestation outside community forest is almost 66% higher