



CHANGING FACE OF THE CHURIA RANGE OF NEPAL:

LAND AND FOREST COVER IN 1992 AND 2014



HELVETAS
Swiss Intercooperation

NEPAL



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Foreword

I am pleased to be a part of this report which HELVETAS Swiss Intercooperation Nepal produced in collaboration with Rights and Resources Initiative. I would like to thank all the colleagues, editors and contributors who got involved in various capacities. Special thanks go to Rabin Raj Niraula, Niroj Timalsina and Rakshya Neupane for their hardwork and intellectual contribution in preparing this report. There are some good news and some are alarming figures that I would like to highlight below:

- Good news is that, forest cover in Churia range is increased by 7400 ha, from 13,58,000 ha in 1992 (76% of the total Churia land cover) to 13,65,000 ha in 2014 (77% of the total Churia land cover). The rate of deforestation in Churia is tremendously reduced. Community forestry is one of the main drivers of positive change in Churia's forest cover.
- Alarming news however is that farmers in Churia have lost about 20,000 ha of their cultivated land, the area of riverbed has increased by 12,300 hectare, possibly some of the cultivated land is eroded for the formation of the riverbeds.

These messages clearly indicate that the face of Churia range has changed in terms of more forest cover than in the past. Positive change in community forest area is encouraging. The main problem is rather increased expansion of riverbeds at the cost of cultivated land adjacent to the rivers and streams. Since the rate of deforestation has decreased in Churia range, the drivers of the expansion of riverbeds seem to go beyond forestry. Therefore, measures to control physical processes with the participation of local population is the way forward.

Bharat K Pokharel
Country Director
HELVETAS Swiss Intercooperation Nepal

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About the report

Helvetas Swiss Intercooperation Nepal in collaboration with RRI undertook a study in 2014 on a topic - Assessment of land and forest cover change in the Churia range of Nepal. This report is the outcome of that study. People have curiosity over the changes in Churia landscape that have occurred in the last two decades. The purpose of the study therefore was to generate information and knowledge about the changing situation of land and forest cover change in Churia both inside community forest and outside. Land cover maps comparing between the year 1992 and 2014 speak by themselves.

Results show that overall forest cover in Churia range has increased by 7500 ha (1%) in 22 years i.e. 1.35 million ha (76%) in 1992 compared to 1.36 million ha (77%) in 2014.

It is also found that the area of dense forest is increased by 42,000 ha whereas, area covered by bushes and grassland is reduced by 39,000 ha. This encouraging message of increased area of dense forest in Churia range may have been the result of the improved form of bushes and grassland in the same area.

Study shows that there is a decline in cultivated land by 20,000 ha and expansion of the area of riverbed by 12,300 ha. The contributing factors for this worrying message could be the physical processes in the fragile condition of Churia range, the erosion, flood and deposition that occurs predominantly because of monsoon, tenure insecurity and bad governance.

The study generates a new evidence against the most scary and exaggerated figure of the rate of deforestation in Nepal reported by FAO in 1995. Deforestation in some patches of forest area seems to be a regular phenomena mainly due to physical infrastructure development and natural erosion. However, the rate of deforestation during the period of 1992 - 2014 is found to be only 0.18% per year, 9 times lower than what FAO has earlier reported which is 1.7% per year during the period of 1978 to 1994.

Comparing the performance of community forest regime with that of other regime indicated that community forestry regime is a better performer in terms of the improvement of forest conditions - 50% higher and in reducing the rate of deforestation - 70% lower than other regimes.

Acknowledgement

We sincerely acknowledge the contribution of all those individuals and organisations whose support made this study possible. Support from DFOs and FECOFUN in providing Community Forest User Groups information and maps is very much appreciated.

We would like to acknowledge the following individuals whose contribution was invaluable. Bedhari Dahal, Chatra Paudel, Dandi Raj Subedi, Damodar Sharma, Dhurba Shrestha, Dilip Lama, Dilli Giri, Homnath Bhattra, Keshab Gautam, Krishna Malasi, Krishna Kumar Shrestha, Laxmi Saud, Narayan Bahadur Burja, Premlal Dharti, Ramji Bajagain, Santi Kumari Singh, Simu Acharya, Singh Bahadur Thapa, Sobhakar Sapkota, Surbir pokharel, Pancha Maya Syangtan, Thakur Pandey, Talsa Devkota for their support; Netra Regmi, Ramesh Shrestha, Amar Saud, Saroj Pokhrel and Bittu Yadav for providing information; Parsuram Niraula, Avas Podel, Sweta Bhattarai, Moti Lal Ghimire and many more.

Editors

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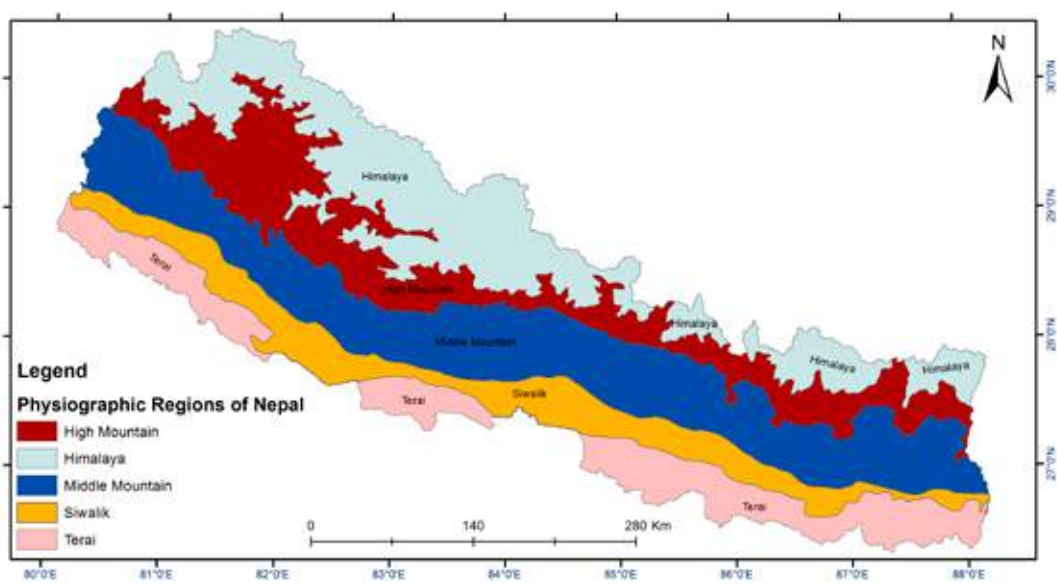
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1 Background

The Churia range, which is also known by Siwalik, extends along the south of the Mahabharat from the east to west continuously. It covers an area of 20-30 km wide along 1000 km east west of the whole Nepal's foothills (see Map 1) with the altitude range from 914 to 2000 meter from the sea level and constitutes about 12% of the country's land cover.

The belt has sub-tropical deciduous forest with comparatively less agriculture land except in the inner Tarai valley. The Region is extended through 36 districts (see Map 2) and is lined by plains to the south and Mahabharat range to the north. The region consists of loose sedimentary rock dominated by unconsolidated and porous rocks like sand, sandstone, mudstone, boulders and pebbles. The

major geomorphic process in the Churia is rapid fluvial erosion. The weak geology, heavy rainfall and tropical weathering are the common features of the Churia range. This area consists of humid tropical climatic zone. During monsoon period Churia becomes quite hazardous for landslides and flash flood. It receives an average annual rainfall between 1500-3200mm. About 80% of the rainfall occurs only in four months, during June-September. Major settlements in the Churia is believed to be started from the middle of the 19th century and gradually increased with the eradication of malaria and the government's policy of resettling people. Now there are about 5 million populations who are directly or indirectly connected with Churia. In many parts



Map 1: Churia range in physiographic divisions of Nepal

of the Churia range, indigenous people, disaster victims and poverty enforced migrants are settled without land ownership and their livelihood primarily depend on nearby forest and shifting cultivation.

Recently, Government of Nepal declared Churia as environmental conservation area based on Environmental Protection Act 2053 recognizing Churia range as vulnerable landscape. This step of government is observed positively as well as negatively by various stakeholders.

While the objectives of Churia conservation are mainly oriented towards river management, controlling erosion and deforestation, many are sceptic over the government's move to govern Churia range and its forest resources centrally.

The objective of this study is therefore to generate knowledge about the changing condition of land and forest cover of Churia range and gauge the effectiveness of forest management regimes, mainly community forests and other regimes.

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**“Young forest has grown in a
fragile Churia range.”**
.....



.....
"A farmer is seen hauling dead tree
log, which is a prime resource for
the communities."
.....



2

Methods

2.1. Acquisition of Maps and data

This study mainly used the available community forest map and satellite imageries in a GIS platform. The study draws on rapid mapping of Community Forest User Groups (CFUG) in 36 Churia districts to acquire boundary map, including the information related to Community forests located in Churia hills of each district. This information was delineated in Google Earth and finally imported to Arc GIS for community forest boundary preparation. Out of 2837 CFUGs listed in Churia, 1300 were

digitized for this study. The whole process is illustrated in Figure 1.

Community forest boundary map prepared for previous study such as Rastriya Banko Abilekhikaran, 2070/71 prepared by the District Forest Office of Sunsari, BISEP-ST activity map (2009) of Dhanusa district and map prepared by the District Forest Office of Rautahat were also referred during the digitization of Community Forests. Similarly, Churia CFUGs shape file of Udyapur district was acquired through the coordination of District Forest Office and district chapter of Federation of Community Forest Users Nepal (FECOFUN).

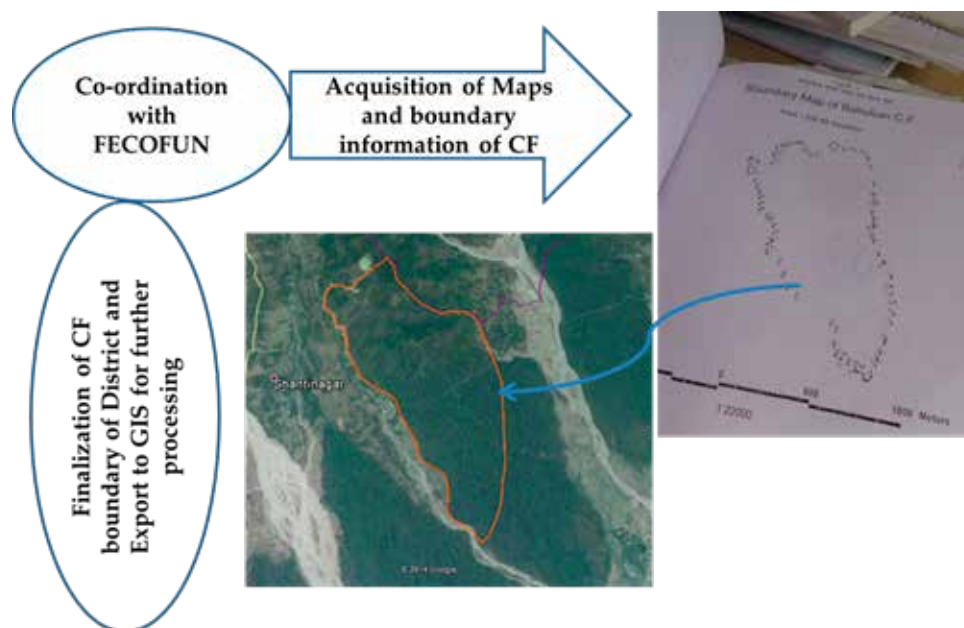


Figure 1: Illustration of rapid data acquisition for Community forests

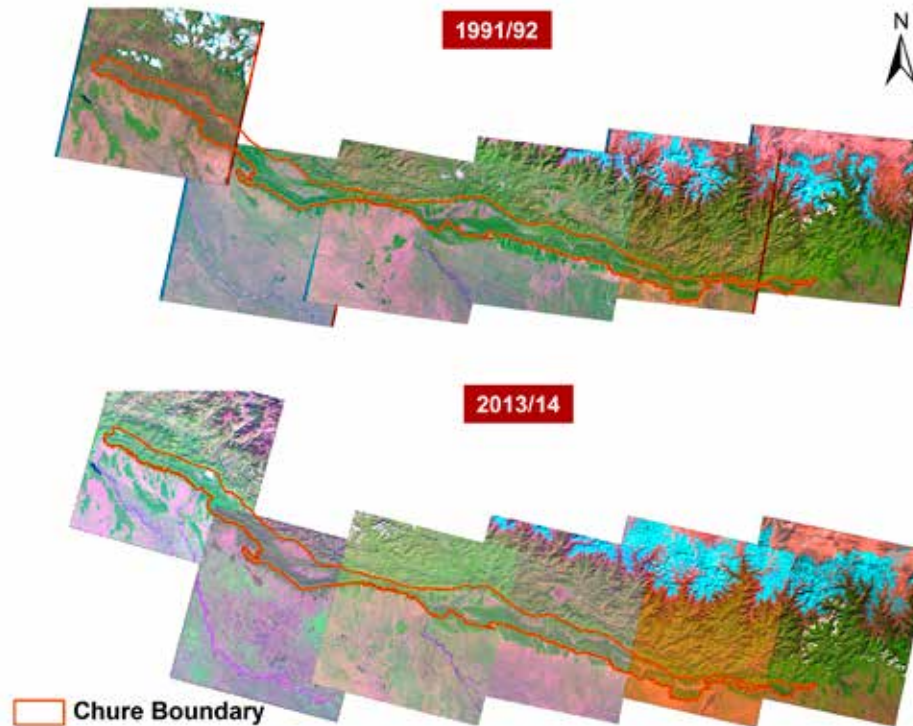
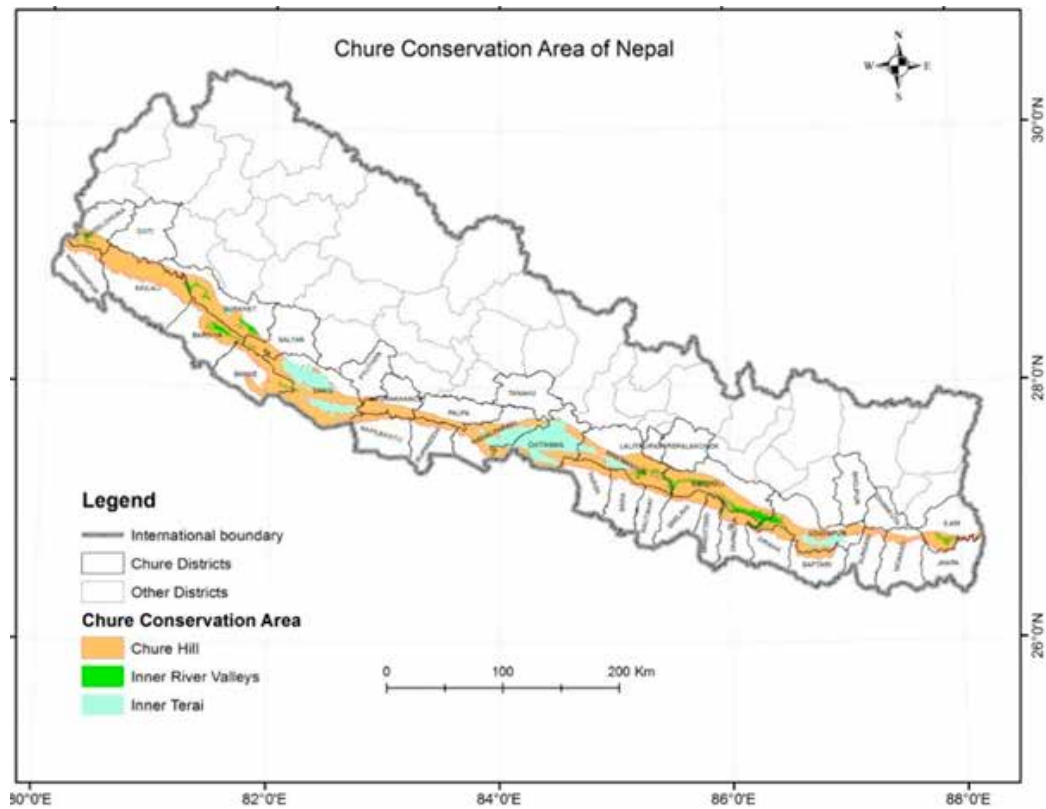


Figure 2: Landsat tiles acquired for the study periods

Landsat imageries with resolution 30m were selected for the purpose of the study. Freely available Landsat imageries of 1991/1992 and 2013/2014 for the month November/December were downloaded from the <http://earthexplorer.usgs.gov> (See Figure 2). Similarly, the topographic maps published between 1993 and 1998 on the scale of 1:25,000 by the Department of Survey, GoN were used to verify and support the interpretation of land and forest cover types from the imageries. In addition, recent high resolution imageries covering the study area provided by the Google Earth were also used for the purpose of ground truthing of the interpreted land use and cover types from the imageries.

Boundaries of Village Development Committee (VDC) and ward in GIS format were acquired from the Survey Department data. Additional municipality declared before November 30th, 2014 were also added in a GIS layer in order to prepare the final layout. A general physiographic division of the Churia area was adapted from the LRMP's physiographic map of Nepal with modification. Area of Churia range in this study includes Churia hills, Dun valleys and inner river valleys. Projection of all required GIS layers of western Nepal was made compatible with WGS 1984 UTM zone 44N whereas that of eastern Nepal were projected in WGS 1984 UTM zone 45 N.



Map 2: Churia districts as study area

2.2. GIS/ Remote Sensing

The supervised classification procedure was followed in accord to Scorer (1989) and Richards (1993) in Erdas imagine. Pre- image enhancement procedures were performed before the classification and the salt / peppery were removed from

the post classification image. Essential calibrations were done through repeated exercise of available images and ground truthing data.

Imageries were classified featuring seven main categories of land cover, i.e. Dense forest; Sparse forest, Bushes/Grass, Barrenland, Cultivated Land, Riverbed

Table 1: Land cover classification

Land cover classes	Description
Dense forest	Areas covered with trees with > 40% crown cover
Sparse forest	Areas covered with sparsely distributed trees with 10 - 40% crown cover
Bushes/ Grass	Open areas with short vegetation, may even have few scattered trees
Barren land	Areas with no vegetation cover, quarry, uncultivated agricultural lands
Cultivated Land	Cultivated areas, settlements roads and tracks
Riverbed	Sand and gravel deposits along the riverbanks
Water bodies	Perennial rivers, ponds, lakes; rivers without water or very little water may appear in barren land category and small streams with trees along the bank may appear in sparse forest



Figure 3: Forest change processes (FAO, 2005)

and Water bodies. Forest areas are classified based on crown cover. Dense forest are those with >40% crown cover; Sparse Forest with 10 - 40% crown cover and Bushes/ Grass with <10% crown cover (See also Table 1). The proposed 7 classes of land cover were similar to previous studies conducted by (Niraula, Gilani, Pokharel, & Qamer, 2013; Niraula & Maharjan, 2011).

Forest change dynamics includes all the possible changes that may occur between the landuse classes in a given time interval. FAO developed a simplified diagram to illustrate forest change dynamics as in Figure 3. This figure illustrates the forest change processes and concepts such as deforestation, afforestation, reforestation

and natural expansion of forests. The Forest cover change study is based on the classification matrix for forest cover class which differentiate the dense forest, sparse forest and bushes/grass in forest categories and non-forest for rest of others (Niraula, Gilani, Pokharel, & Qamer, 2013; Niraula & Maharjan, 2011). Forest cover change is measured in 5 change processes of improvement, new forest area, degradation, deforestation and unchanged area. This provides an indicator of performance to measure and compare forest change processes in different extent. Positive changes as improving and new forest area while negative changes as deforestation and degradation.

Table 2: Forest Cover change definitions

Forest cover change class	Definition
Improved forest	Sparse forest in 1992 changed to Dense forest in 2014 & Bushes/grass in 1992 changed to Sparse forest or dense forest in 2014
New forest area	Non forest in 1992 changed into Bushes/Grass or Sparse forest or Dense forest in 2014
Deforested area	Dense forest or Sparse forest or Bushes/Grass in 1992 changed into non forest in 2014
Degraded forest	Dense forest in 1992 changed to Sparse forest or Bushes/Grass in 2014 & Sparse forest in 1992 changed to Bushes/Grass in 2014
Unchanged forest	Dense or Sparse forest or Bushes/Grass in 1992 with no change
Unchanged non- forest	Non- forest in 1992 with no change

Table 3: Sites of verification

Districts	Number of selected CF	Total Visited CF
Makwanpur	20	10
Bara	2	1
Rautahat	2	1
Mahottari	2	1
Dhanusa	4	2
Siraha	4	2
Saptari	4	2
Udyapur	22	11
Total	60	30

2.3. Field survey and verification

Field survey and qualitative verification were conducted only in 8 districts (Table 3) including the verification of community forest boundary data. Field Visits for Focussed Group Discussions were organized in selected CFUGs across the selected districts prioritized by the President Churia -Tarai Madhes conservation Committee. Those districts are Makwanpur, Bara, Rautahat, Mahottari, Dhanusa, Siraha, Saptari & Udyapur.

For this purpose altogether 60 community forests were selected on the basis of stratified random sampling and the data obtained were analysed and applied for verification (Table 3).

A field survey was facilitated with questionnaires with socioeconomic background, resource use, land ownership and perception of priorities of forest as resources. Key informants were interviewed in those surveys for recent issues and experiences from the ground. Photographs were also collected for depicting the real problems in Churia. Churia itself is a topographic region

which doesn't align with the political boundaries. It is not always convenient to generalise the findings to the district as a whole. Hence segregated change data is more reliable (See Annex 1). Still in this report, we have tried to incorporate administrative boundary wise analysis.

2.4. Analysis of the rate of change in forest cover

The rate of change in forest cover provides trend of change calculated for the study period. In this study, annual rate of change is calculated using the formula provided by the FAO (1995).

$$\text{Rate of change (q)} = \left(\frac{A_2}{A_1} \right)^{\frac{1}{(t_2-t_1)}} - 1 \times 100$$

Where,

A₁ = Forest cover at time t₁ (1992/1993 in this study)

A₂ = Forest cover at time t₂ (2013/2014 in this study)

2.5. Study area of Churia in the districts

The whole Churia range is the study area which constitute about 12% of the total land mass of Nepal. This range is distributed across 36 districts and the coverage of churia in these districts vary tremendously (See Figure 4). Districts like Jhapa, Dhankuta, Bhojpur, Kavre, Lalitpur, Tanahun, Pyuthan and Doti have less than 1% of the Churia area. Whereas, Udayapur, Sindhuli, Makwanpur, Chitwan, Nawalparasi, Dang and Kailali districts have relatively more Churia range. Churia of Chitwan and

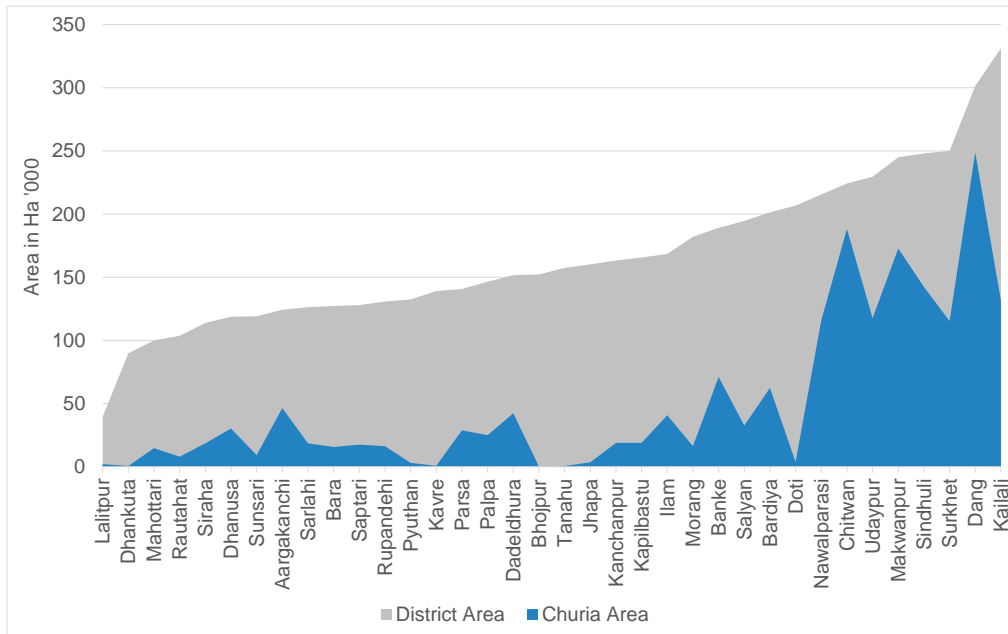


Figure 4: Area of the Churia range in the districts

Dang for example constitute 84% and 82.5% area of the district respectively. Of the total 1.3 million ha forest areas of Churia range about 33% forest area is handed over to 2837 community forest user groups. Churia range of Ilam, Surkhet, Makwanpur, Sindhuli, Udayapur

and Dang districts have more area of community forests than other districts. (See Figure 5). This study analysed the changes in forest cover in 1100 CFUGs of Churia range covering approximately 270,000 ha community forests.

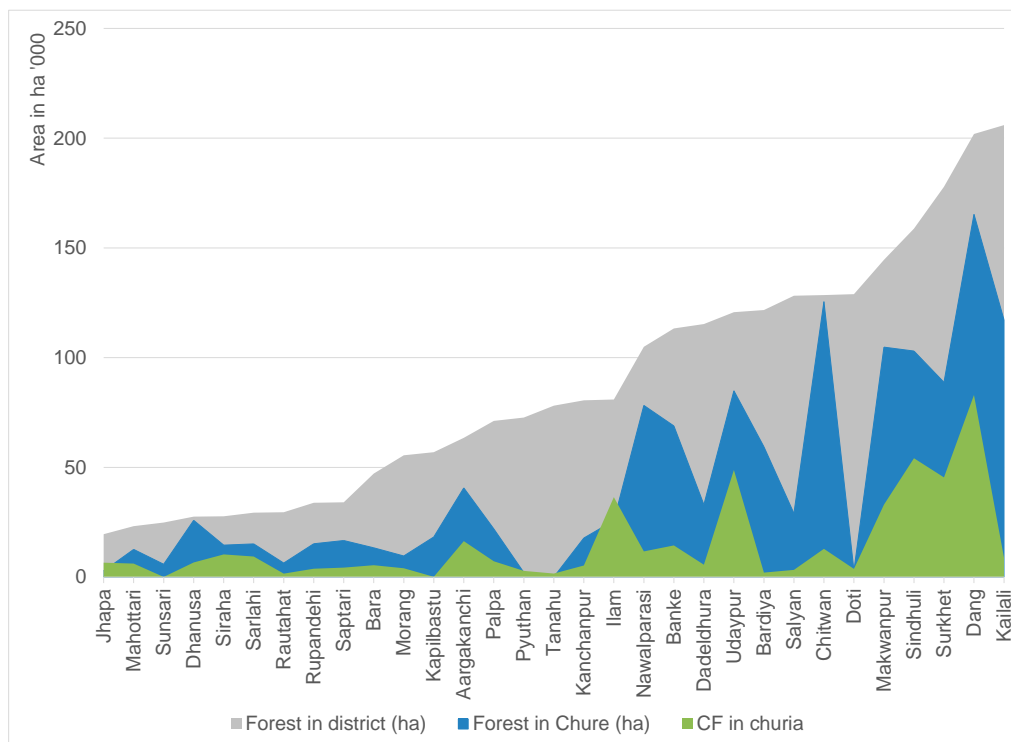


Figure 5: Area of community forests in the Churia range

2.6. Pictorial representation of land cover classification in Churia



Photo: Pallab Regmi

Photo 1: Dense forest

Rupandehi



Photo: Ajit Tumbahangphe

Photo 2: Sparse forest

Bela, Dang



Photo: Pragyan Pokhrel

Photo 3: Cultivated land

Mahuli, Saptari



Photo: Niroj Timalisina

Photo 4: Cultivated land

Bishnupur Katti, Siraha



Photo: Pragyan Pokhrel

Photo 5: Grassland

Kathauna, Dhanusa



Photo: Niroj Timalisina

Photo 6: Riverbed and Water body in Rapti Khola*Alinagar, Banke*

Photo: Moti Lal Ghimire

Photo 7: Landslide (Barrenland) in Dense Forest*Kailali*

3 Gauging the changing face of Churia

3.1. Land cover change in Churia

In contrary to the most feared and exaggerated deforestation rate in Churia, 1.7% per year reported by the FAO for the period of 1978 to 1994 (MoFSC, 2009), this study shows that dense forest as well as sparse forest in Churia range have increased at a rate of 0.22% and 0.07% respectively per year. Which is also in line with a study conducted in 2012 by Rastrapati Churia Conservation Program (RCCP) Coordination unit (Ghimire and Basnet, 2012). The worrisome finding is that riverbed has also increased at a rate of 1% per year with the decline of the cultivated land. A more detailed overview

of land cover change in each district is included in Annex II.

A total increase of dense forest, sparse forest, barrenland and riverbed is accompanied by decline of bushes/grasses, cultivated land and water bodies (See Figure 6 and 7).

Good news is that almost 40,000 ha landcover with bushes is converted into dense forest (Table 4 & Figure 6). Bad news however is that increased rate of change of barrenland and riverbed, and decreased rate of change of waterbodies at the rate of almost 1% per year.

Table 4 represents the land cover change process in Churia range in 22 years.

Table 4: Land cover change in Churia

Land cover type/ area	1992		2014		Change		Rate of change
	ha	%	ha	%	ha	%	% per year
Dense Forest	863190.7	48.6	905163.4	50.9	41972.7	2.3	0.22
Sparse Forest	336001.8	18.9	341145.3	19.2	5143.5	0.3	0.07
Bushes/Grass	158814.5	8.9	119120.2	6.7	-39694.3	-2.2	-1.30
Cultivated Land	339471.3	19.1	319463.6	18.0	-20007.7	-1.1	-0.28
Barren Land	11433.6	0.6	17215.8	1.0	5782.2	0.3	1.88
Waterbodies	17059.0	1.0	13285.8	0.7	-3773.2	-0.2	-1.13
Riverbed	49800.5	2.8	62112.6	3.5	12312.1	0.7	1.01
Total	1775771.4						

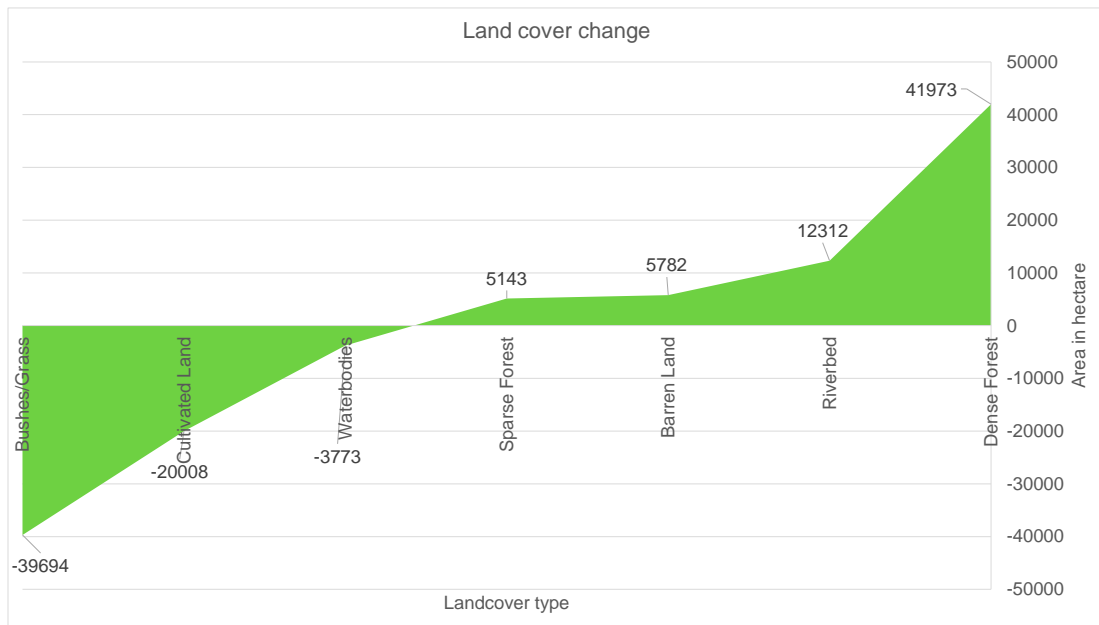


Figure 6: Land cover change in Churia from 1992 to 2014

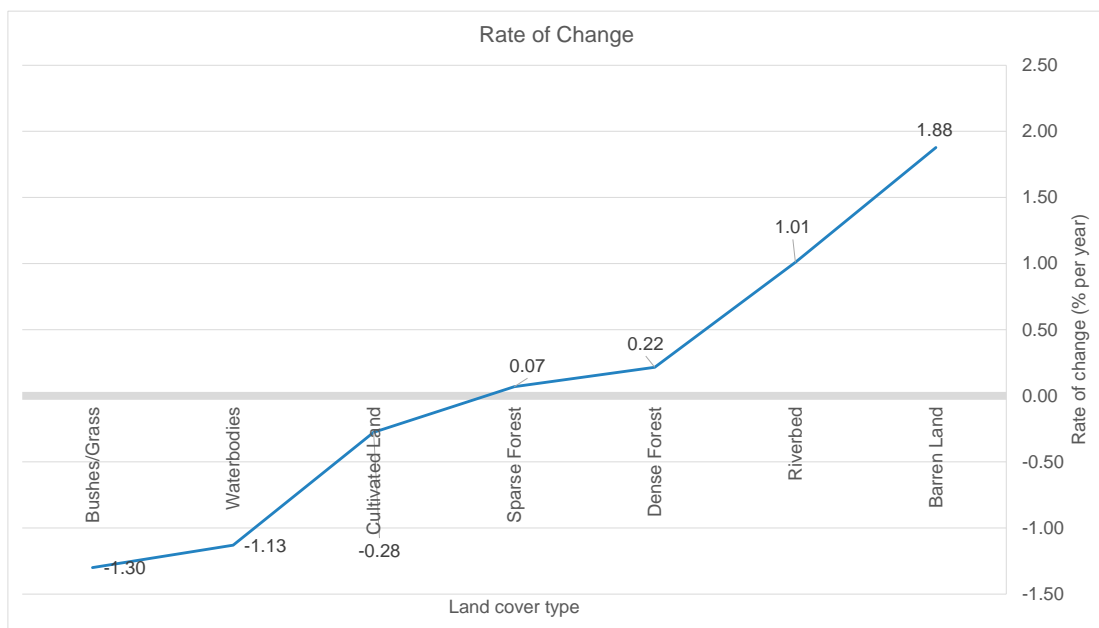
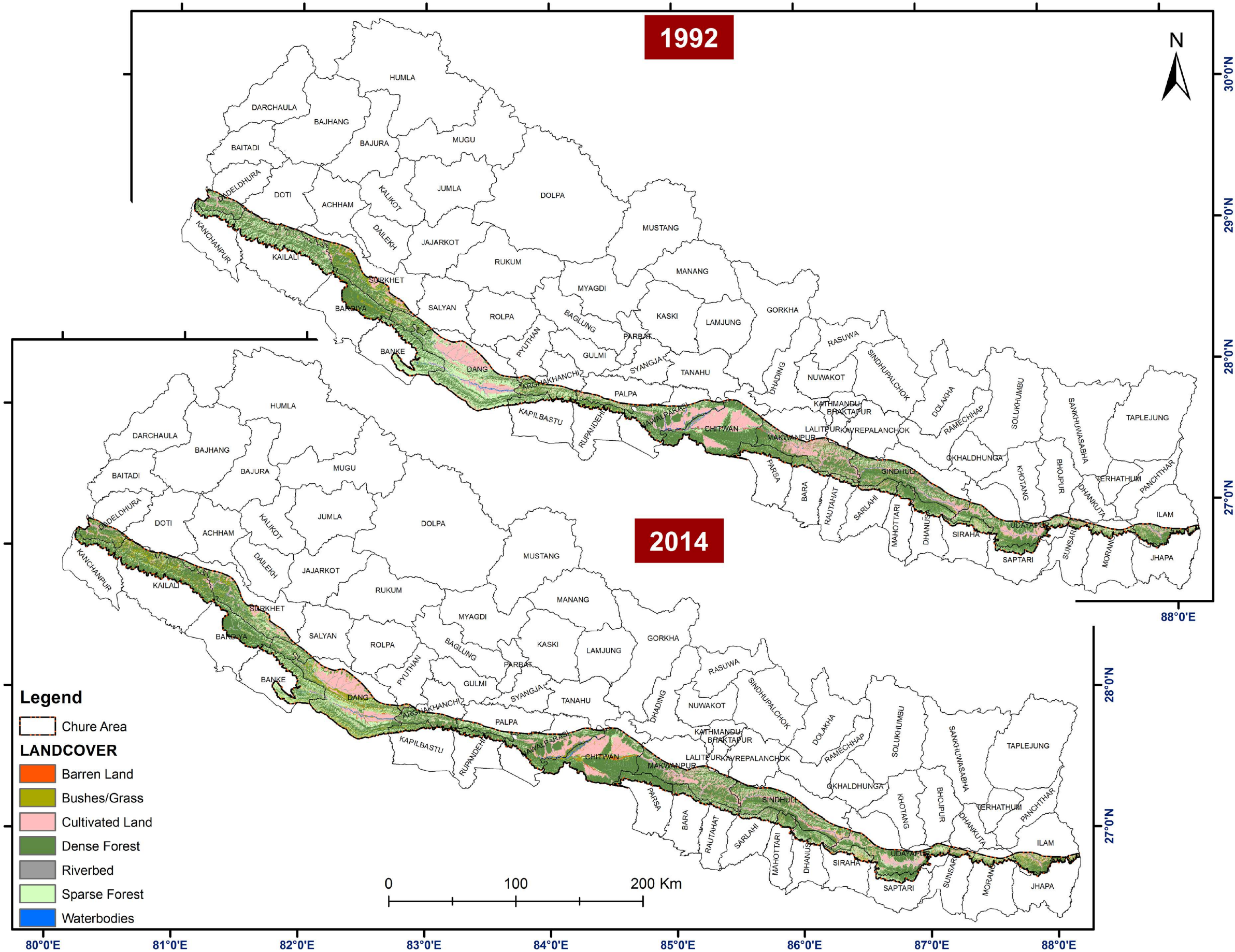


Figure 7: Rate of change in land cover in Churia from 1992 to 2014

Figure 6 and 7 illustrates the result of land cover change in Churia in 22 years. It shows how Dense forest, Sparse forest, Riverbed and Barrenland increased at the cost of Bushes/Grass, Cultivated land and water bodies. The increase in Dense forest

by 42,000 ha was actually an overall increase by 2.3% (Table 4). This contributed to an annual increase in dense forest by 0.22% over the period (Table 4 & Figure 7). In the same way, Cultivated land decreased by 0.28% per year.



Map 3: Churia's Landcover in 1992 and 2014

3.2. Forest cover change in Churia

Numerous studies of the past show that Churia area has significant deforestation and degradation processes which are due to increased human population pressure in a highly vulnerable topography. This analysis nevertheless shows that there

is more forest cover in Churia than in the past and forest condition has also improved. In some areas, deforestation and degradation have also been observed mainly in river valleys due to fragile river networks. There is an overall increase in forest area and its conditions. Those changes however vary from district to district. Following chart shows the proportion of changes that occurred in Churia.

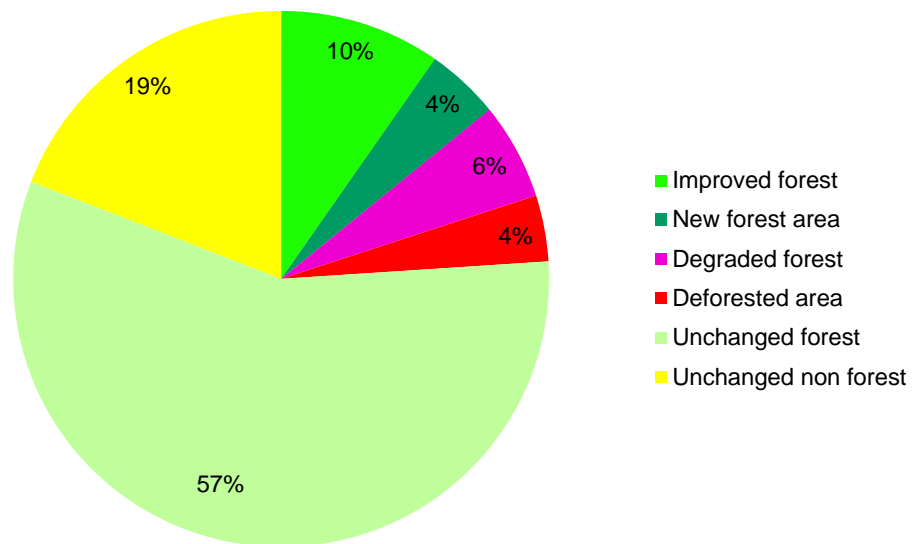


Figure 8: Chart showing forest cover change in Churia

Table 5: Area of forest cover change in Churia

Forest cover change	Area in ha	%	Rate of change
Improved forest	174687.0	9.7	0.44
New forest area	79530.1	4.4	0.20
Degraded forest area	104545.6	5.8	0.26
Deforested Area	71854.8	4.0	0.18
Unchanged forest	1023529.2	56.9	2.59
Unchanged non forest	343159.7	19.1	0.87
Total	1797306.3		

It is observed that unchanged forest still dominate the trend of forest cover change in Churia. It is interesting to note that 57% of the forestland in Churia is not changed in the last 22 years.

Table 5 represents the forest change processes in various categories and Figure 9 & Table 8 gives the complete picture of change in forest cover in Churia in all 36 districts.

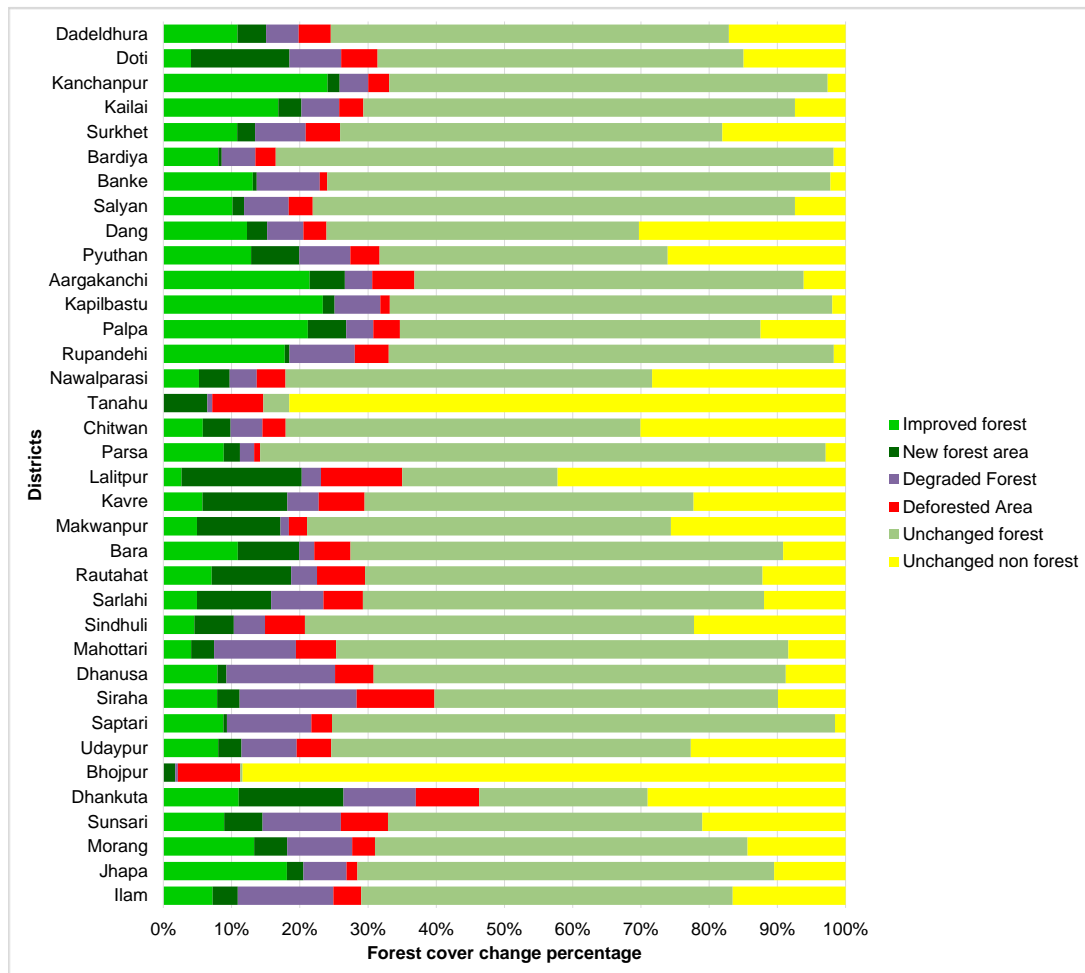
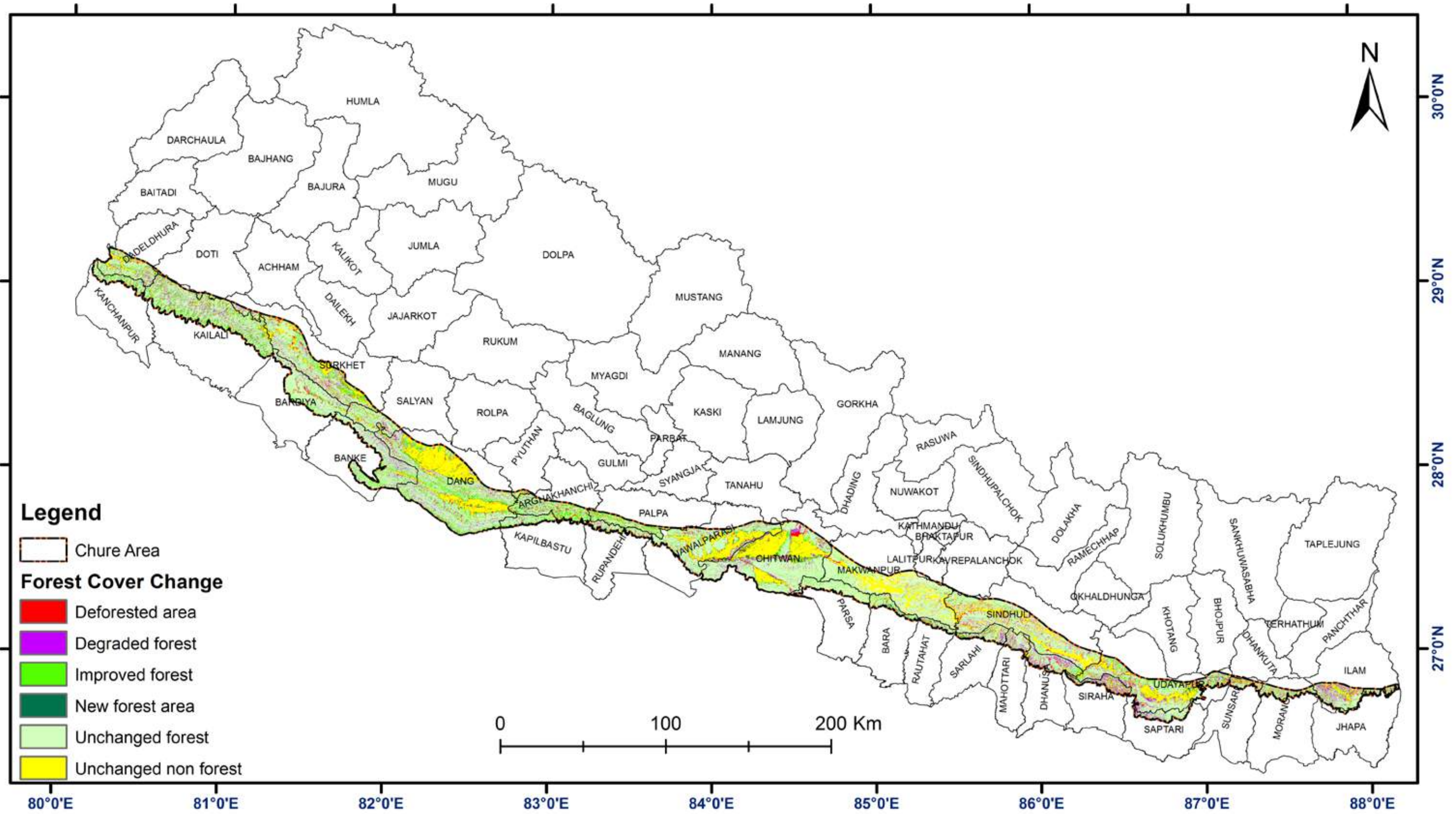


Figure 9: Forest cover change in Churia districts (1992 – 2014)





Map 5: Forest cover change map in Churia (1992 - 2014)

3.3 Community forests in Churia range

As mentioned in the earlier section 2.5, this study analysed the forest cover change inside community forests of about 1100 CFUGs covering 270,000 ha by using GIS. Results show that in the last 22 years 73% of the community forest area is kept intact with no further deforestation and degradation, condition of forest in 14% area is improved, 3% area has a new forest (See Table 6). It is also to note that the condition of community forest in 7% of its cover have been found degraded whereas only 2.7% area is lost due to landslides, physical infrastructures and encroachment. Analysis indicates that overall, in about 90% area of community forests, the rate of deforestation and degradation is completely stopped and forest conservation practices have been increased. In result, there are many positive changes that have occurred in community forest ecosystem of Churia range. The key changes are identified below.

- increase in the availability of the quantity of grass and fodder from community forests reduce grazing pressure
- time saved for women and children by increasing the availability of fuelwood and fodder nearby
- reduction in the incidence of forest fire
- reduction in the trend of deforestation and encroachment into forest land along the forest boundary with private cultivated land
- reduction in the rate of illegal felling of trees and stealing of forest products
- increase in the availability of fodder and grasses and the practices of stall feeding
- increase in biomass in community forests resulting in increased off-take of litter and organic manure on farmers' farmland
- improvement in the soil nutrition and moisture conditions in their agricultural land during dry season
- Increase in the establishment of forest nurseries, plantation and areas of protection for natural regeneration and forest rehabilitation

Changes in ecological processes

- Improvement in forest condition in terms of forest regeneration, number of stems per unit area, growing stock, the rate of annual growth, density of a number of forest patches, species diversity, wildlife and the total biomass
- Improvement in watershed quality and composition of biological diversity
- increase in number of water

Table 6: Forest cover change inside and outside CF

Forest cover change	Inside CF		Outside CF	
	in ha	%	in ha	%
Deforested Area	7218.4	2.7	62423.1	4.4
Degraded Forest	19491.1	7.2	81318.6	5.7
Improved forest	38304.9	14.1	130500.4	9.1
New forest area	8362.8	3.1	68309.0	4.8
Unchanged forest	197504.6	72.9	751080.5	52.4
Unchanged non forest	102.5	0.0	340467.0	23.7
Total	270984.2		1434098.6	

Change in economic activities

- Community Forest User Groups have generated their own fund through the forest management activities, through the sale of forest products and other sources of revenues. They manage their own account and have financed loans to their members in rural areas where there are no facilities of banks
- Community Forest User Groups have harvested timber and non-timber annually; supplied grass, litter, animal bed, herbs and various forest products and have offered services to rural communities
- Community Forest User Groups have generated employment through the manual activities for collection, processing and marketing of forest products and have started to establish forest based enterprises that have generated rural employment
- emerged as service providers and change agents which are working to mobilise local population for forest protection activities
- To a certain extent employment have been generated locally as local resource persons and women leaders have emerged as new agents of change
- Establishment of nearly 2800 groups as community based organizations in the rural areas has contributed to social inclusion in terms of the emergence of new women leaders in user committees. Representation of marginalized caste and ethnic groups is also significant.
- Institutionalization of democratic practice such as selection of leadership, raising voices in decision making and equitable distribution of forest goods and services have begun
- Local institutions' capacity in resolving conflict on equity in the access of forest, financial resources, land boundary dispute and inclusion have gradually increased
- Groups' networks and federations have become strong advocacy organizations to safeguard users' tenure rights and duties
- Awareness and voice are rising for good forest governance practice
- Voices are raised for democratic practices both at group and government level such as public auditing, public hearing, two way communications and information flow
- Local developmental needs have been met to some extent locally by utilizing local group fund and voluntary labour for the construction and maintenance of physical Infrastructure such as the

Changes in social, human and institutional development processes at local level

- There has been reduction on the forests offence cases filed in Churia range from the government. Many cases of conflicts are resolved locally
- Feeling of ownership of forest management activities from the part of local communities have been found increased. In result, the scale of forest conservation work through local communities have increased
- Role of government forestry staff has changed from policing to advising and facilitating, as a result public image of foresters and forest department staff has been relatively positive
- Local NGOs and CBOs have

construction and maintenance of community building, road and trail, temple, drinking water, bridge, canal/pond, electricity pole, peltric set, toilet construction and sanitation, water mill, telephone line procurement of community utensils, payment of selected teachers' salary, support in school furniture, health facilities and improved stove and so on.

Apart from the ecological, economical and social benefits that community forestry have generated described above, it has significantly contributed in political sphere in terms of promoting grassroot democracy and democratic values in decision making process at local level, in promoting local level forest governance practices and in raising political awareness of the communities.

In result, rural forest dependent people in general and indigenous people and local communities of Churia range have started to voice for their rights over forest resources so that their tenure rights, roles and responsibilities are clearly defined and secured.

These changes by no means are homogenous in all districts. Further studies are therefore required to quantify the gain from these changes in terms of ecological, social and economic benefits of community forests and other forests outside.

Comparing the changes in community forests and outside that have taken place in terms of the rate of change in forest area, forest quality, forest conservation efforts, deforestation and degradation, it is found that, community forests have performed better than other regimes (See figure 10, 11 and 12).

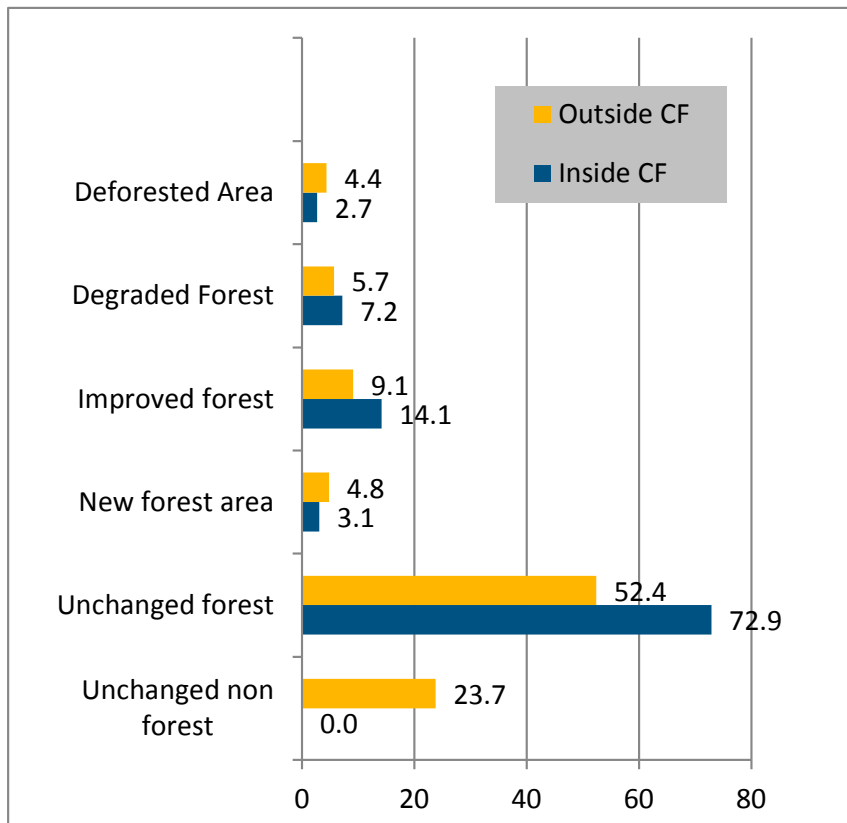


Figure 10: Forest cover change comparison inside and outside CF

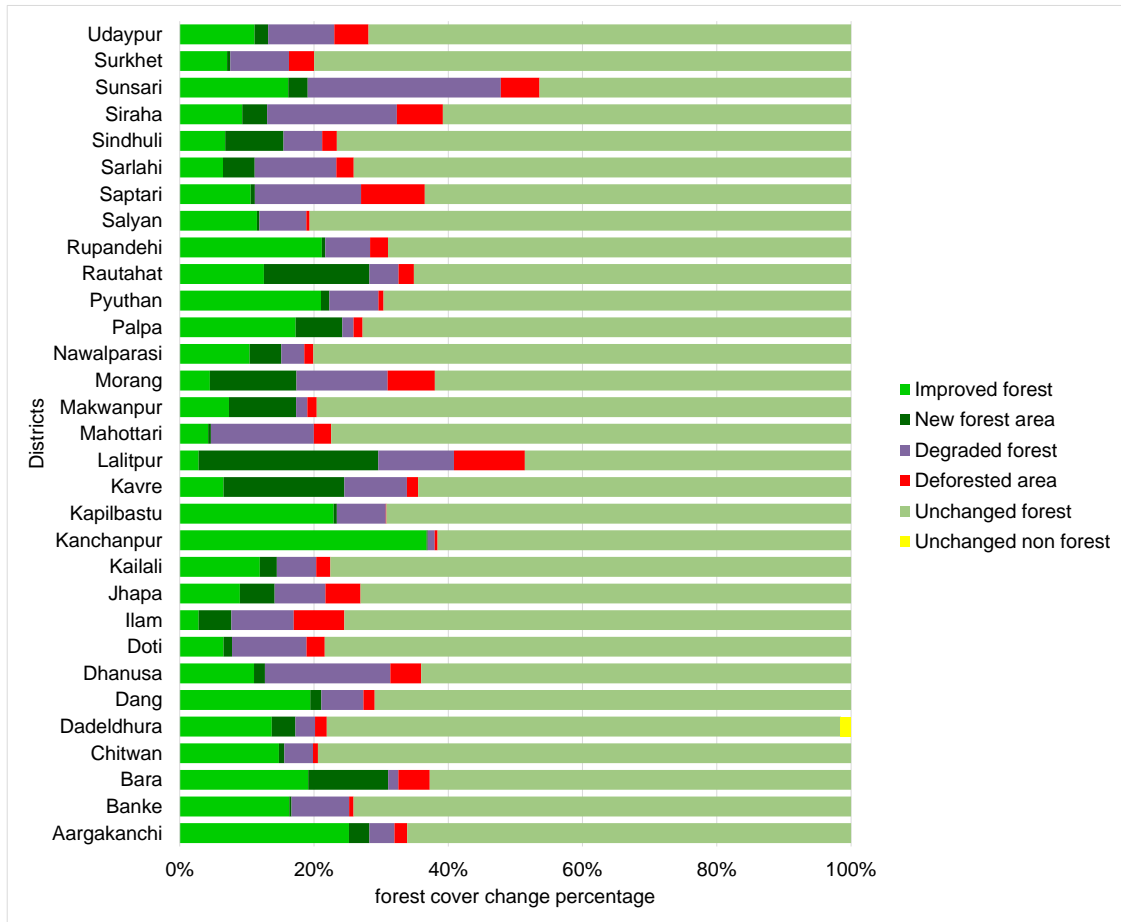


Figure 11: Forest cover change inside CF (1992-2014)

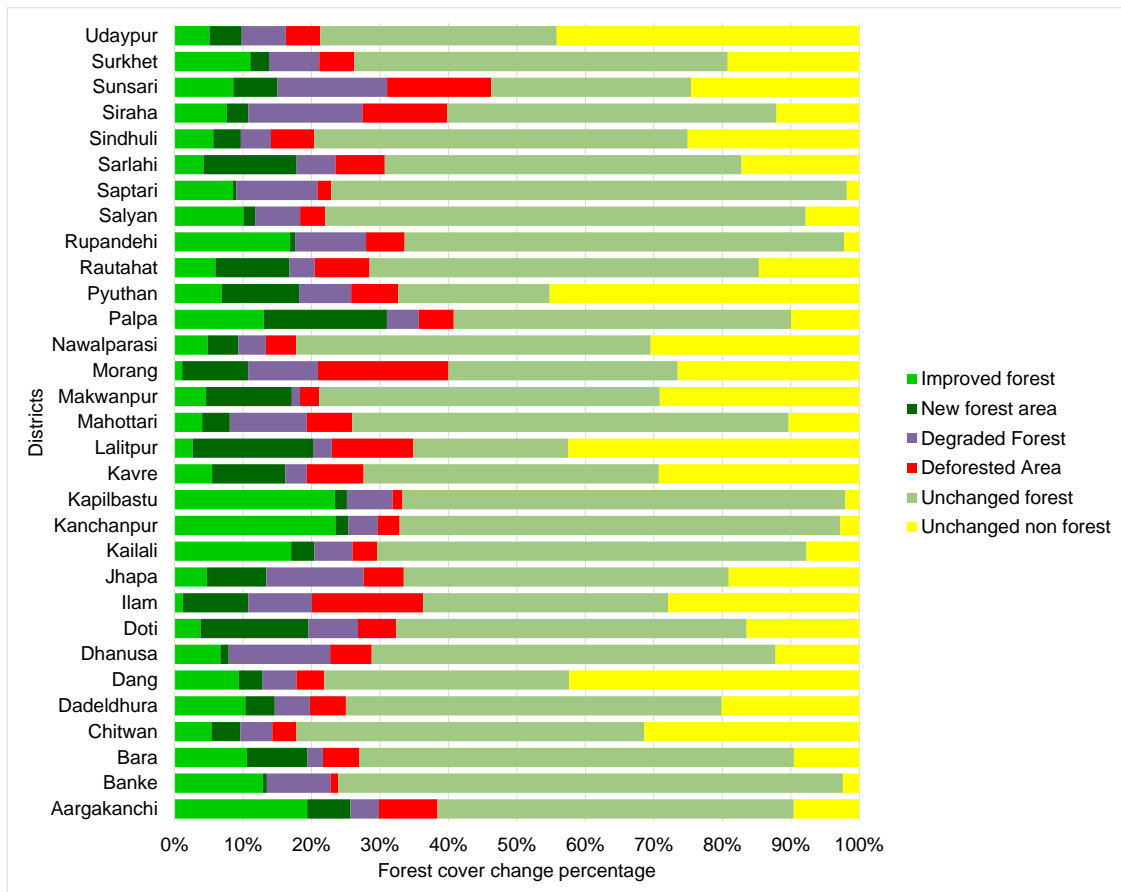


Figure 12: Forest cover change outside CF (1992-2014)

3.4 Key Findings

Based on the overall analysis, below are the key findings of this study:

- Forest cover in Churia range is increased by 7400 ha, from 13,58,000 ha in 1992 (76% of the total Churia land cover) to 13,65,000 ha in 2014 (77% of the total Churia land cover).
- The rate of deforestation in Churia is tremendously reduced. It is only 0.18% per year. This is 9 times less than the FAO's findings of Nepal's deforestation rate 1.7 percent per year during the period of 1978-1994.
- It is found that about 20,000 ha cultivated land in Churia has been lost.
- The area of riverbed has increased by 12,300 hectare.
- The trend of forest cover change in Churia is not homogeneous across districts.
- Community forestry is one of the main drivers of positive change in Churia's forest cover.

Forest Resource Assessment Nepal of Department of Forest Research and

Survey had carried out a similar study in 2014 (FRA/DFRS, 2014) with a slightly different methodology. The forest cover change analysis was made of the period 1995 - 2010, in which the area of Churia range is calculated 18,98,263 ha, 12.84% of the total country's landcover of which area covered by forest is Churia range is found to be 13,96,412 ha (about 74% of the Churia). According to this study, Churia lost approximately 38,051 ha of forest land in 15 years; This accounts for 2536 ha of forest area each year; The message of that study is that deforestation is still ongoing at the rate of 0.18% per year.

The finding of the FRA/ DFRS, 2014 however does not offer the complete change processes that have occurred in the Churia. Deforestation is one of the many change processes that are taking place as land condition of a large area of forest land is improved or degraded. Some part of barren land or grassland or bushes are converted into dense forests and vice versa. Similarly, some part of barren land or cultivated land is covered with trees by creating a new forest land. This study and the previous study offers a complete picture of land and forest cover change in the following categories as analysed data.

Table 7: Comparison of the study

Subject	Unit	FRA 2014	This study
Time /Duration covered in study		1995 – 2010	1992 - 2014
Area of Churia	Ha	1898263	1777507
Percentage of Churia range of the total country's area	%	12.84	12.0
Percentage of the forest in churia range	Ha	1396415	1365428
Of the total Churia	%	73.56	76
Area of New forest land	ha	-	79530
Rate of deforestation		0.18	0.18
Rate of reforestation (new forest)		-	0.20
No. of CFUGs in Churia		2837	

Table 8: Forest cover change in Churia area of all 36 districts (Area in ha)

	District	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
1	Aargakanchi	2871.1	1855.2	9944.2	2391.3	26441.4	2855.3
2	Banke	773.9	6570.9	9311.6	413.2	52417.4	1585.2
3	Bara	831.2	346.7	1705.3	1404.4	9911.9	1430.2
4	Bardiya	1864.6	3075.6	5030.2	300.5	50953.9	1093.1
5	Chitwan	6437.2	8757.2	10879.5	7694.5	97903.9	56605.3
6	Dadeldhura	1993.4	2014.1	4599.2	1770.4	24674.0	7241.0
7	Dang	8415.4	13234.5	30460.2	7372.0	113929.3	75322.3
8	Dhankuta	51.2	58.5	61.0	84.7	136.3	160.1
9	Dhanusa	1706.3	4802.6	2391.4	398.2	18223.6	2649.8
10	Doti	197.0	280.2	149.7	533.3	1981.4	552.5
11	Ilam	1656.8	5709.8	2942.8	1501.8	22182.4	6741.9
12	Jhapa	55.2	217.5	623.8	83.3	2103.2	361.2
13	Kailai	4650.7	7290.4	22147.8	4453.8	83136.2	9769.2
14	Kanchanpur	580.8	788.8	4534.4	336.7	12110.7	495.4
15	Kapilbastu	260.0	1265.1	4410.5	324.1	12230.1	371.2
16	Kavre	47.4	32.5	40.5	87.8	340.6	157.5
17	Lalitpur	239.6	56.6	53.5	354.6	458.0	849.6
18	Mahottari	862.6	1758.5	596.8	492.6	9715.9	1229.7
19	Makwanpur	4595.8	2125.2	8511.4	21129.0	92108.0	44209.7
20	Morang	542.6	1547.9	2163.5	787.9	8878.1	2335.7
21	Nawalparasi	4871.0	4592.6	6033.8	5233.0	62247.3	32852.8
22	Palpa	968.4	995.0	5282.5	1401.6	13189.0	3110.2
23	Parsa	251.7	597.6	2542.5	685.0	23832.9	843.1
24	Pyuthan	128.8	226.3	388.2	212.9	1274.4	787.0
25	Rautahat	557.7	300.3	560.9	921.0	4609.0	963.8
26	Rupandehi	809.2	1553.7	2887.7	113.4	10592.4	280.2
27	Salyan	1145.2	2127.3	3299.0	552.6	23005.3	2421.7
28	Saptari	528.8	2161.4	1534.9	89.7	12861.4	271.5
29	Sarlahi	1068.0	1412.4	907.1	2008.1	10845.9	2204.8
30	Sindhuli	8335.6	6496.1	6478.4	8230.5	81164.1	31626.1
31	Siraha	2111.4	3172.7	1461.4	609.6	9317.6	1834.0
32	Sunsari	633.4	1053.1	817.0	517.4	4223.8	1928.3
33	Surkhet	5814.6	8549.5	12481.0	3009.6	64546.6	20842.5
34	Tanahu	40.6	3.9	0.2	35.0	20.8	443.4
35	Udaypur	5952.3	9515.6	9455.2	3995.6	61962.1	26683.9
36	Bhojpur	5.2	0.2		1.0	0.2	50.5
	Total	71854.8	104545.6	174687.0	79530.1	1023529.2	343159.7
	Change percent	4.0	5.8	9.7	4.4	56.9	19.1



4

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5 Annexes

Annex 1: Details on Forests and CF in Churial range

District	Forest in district (ha)	Forest in Chure (ha)	Forest in Chure (%)	CF in district (ha)	CF in Churia (ha)	CF in Churia (%)	Area of CF studied
1 ARGHAKHANCHI	63460.0	40639.9	64.0	28299.0	16390.7	58.0	16508.8
2 BANKE	113295.0	68875.9	61.0	27760.0	14441.8	52.0	4497.4
3 BARA	47182.0	13344.6	28.0	8170.0	5427.1	66.0	635.6
4 BARDIYA	121682.0	59386.1	49.0	18812.0	2058.8	11.0	0.0
5 CHITWAN	128500.0	125513.9	98.0	18055.0	12890.4	71.0	7972.1
6 DADEL DHURA	115300.0	33014.1	29.0	20582.0	5654.6	27.0	6778.4
7 DANG	201900.0	165293.4	82.0	98732.0	82974.6	84.0	70897.7
8 DHANUSA	27558.0	25873.6	94.0	8396.0	6679.1	80.0	8496.9
9 DOTI	128920.0	2982.5	2.0	33191.0	3743.1	11.0	334.1
10 ILAM	80926.0	25738.3	32.0	49120.0	36445.3	74.0	8037.0
11 JHAPA	19557.0	2818.8	14.0	8550.0	6581.4	77.0	1020.8
12 KAILALI	205939.0	117217.2	57.0	25593.0	8846.6	35.0	4643.2
13 KANCHANPUR	80548.0	17797.6	22.0	11247.0	5294.3	47.0	784.9
14 KAPILBASTU	56915.0	18289.5	32.0	1455.0	137.8	9.0	788.8
15 MAHOTTARI	23219.0	12623.1	54.0	6747.0	6167.1	91.0	2733.0
16 MAKAWANPUR	144558.0	104775.6	72.0	64829.0	33015.5	51.0	20845.9
17 MORANG	55500.0	9621.7	17.0	7602.0	4039.2	53.0	1899.8
18 NAWALPARASHI	104942.0	78221.2	75.0	15707.0	11714.0	75.0	7940.4
19 PALPA	71170.0	21970.8	31.0	27183.0	7216.4	27.0	5626.0
20 PYUTHAN	72694.0	2106.7	3.0	42517.0	2840.4	7.0	1276.8
21 RAUTAHAT	29559.0	6401.5	22.0	5139.0	1587.6	31.0	1339.6
22 RUPANDEHI	33874.0	15194.8	45.0	10712.0	3825.4	36.0	3511.3
23 SALYAN	128204.0	29044.3	23.0	45754.0	3295.8	7.0	1586.7
24 SAPTARI	34083.0	16666.0	49.0	14307.0	4331.3	30.0	2373.3
25 SARLAHI	29362.0	15129.2	52.0	11638.0	9384.1	81.0	5619.2
26 SINDHULI	158772.0	102990.9	65.0	68512.0	54164.4	79.0	16003.2
27 SIRAHA	27707.0	14572.5	53.0	14174.0	10347.0	73.0	3333.2
28 SUNSARI	24865.0	5856.8	24.0	2100.0	79.9	4.0	920.1
29 SURKHET	177854.0	88745.4	50.0	59856.0	45434.5	76.0	6700.6
30 TANHU	78111.0	67.9	0.0	33229.0	1623.4	5.0	0.0
31 UDAYAPUR	120705.0	84896.7	70.0	70961.0	48813.2	69.0	57162.0

(Source :Dept. of Forest)



.....
“People in Churia have hard time fetching water while a deep-well in the riverbed is a smart alternative from Bishnupur Katti, Siraha .”
.....

.....
“Lauki Pokhari in Chure hills of Parsa is an important source of recharge in dry season .”
.....



.....
"Forests management in
Churia can improve small
watersheds which can
preserve recharge ponds
as this picture shows from
Dhanusa district."
.....



.....
"Improving dense cover
of forest in churia of
Mahuli, Saptari is really
encouraging."
.....



AN ATLAS OF FOREST COVER CHANGE IN CHURIA

This atlas of forest cover change in Churia range is organised in the following way.

Churia range of each district is delineated with the boundary separating Terai in the south and Mahabharat range in the north.

Churia range of each district has three levels of information corresponding to separate page

1. Land cover change analysis - It provides comparable map for 1992 and 2014, with seven landcover classes and table which represents land cover change with data and results. These maps and tables should not be used to generalise for the whole district, it rather applies within the chure range only.

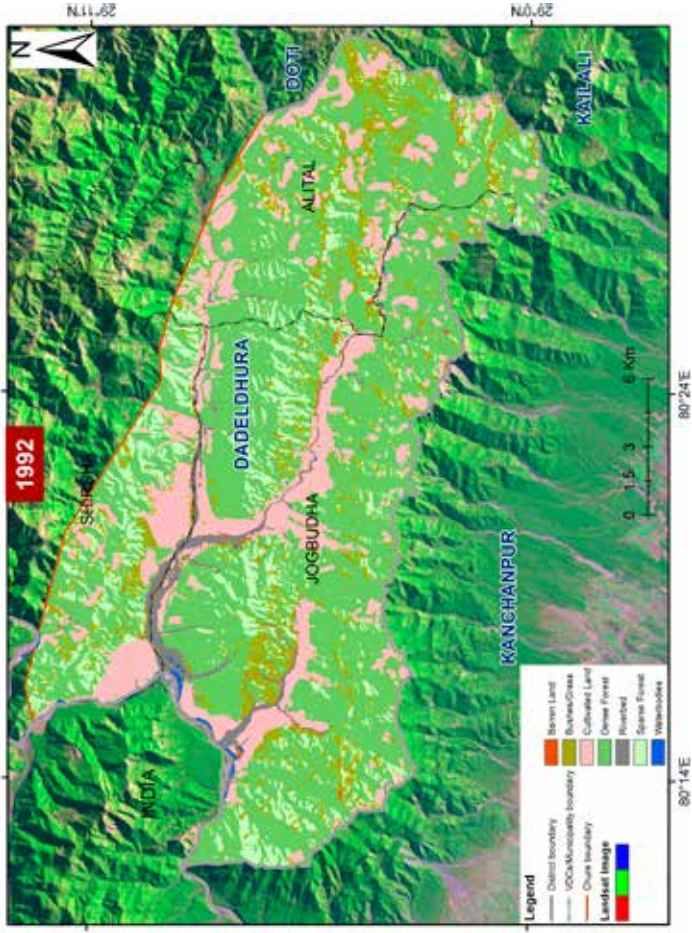
2. Forest cover change analysis - It provides a single map of forest cover change in 6 major processes which is also supported by FAO, 2005. This shows areas of positive and negative changes as improved forest, new forest; and degraded forest, deforested area respectively also represented in the pie chart in percentage. The data should be referred to Table 8 for each districts.

3. Change in community forest and non-community forests area- Forest cover change analysis is further compared between the changes that occurred inside boundary of community forests and outside the boundary. The total of the data in the table also provides data supporting pie chart in the forest cover change analysis.

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Dadeldhura District	A5
Doti District	A8
Kanchanpur District	A11
Kailali District	A14
Surkhet District	A17
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Banke District	A23
Salyan District	A26
Dang District	A29
Pyuthan District	A32
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Dhanusha District	A74
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Ilam District	A96
Lalitpur District	A99
Kavrepalanchok	A100
Tanahun District	A101
Bhojpur District	A102
Dhankuta District	A102

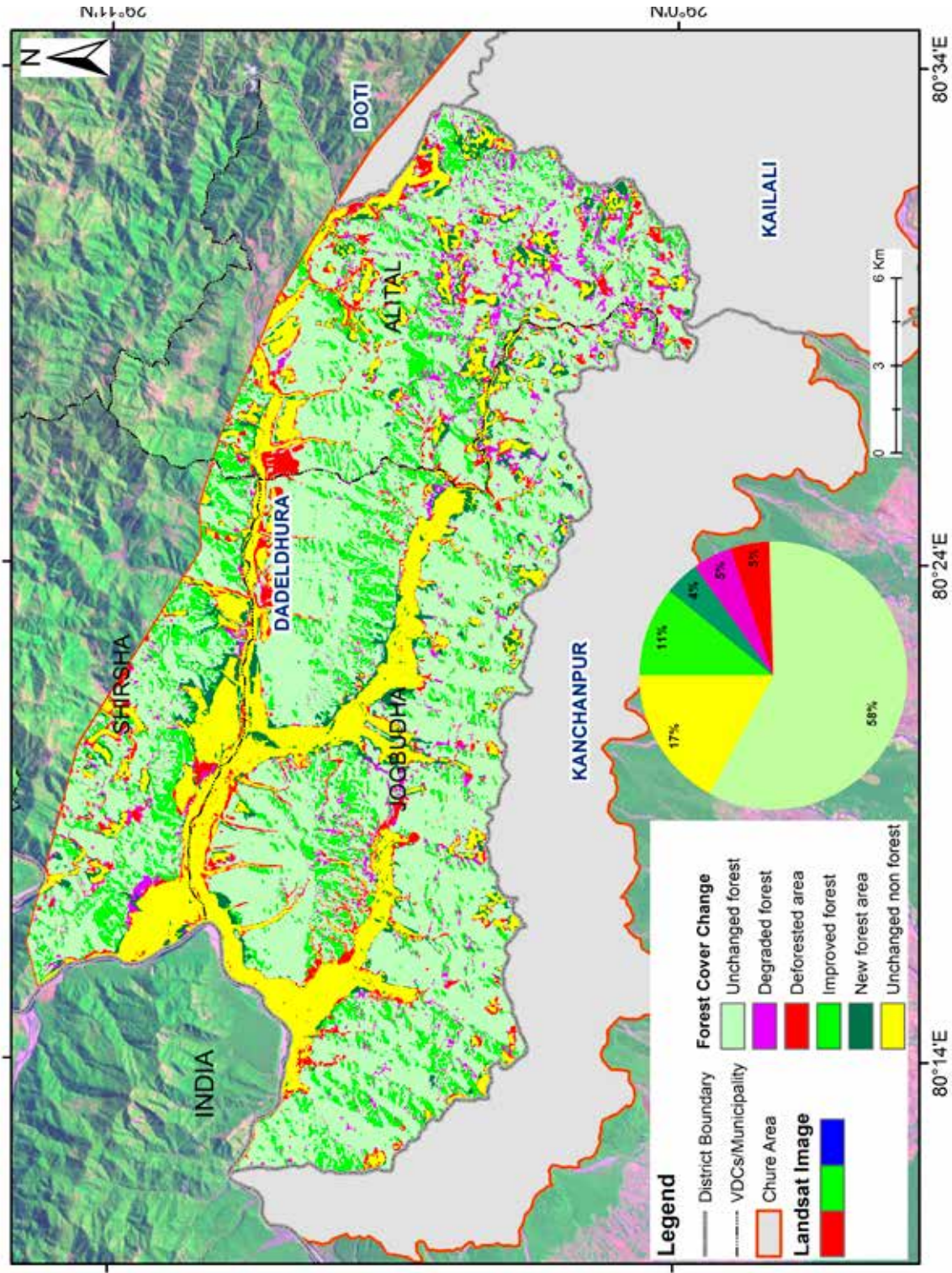
Land cover change in Churia - Dadeldhura District



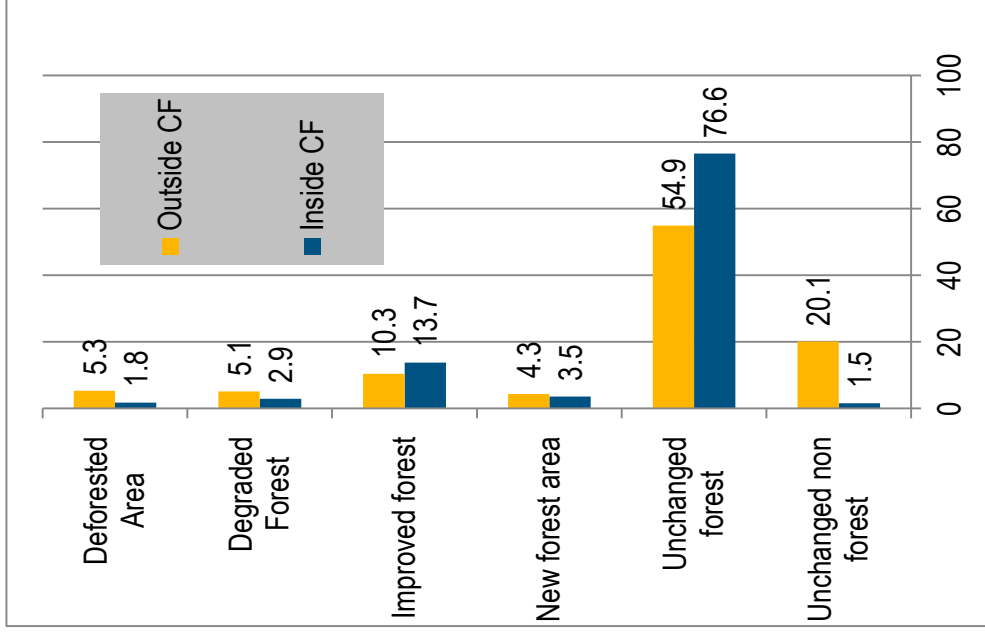
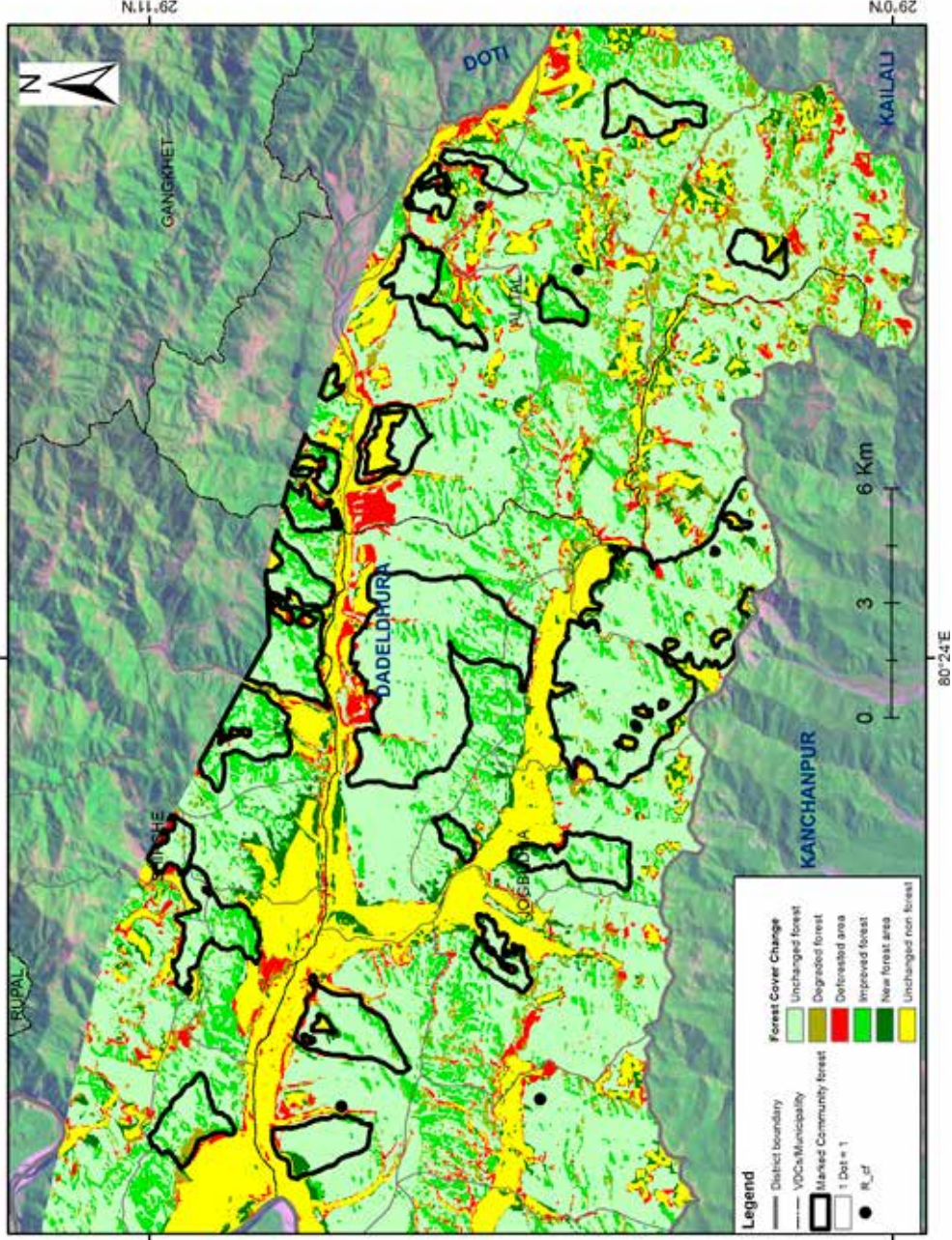
Land cover	1992 (area in ha)	% Area	1992 (area in ha)	% Area	Rate of Change per year
Dense Forest	23987.24	54.18	25731.00	58.12	0.3
Sparse Forest	5177.32	11.69	2932.24	6.62	-2.6
Bushes/Grass	4073.48	9.20	4350.84	9.83	0.3
Cultivated Land	7337.04	16.57	6516.20	14.72	-0.5
Barren Land	87.28	0.20	51.12	0.12	-2.4
Riverbed	1475.00	3.33	2557.28	5.78	2.5
Waterbodies	144.92	0.33	122.08	0.28	-0.8

यस अध्ययनले देखाए अनुसार डडेल्धुराको चुरे क्षेत्रमा बगर अत्यन्तै बढेको छ । त्यस संगै देखिएको खेती योग्य जमिनमा आएको हासले पक्कै पनि राम्रो संकेत दिँदैन ।

Forest cover change in Churia - Dadeldhura District



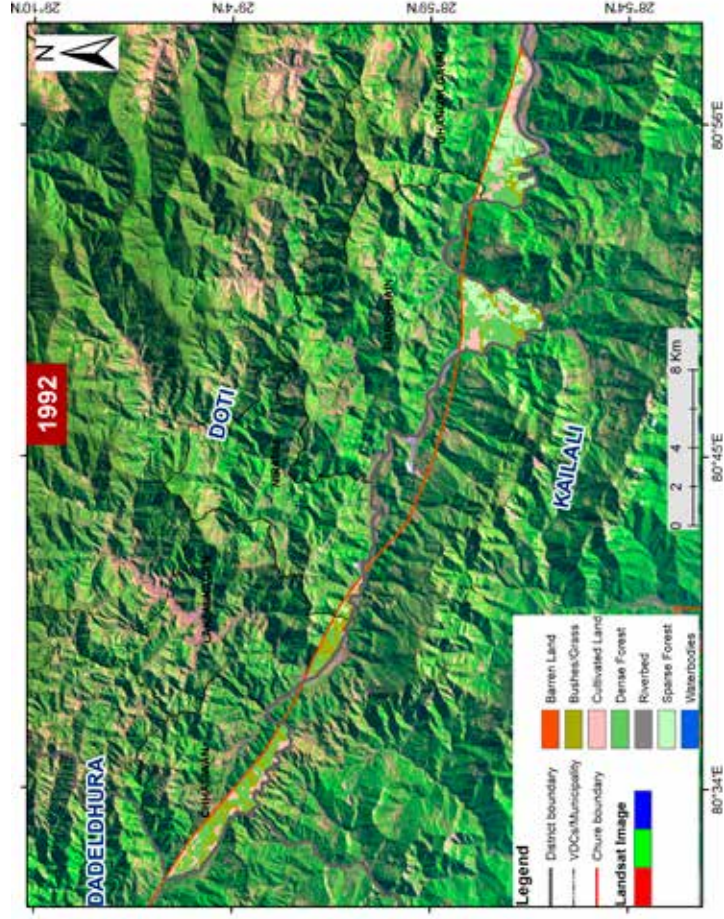
Forest cover change in Community Forests of Churia - Dadeldhura District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	119.12	197.32	928.6	239.84	5191	102.48
Outside CF (Area in ha)	1874.28	1816.76	3670.6	1530.6	19482.96	7138.52

तुलना गर्दा सामुदायिक वन भित्रका जंगलको हैसियत बाहिरका अरु जंगलको तुलनामा राम्रो भएको पाइयो ।

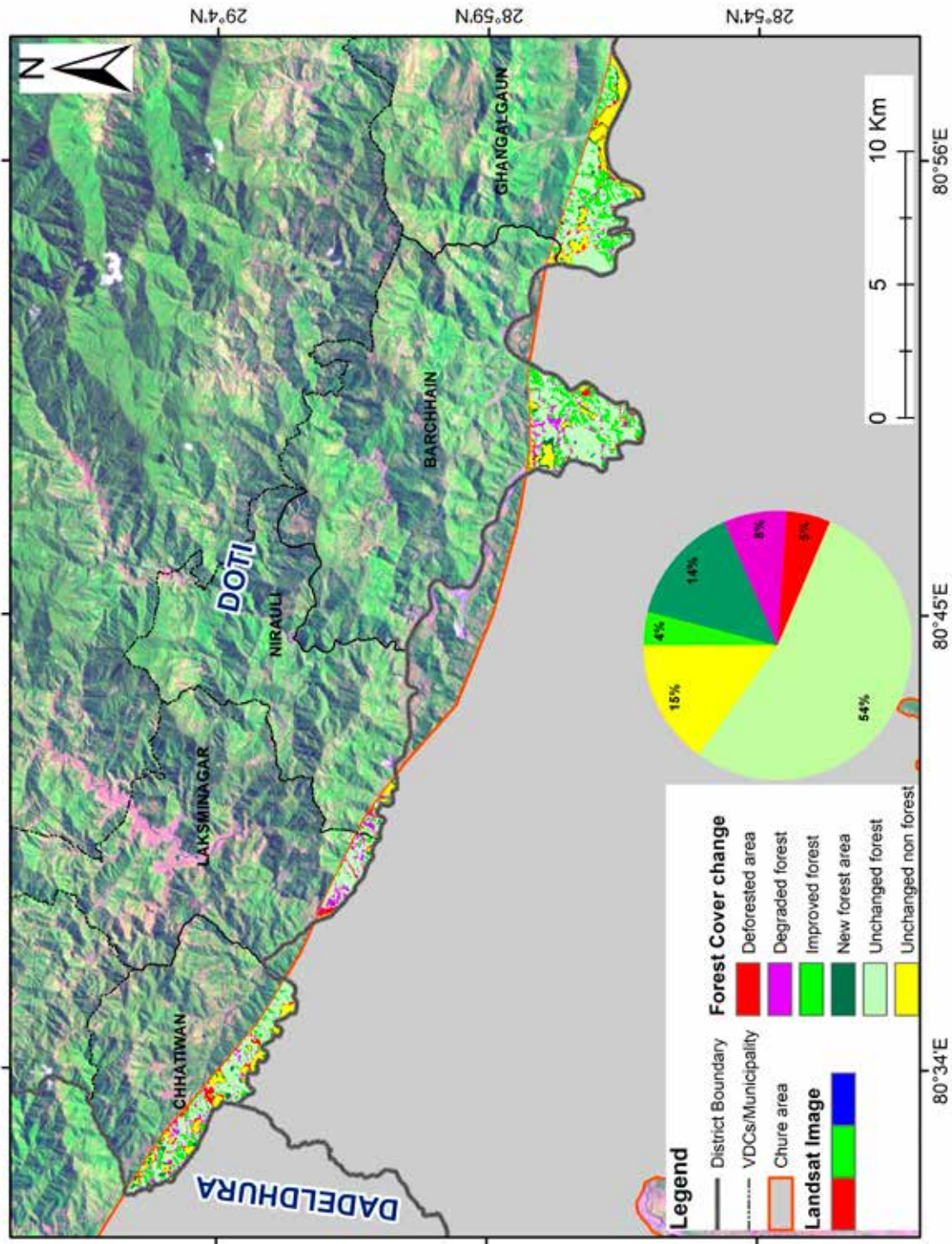
Land cover change in Churia - Doti District



Land cover	1992 (area in ha)	% Area	1992 (area in ha)	% Area	Rate of Change per year
Dense Forest	1470.10	39.30	1557.10	41.60	0.3
Sparse Forest	762.20	20.40	722.80	19.30	-0.2
Bushes/Grass	788.10	21.10	702.60	18.80	-0.5
Cultivated Land	584.60	15.60	515.80	13.80	-0.6
Barren Land	14.64	0.39	6.40	0.17	-3.7
Riverbed	99.4	2.7	220.7	6.4	3.7
Waterbodies	21.6	0.6	20.0	0.0	-0.3

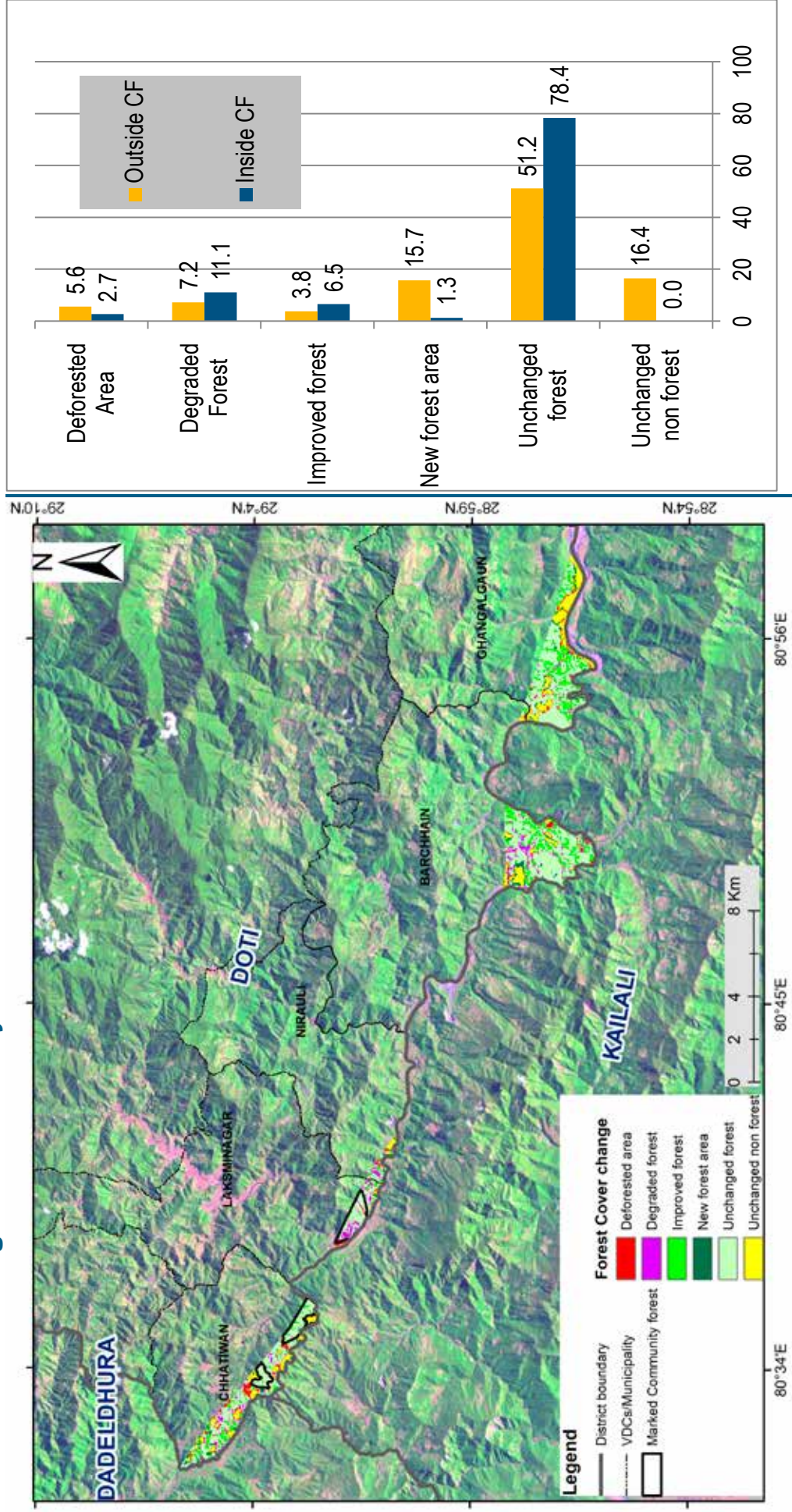
प्रति वर्ष ३.७ % का दरले जंगल क्षेत्र बाँझो जगामा बदलिनु अवश्य पनि शुभ संकेत होइन ।

Forest cover change in Churia - Doti District



४०० हे. क्षेत्रको वन जंगलको हैसियतमा हास भएता पनि करिब ७०० हे. क्षेत्रको हैसियतमा सुधार देखिनुले सन्तोष मान्ने ठाउँ छ ।

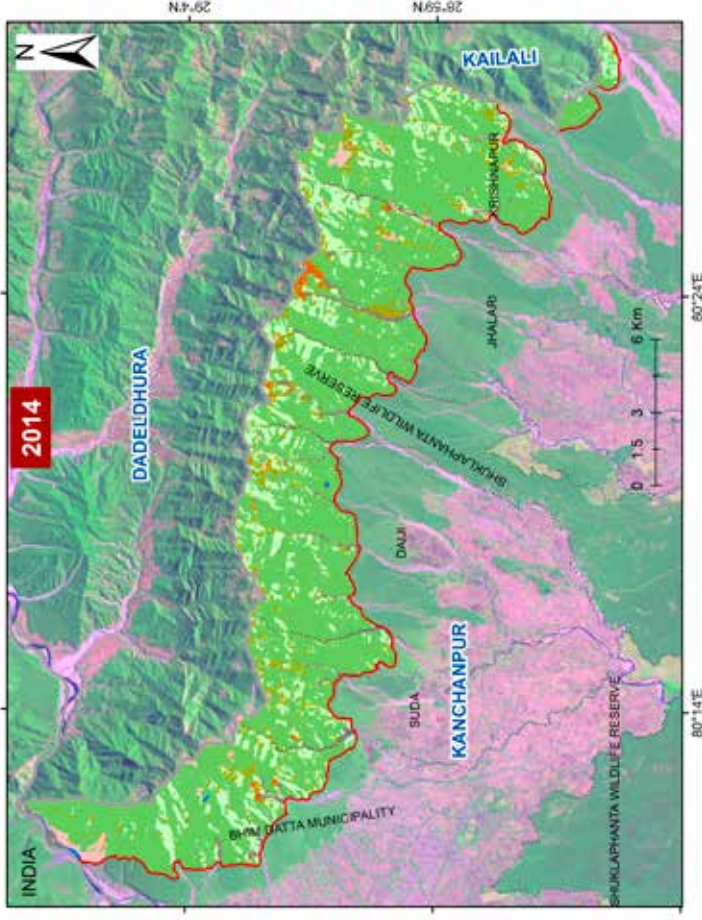
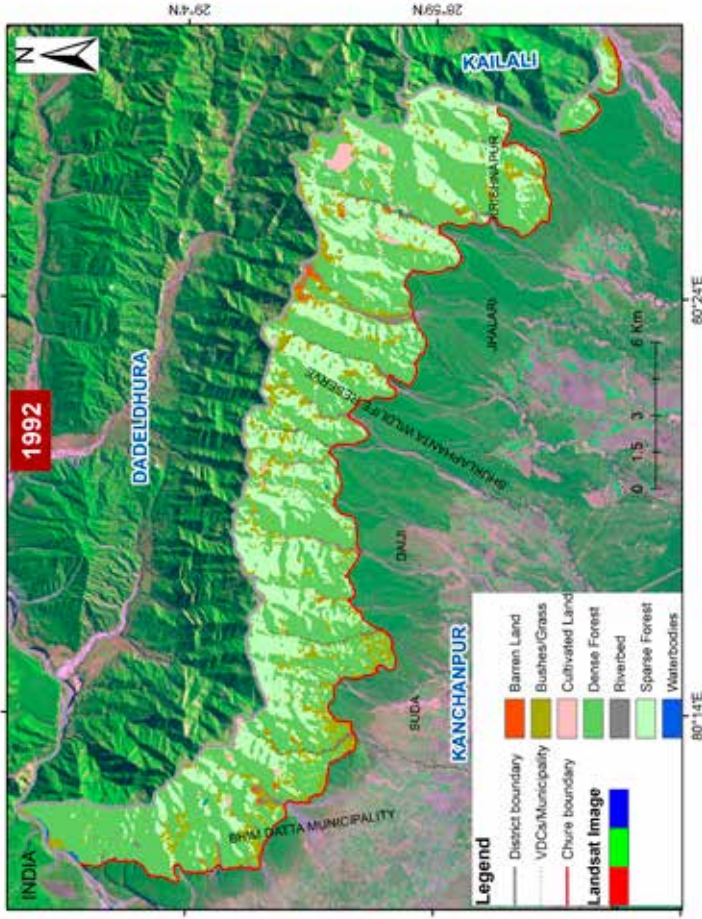
Forest cover change in Community Forests of Churia - Doti District



सामुदायिक वनको हैसियत अरु वनको तुलनामा राम्रो पाइयो ।

Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	9.04	37.12	21.84	4.24	261.84	0
Outside CF (Area in ha)	187.96	243.04	127.88	529.08	1719.52	552.52

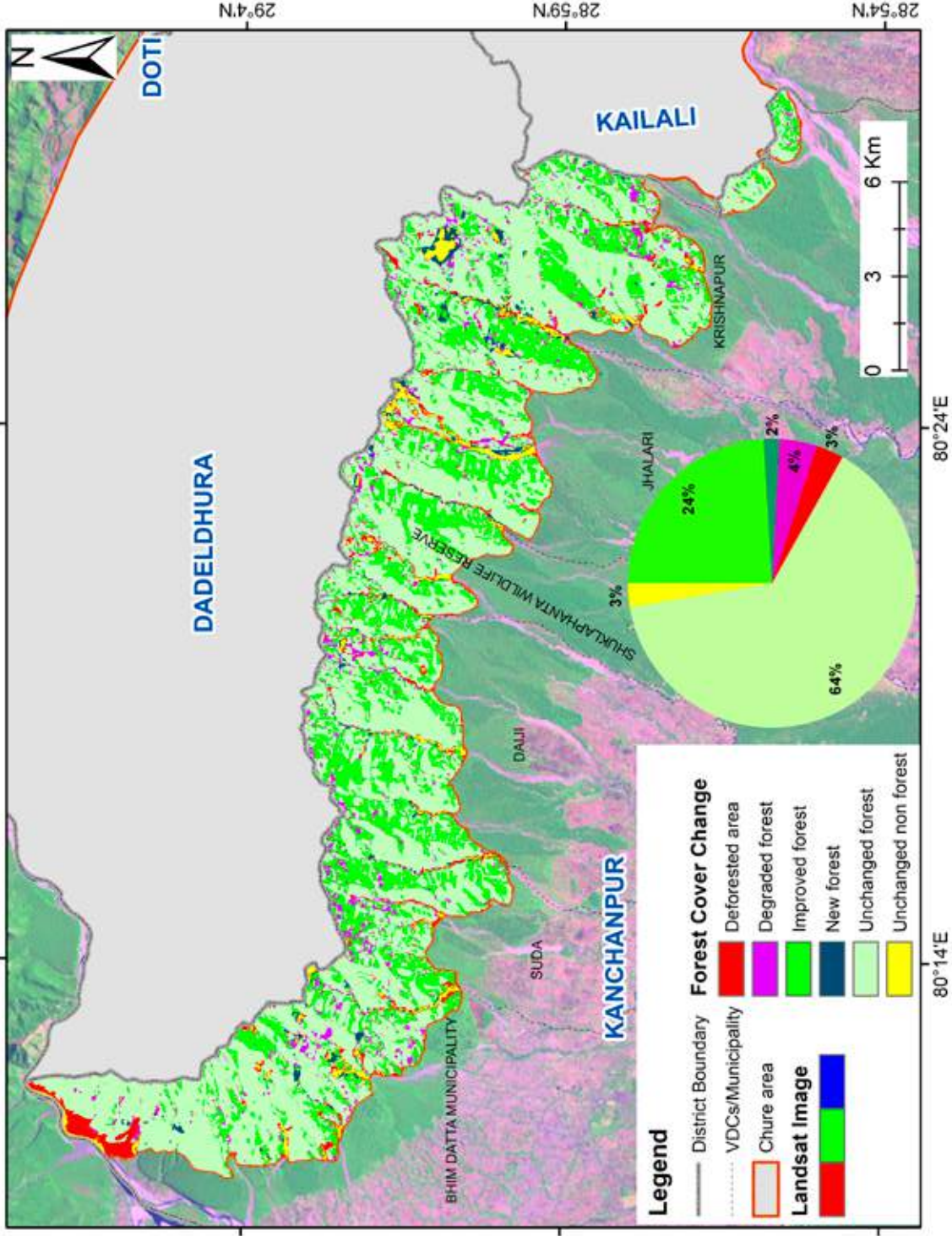
Land cover change in Churia - Kanchanpur District



Land cover	1992 (area in ha)	% Area	1992 (area in ha)	% Area	Rate of Change per year
Dense Forest	10033.32	53.10	13245.76	70.17	1.3
Sparse Forest	6057.28	32.06	3226.76	17.09	-2.8
Bushes/Grass	1962.48	10.39	1325.08	7.02	-1.8
Cultivated Land	281.20	1.49	379.32	2.01	1.4
Barren Land	80.72	0.43	85.56	0.45	0.3
Riverbed	443.04	2.34	582.00	3.08	1.2
Waterbodies	35.84	0.19	33.56	0.18	-0.3

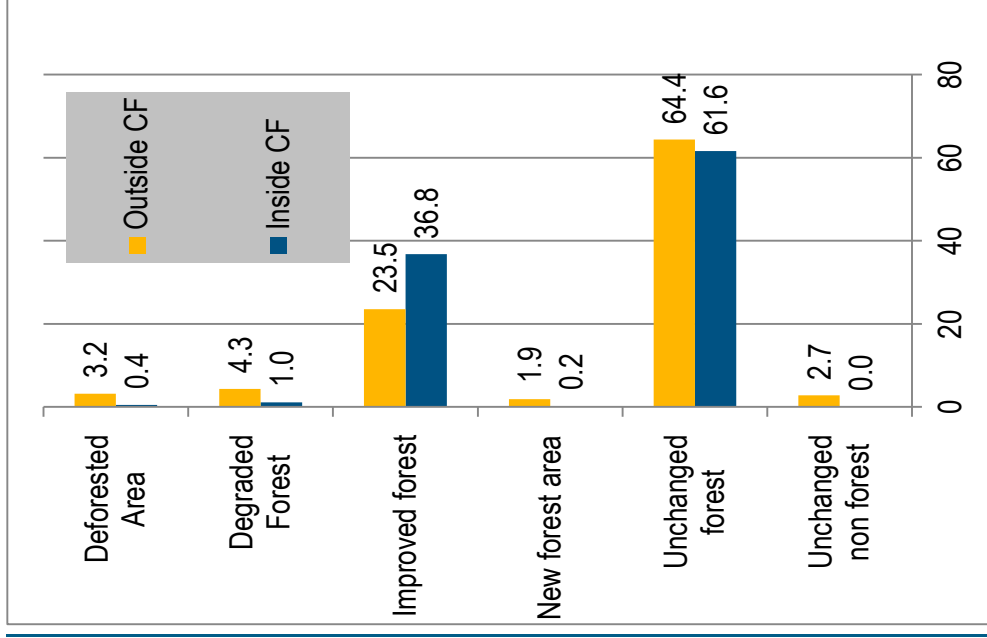
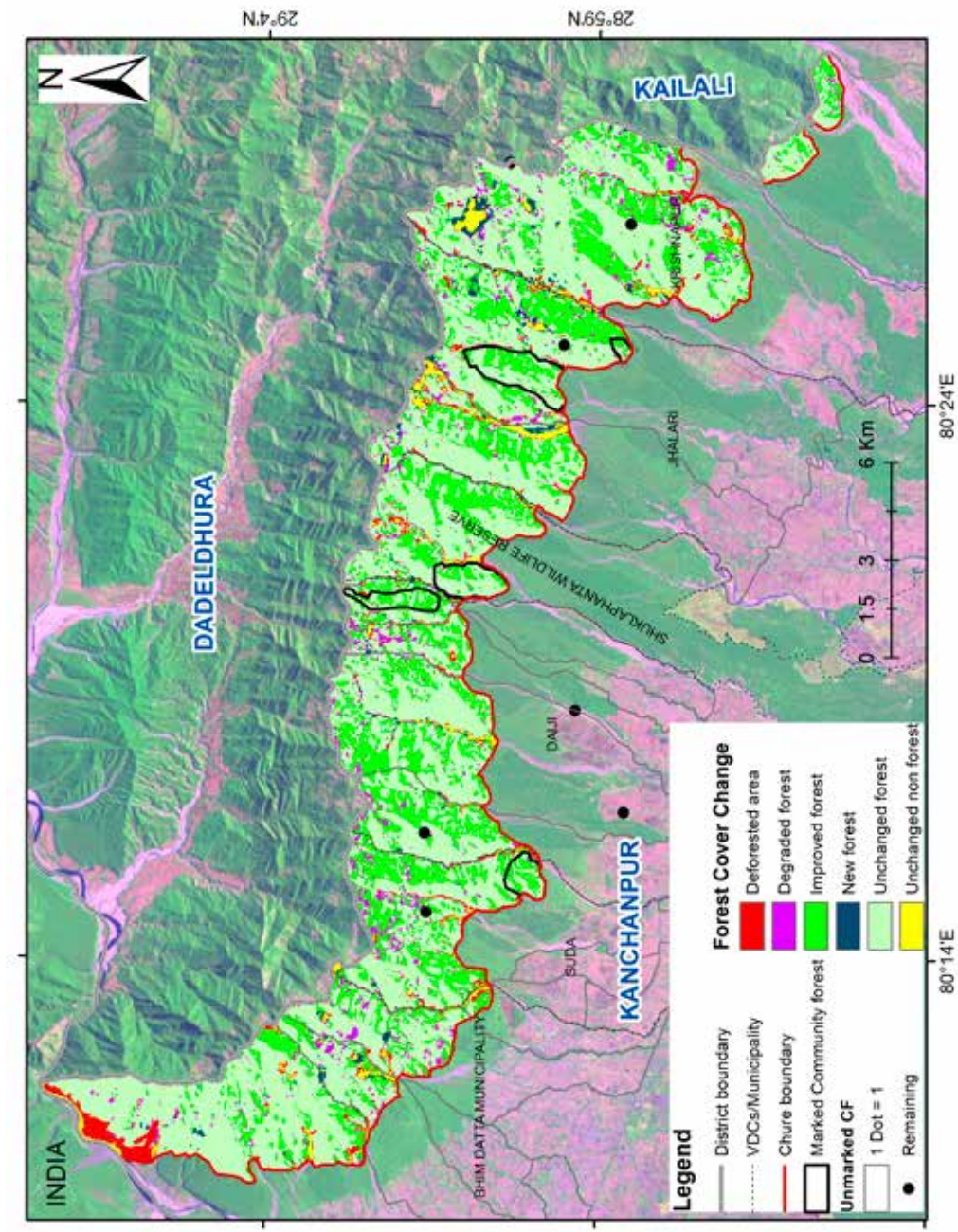
फाटफूटे रुख भएको वन तथा भाडी घट्नु तथा खेति र बगर बढ्नु शुभ संकेत होइन ।

Forest cover change in Churia - Kanchanpur District



करिब १४०० हे. क्षेत्रमा ह्रास देखिएता पनि ४९०० हे. मा सुधार देखिएकोले समष्टिगत हिसाबले कञ्चनपुर जिल्लाको चुरे विभागको छैन भन्न मिल्छ ।

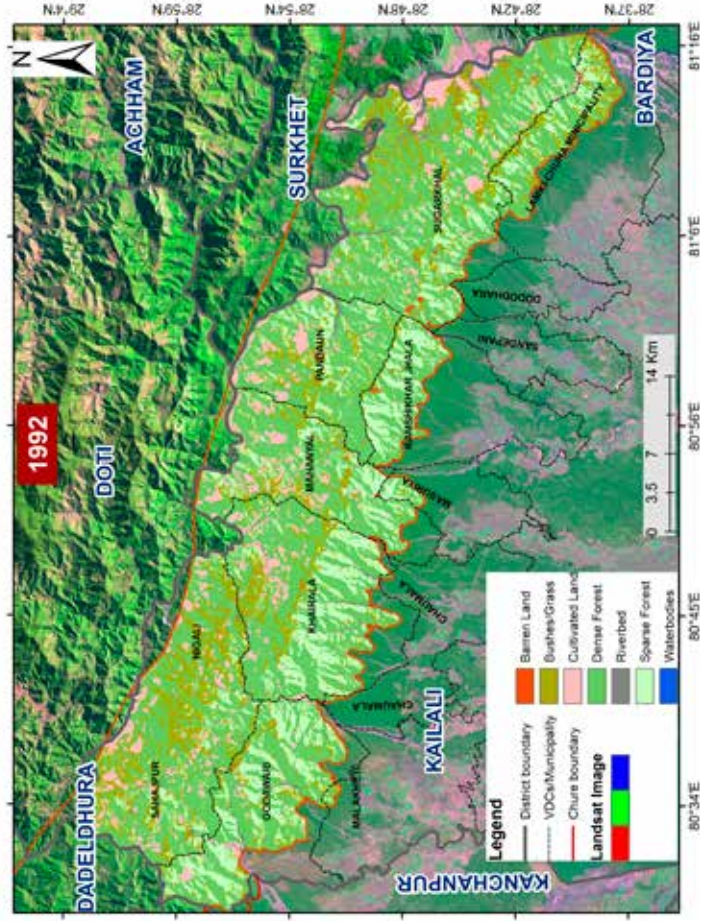
Forest cover change in Community Forest of Churia - Kanchanpur District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	3.4	8.2	288.48	1.4	483.44	0
Outside CF (Area in ha)	577.4	780.6	4245.88	335.28	11627.28	495.4

सामुदायिक वन भित्रको जंगल अरु जंगल भन्दा हसियतमा राम्रो देखियो ।

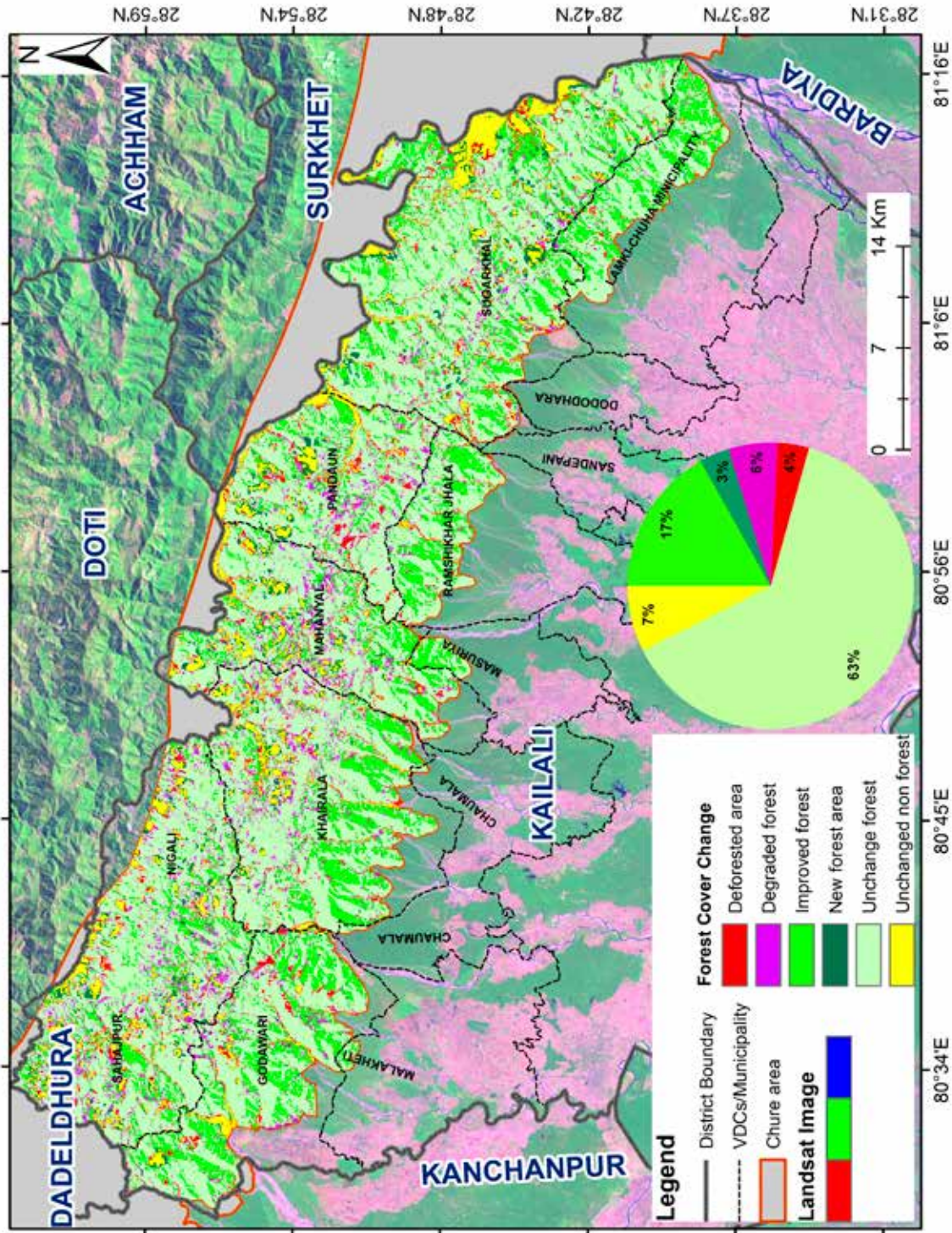
Land cover change in Churia - Kailali District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	72909.08	55.44	85440.52	64.82	0.7
Sparse Forest	25274.24	19.22	13102.32	9.94	-2.9
Bushes/Grass	19027.60	14.47	18674.40	14.17	-0.1
Cultivated Land	10592.28	8.05	8893.80	6.75	-0.8
Barren Land	415.96	0.32	592.32	0.45	1.6
Riverbed	2620.44	1.99	4551.16	3.45	2.5
Waterbodies	660.32	0.50	559.84	0.42	-0.7

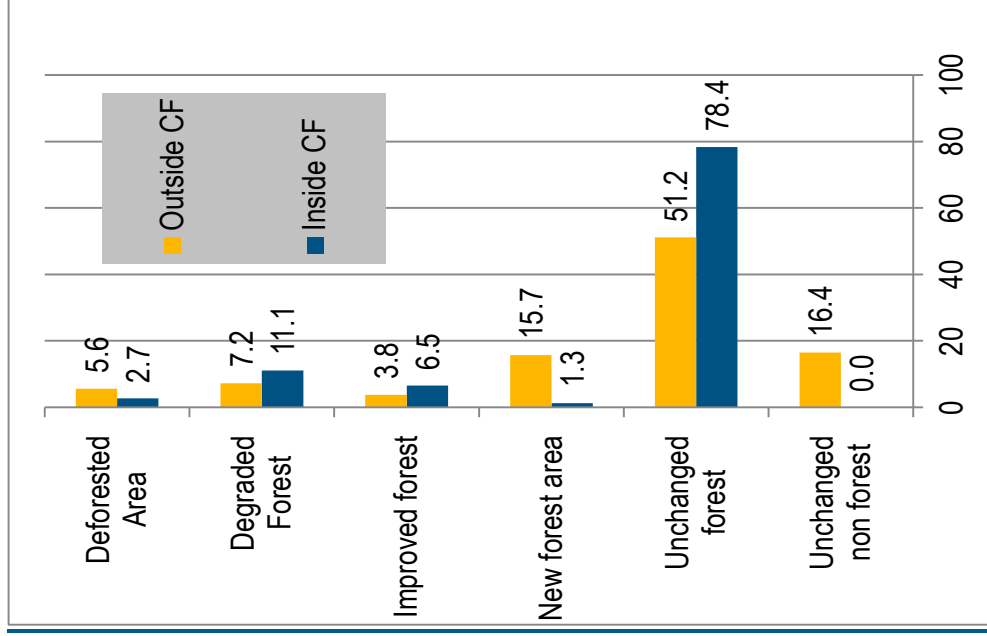
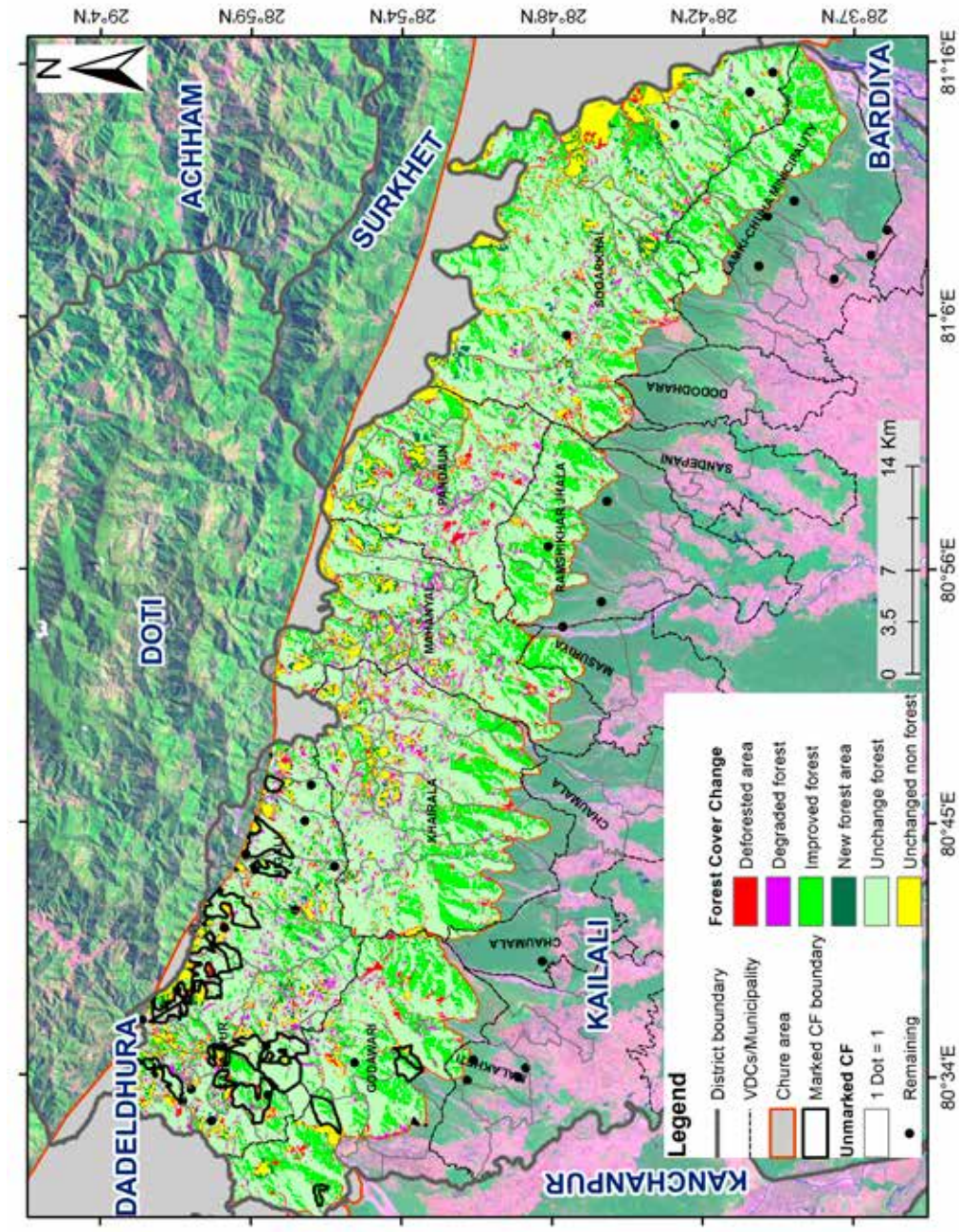
फाटफुट रुख भएको वन जंगल, भाडी तथा खेति घट्नु र २.५% प्रति वर्षका दरले बगर बढ्नु चिन्ताको विषय हो ।

Forest cover change in Churia - Kailali District



काठमाडौं नगरपालिकाको वन जंगल, भाडी तथा खेति घट्नु तर २.५% प्रति वर्षका दरले बगर बढ्नुले चिन्ता थपेको छ ।

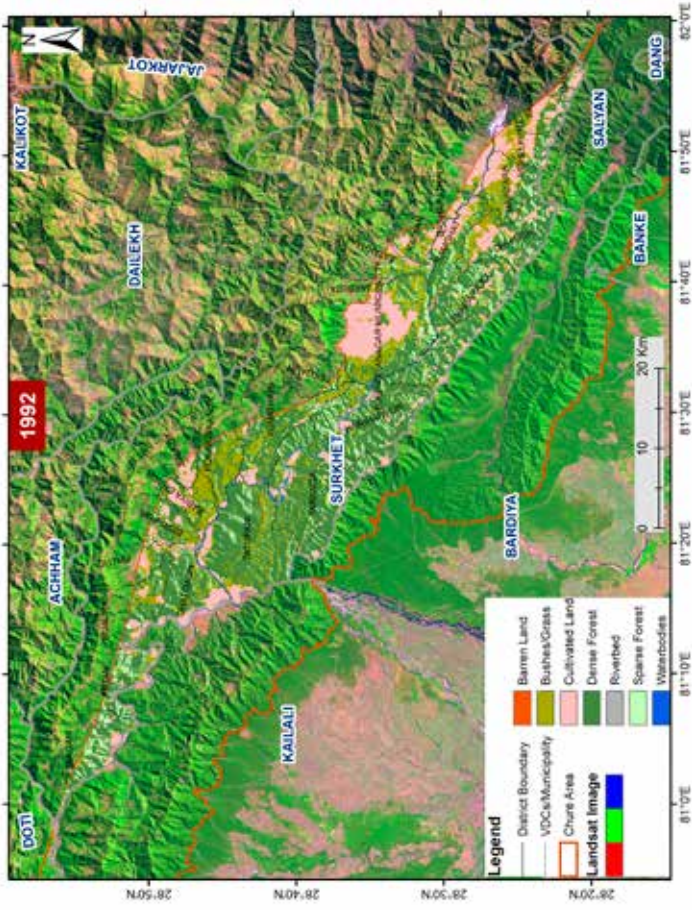
Forest cover change in Community Forests of Churia - Kailali District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchange forest	Unchange non forest
Inside CF (Area in ha)	98.44	271.44	554.12	118.12	3601.08	0
Outside CF (Area in ha)	4552.24	7019	21593.64	4335.64	79535.16	9769.24

सामुदायिक वन भित्रको वनको ह्रासियत तुलनात्मक रूपमा अरु वन भन्दा राम्रो देखिएको छ ।

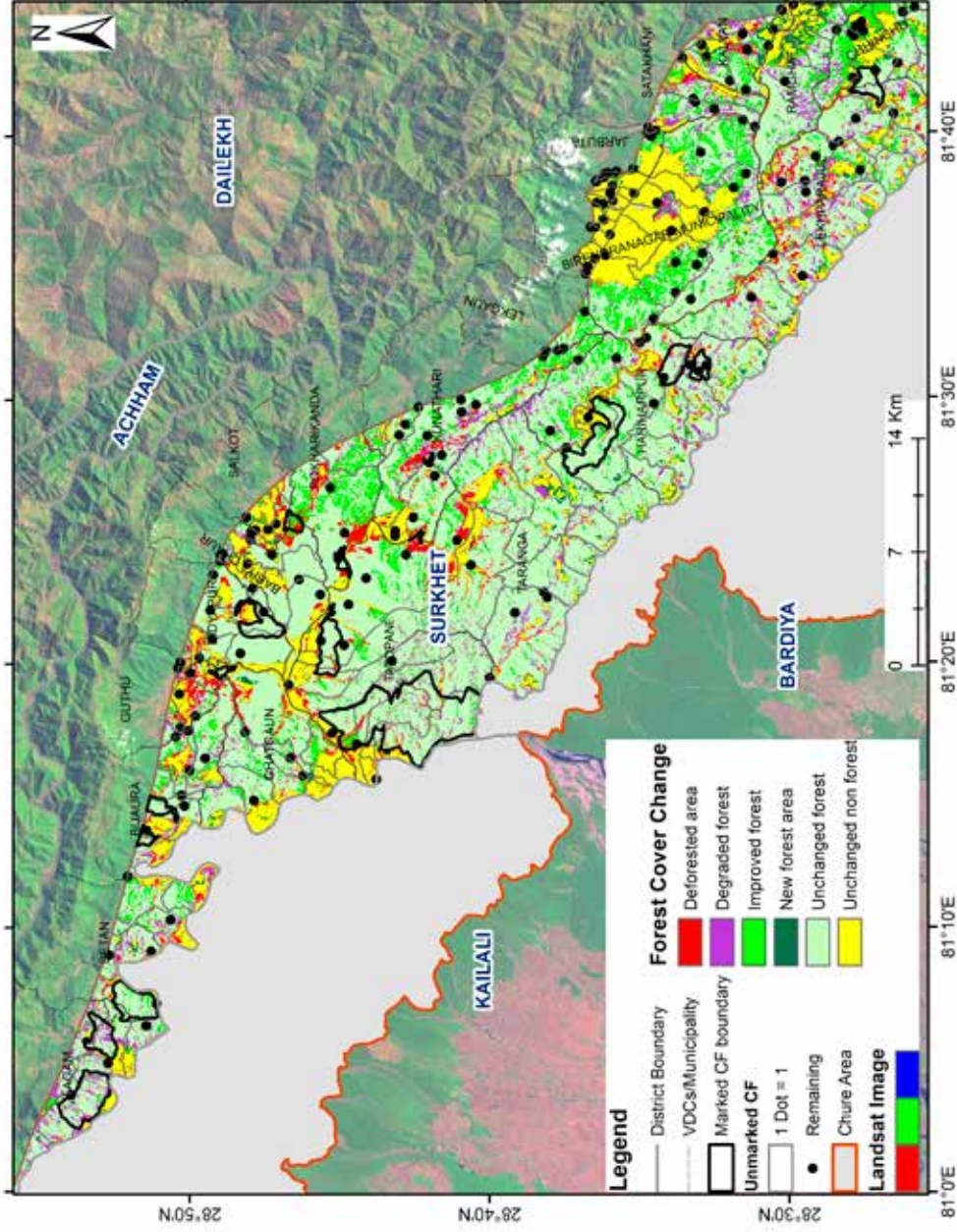
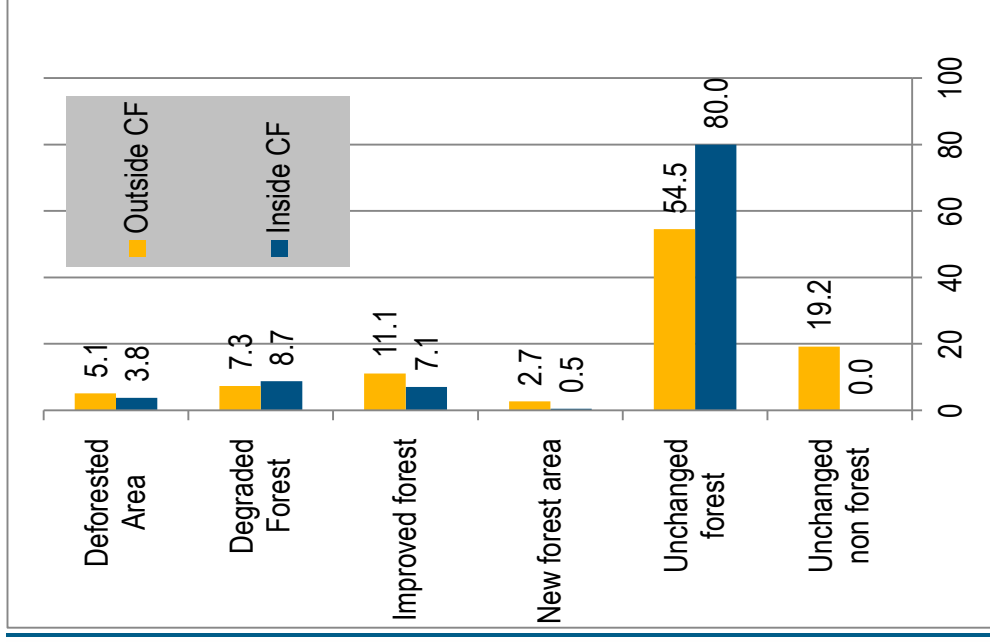
Land cover Change in Churia - Surkhet District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	59172.92	51.27	53638.16	46.47	-0.4
Sparse Forest	13143.92	11.39	25330.28	21.95	3.0
Bushes/Grass	19147.76	16.59	9777.00	8.47	-3.0
Cultivated Land	19968.44	17.30	20088.68	17.40	0.0
Barren Land	71.96	0.06	85.00	0.07	0.8
Riverbed	2751.04	2.38	5529.64	4.79	3.2
Waterbodies	1158.00	1.00	973.08	0.84	-0.8

प्रति वर्ष ३.२% का दरले खोलाको बगर बढ्नु तथा ३% का दरले भाडी घट्नु चिन्ताको विषय हो ।

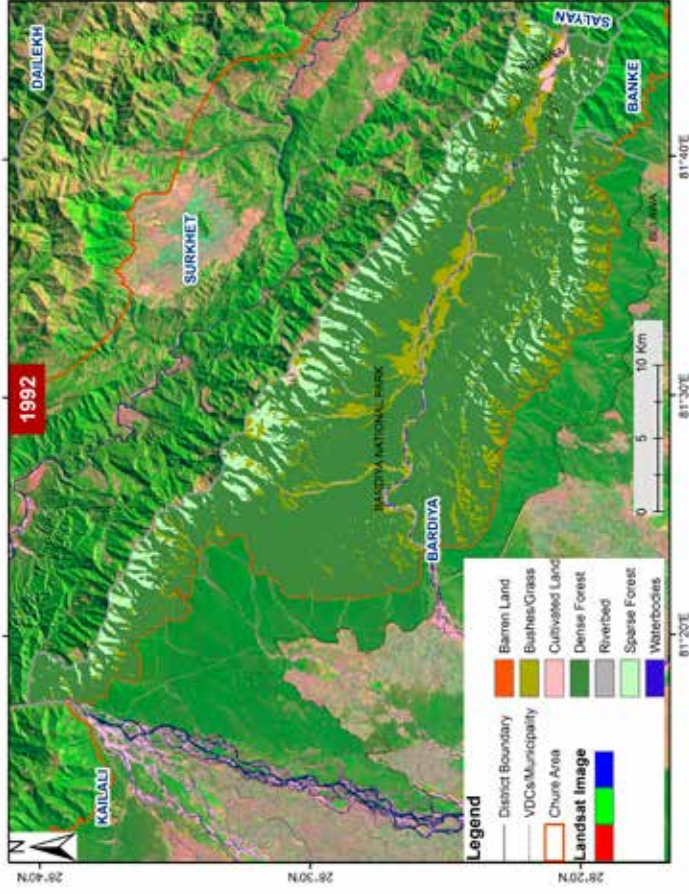
Forest cover change in Community Forest of Churia - Surkhet District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	252.68	584.48	472.6	32.48	5358.4	0
Outside CF (Area in ha)	5561.88	7965.04	12008.44	2977.16	59188.24	20842.48

सुर्खेत जिल्लाका सामुदायिक वनको हैसियत अरु वनको तुलनामा राम्रो देखिएन । यो सामुदायिक वनमा विश्वास गर्ने ब्यक्ति वा संस्थाका लागि चिन्ताको विषय हो ।

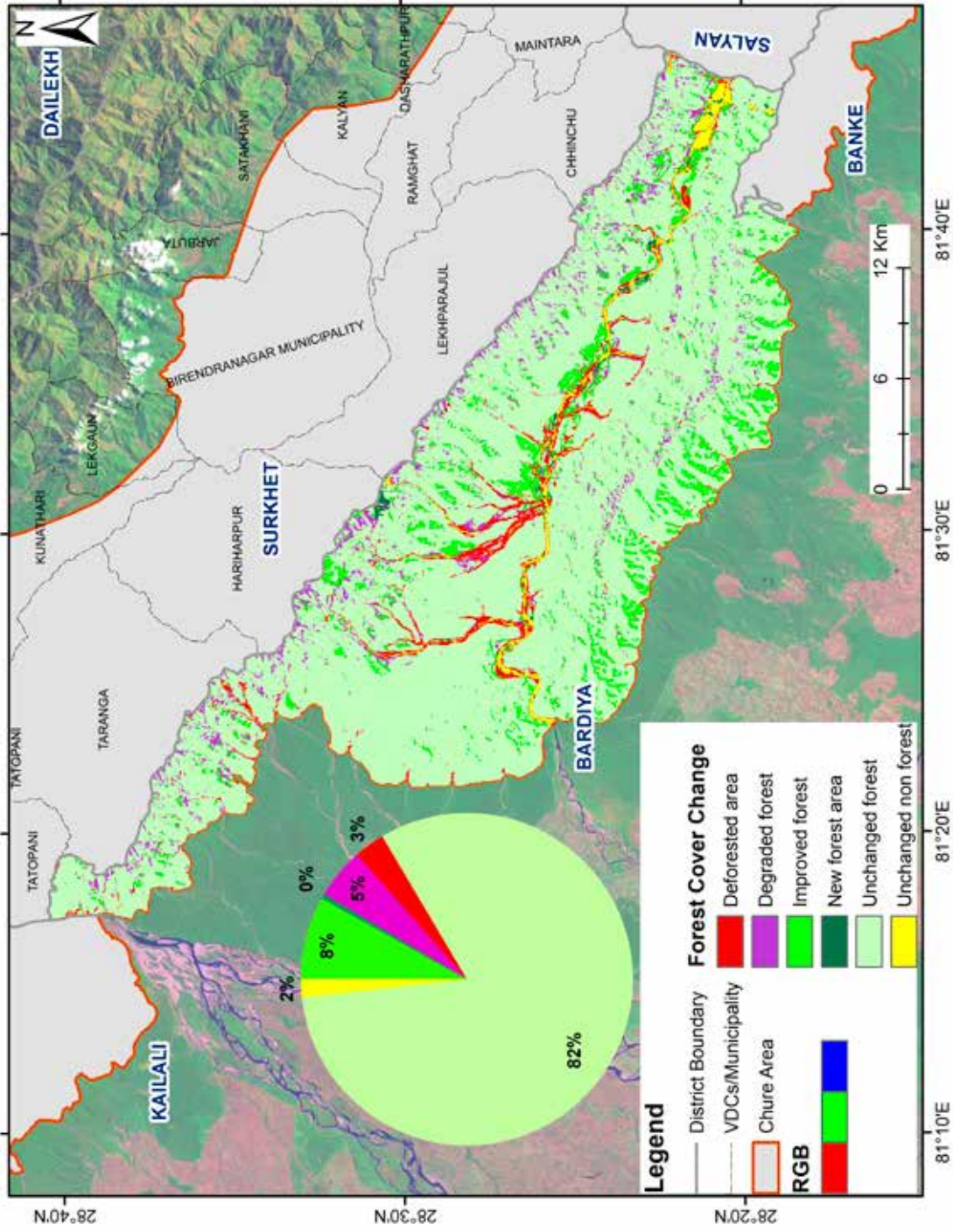
Land cover change in Churia - Bardiya District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	48652.16	78.08	47884.68	76.80	-0.1
Sparse Forest	6035.48	9.69	9974.76	16.00	2.3
Bushes/Grass	6220.60	9.98	1526.64	2.45	-6.2
Cultivated Land	338.40	0.54	349.04	0.56	0.1
Barren Land	3.64	0.01	29.16	0.05	9.9
Riverbed	783.88	1.26	2485.00	3.99	5.4
Waterbodies	274.08	0.44	103.36	0.17	-4.3

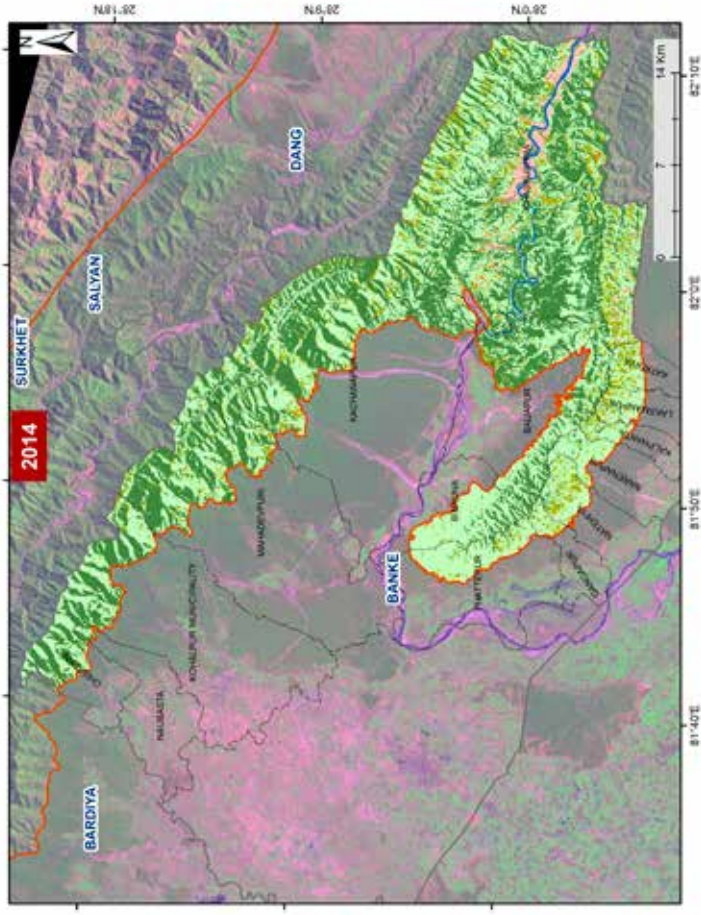
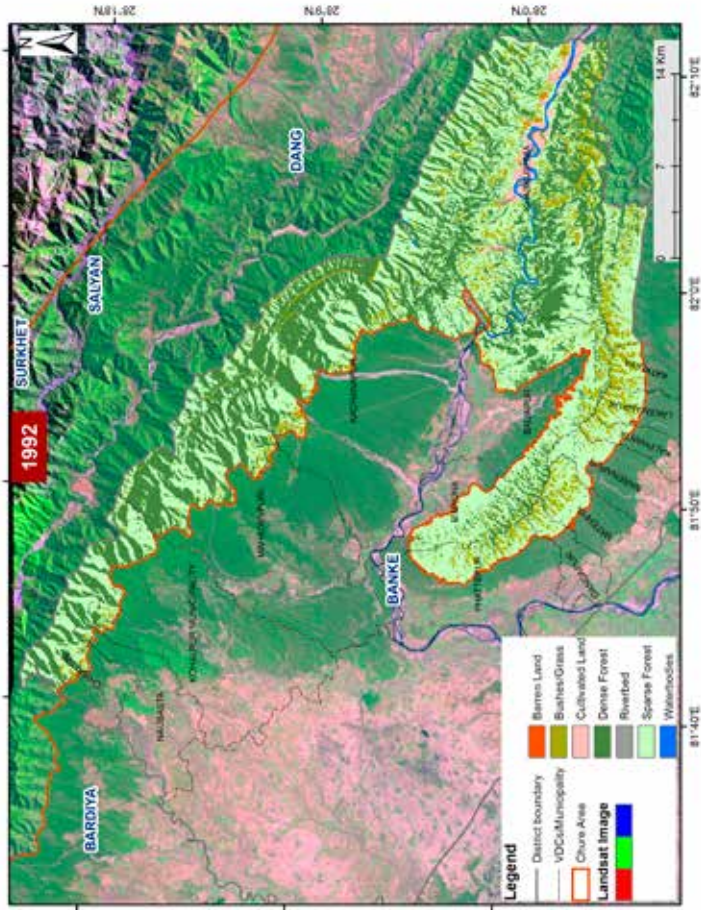
बर्दिया जिल्लाको चुरेमा बाँफो जग्गा र बगर बढ्ने काम व्यापक रूपमा जारी छ । बलैमा होस पुर्याउनु पर्छ ।

Forest cover change in Churia - Bardiya District



८२ % जंगलको भाग जस्ताको तस्तै रहनु भनेको घाटानै हुनु हो किनभने २२ वर्षमा जंगलको वृद्धि दर कस्तीमा पनि २२ % ले बढनु पर्ने थियो ।

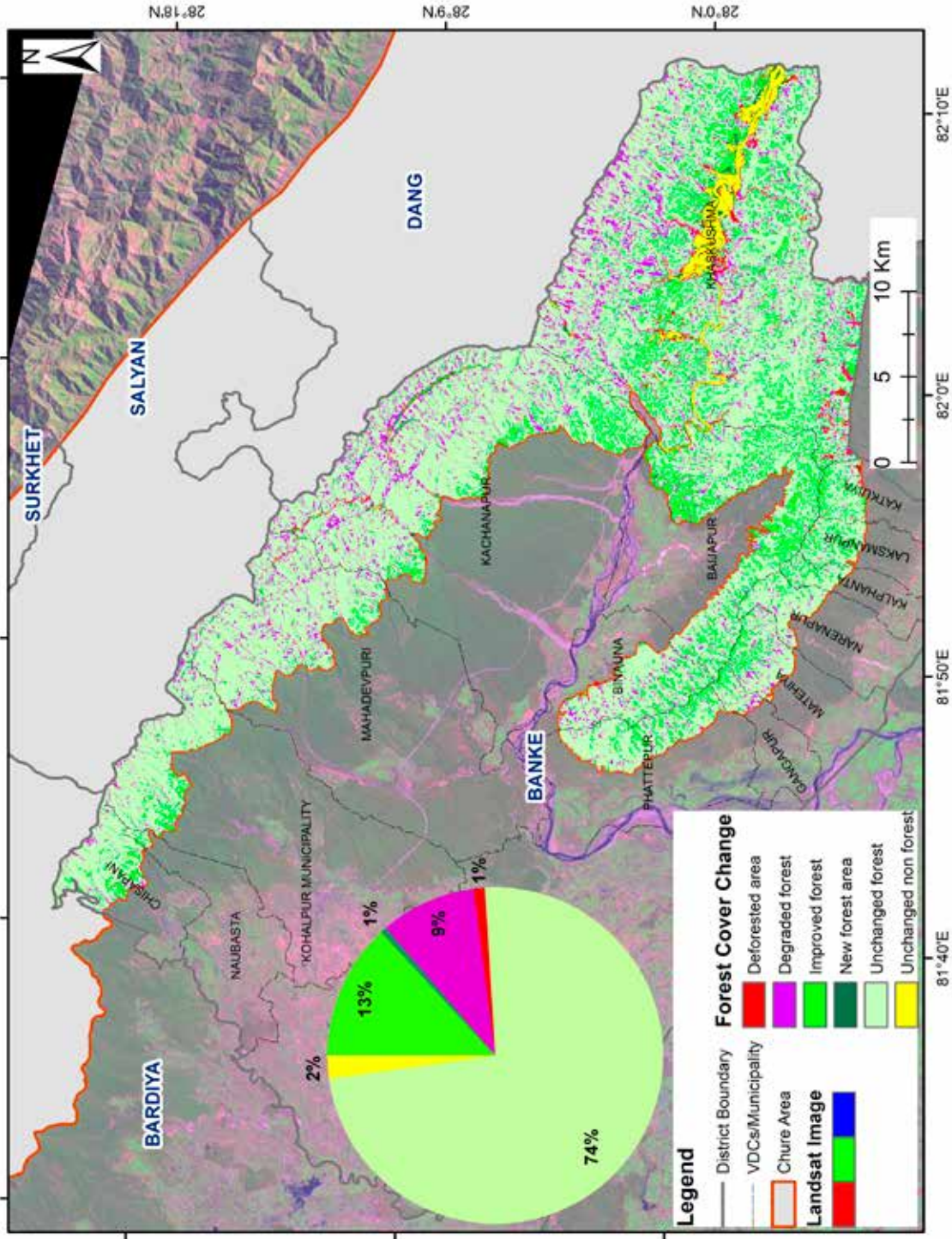
Land cover change in Churia - Banke District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	26653.84	37.42	28214.24	39.61	0.3
Sparse Forest	35577.28	49.94	34969.72	49.09	-0.1
Bushes/Grass	6996.00	9.82	5691.96	7.99	-0.9
Cultivated Land	934.00	1.31	1113.40	1.56	0.8
Barren Land	131.16	0.18	183.56	0.26	1.5
Riverbed	347.52	0.49	637.16	0.89	2.8
Waterbodies	597.08	0.84	425.52	0.60	-1.5

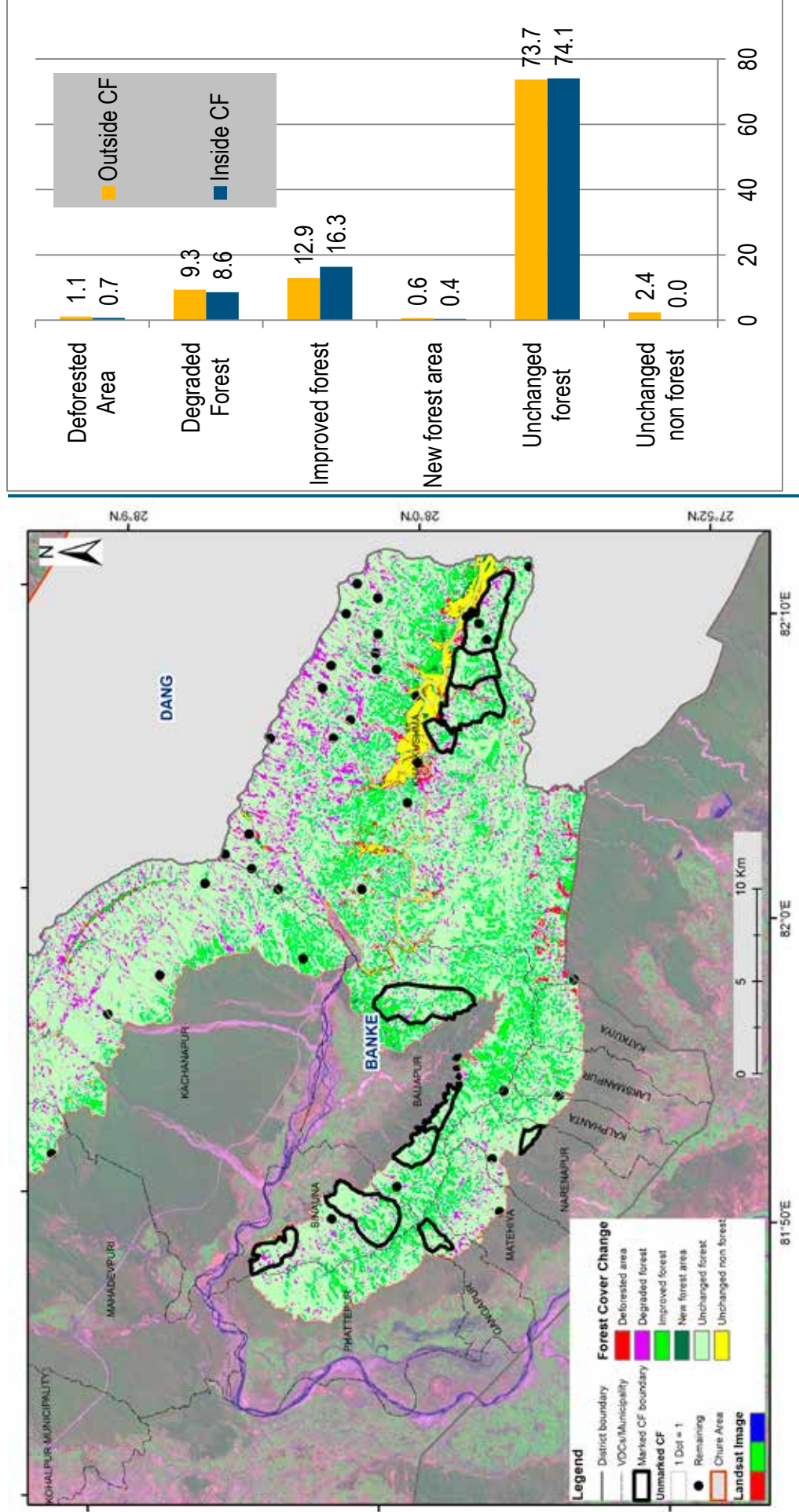
अहिलेकै हिसाबले बाँके जिल्लाको चुरे क्षेत्रमा वर्षेनी २.८ % का दरले बगर नियमित रुपमा बढ्यो भने २० वर्ष पछि बाँके जिल्लाको चुरेको गति कस्तो नाजुक होला ।

Forest cover change in Churia - Banke District



तिन चौथाइ जंगलको भाग २२ वर्ष सम्म जस्ताको तस्तै रहनु भनेको जंगल नोक्सान नभएपनि नबढेको चाँहि हो भन्न सकिन्छ ।

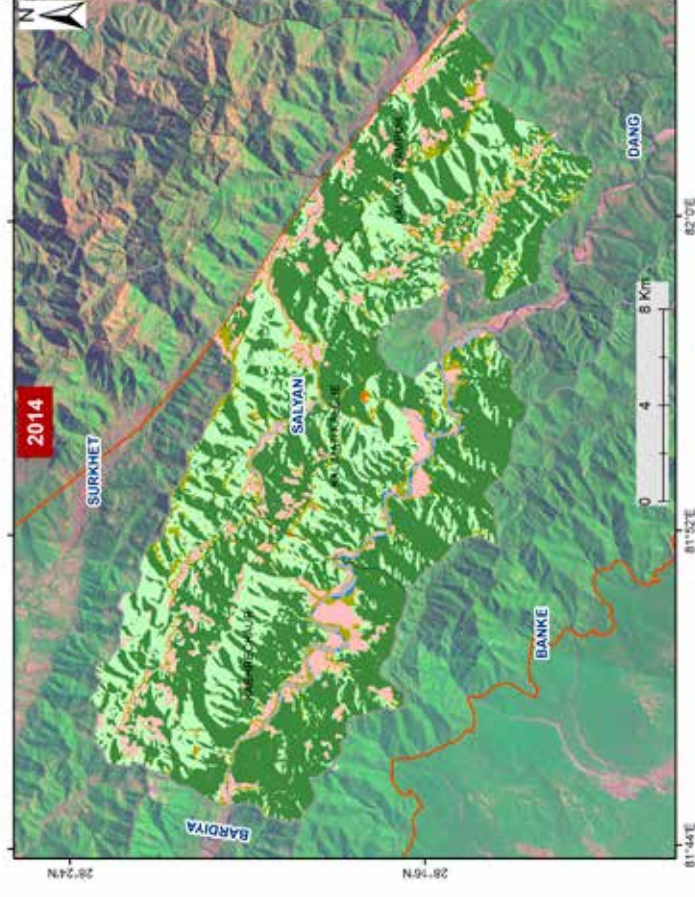
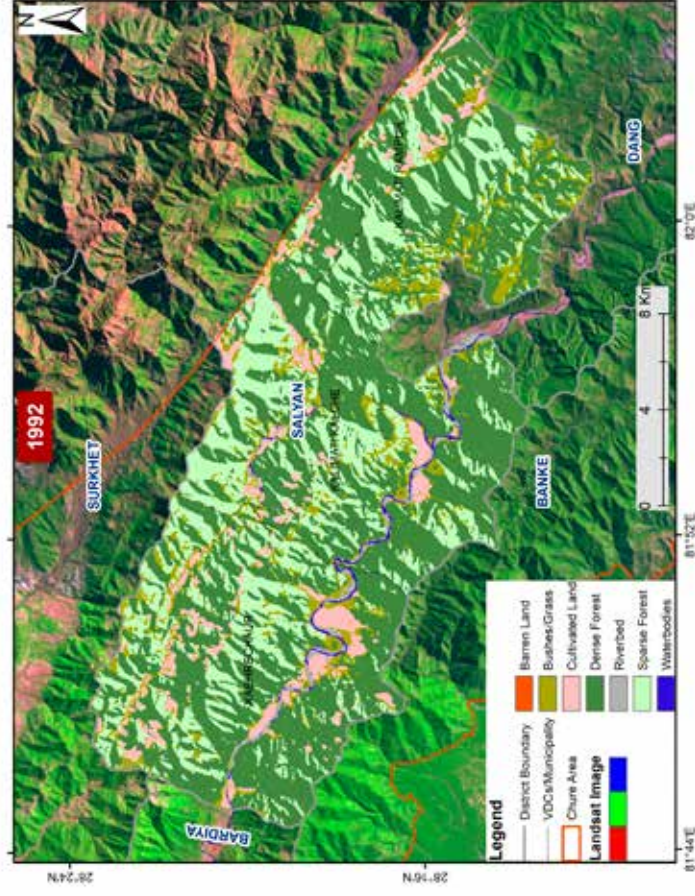
Forest cover change in Community Forest of Churia - Banke District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	30.72	384.92	733.64	15.88	3332.24	0
Outside CF (Area in ha)	743.16	6186	8577.96	397.28	49085.2	1585.2

सामुदायिक वन र बाहिरका जंगलको तुलना गर्दा सामुदायिक वनका जंगल राम्रो देखियो ।

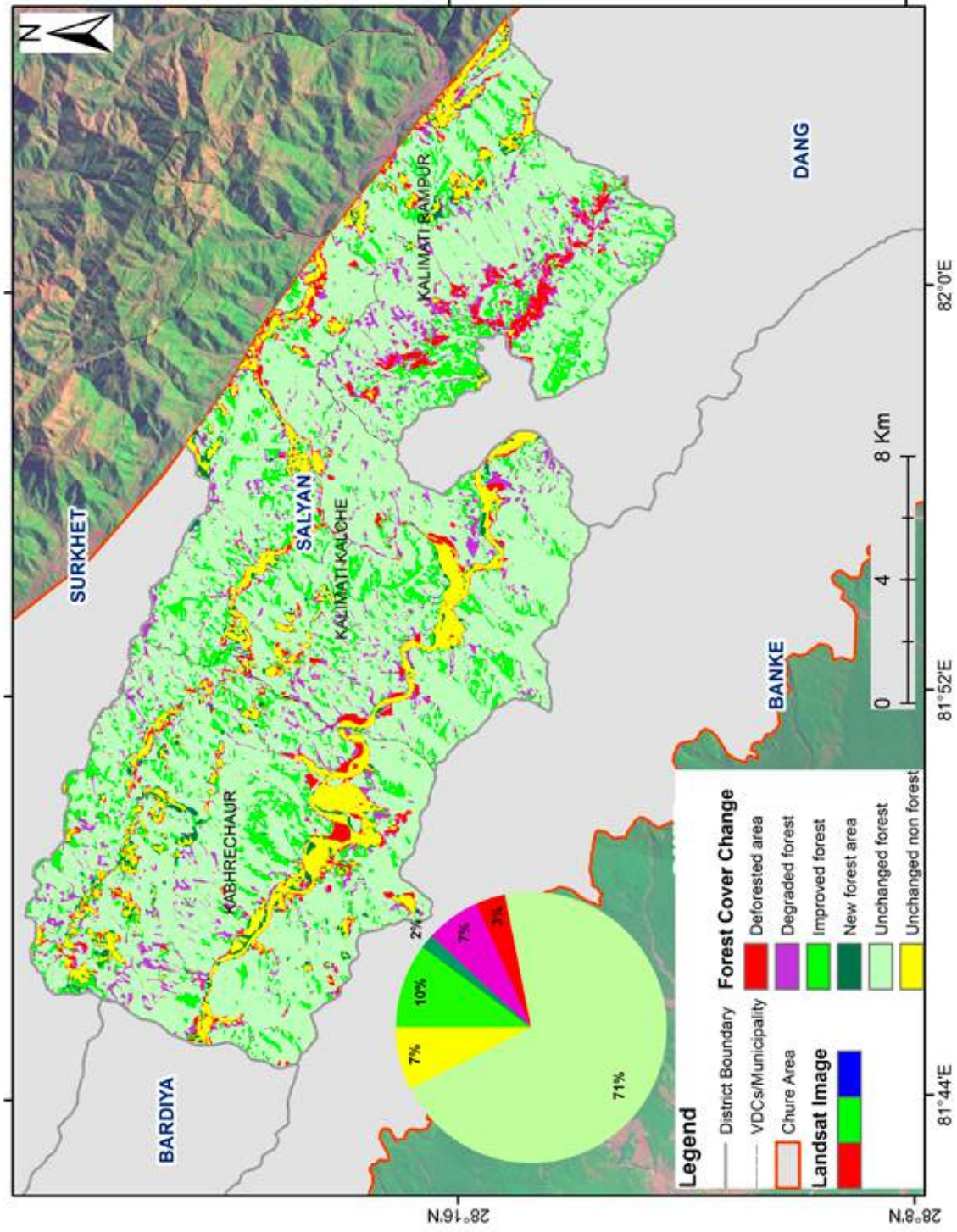
Land cover change in Churia - Salyan District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	17734.88	54.41	17641.04	54.12	0.0
Sparse Forest	8887.96	27.27	9589.44	29.42	0.3
Bushes/Grass	2989.28	9.17	1813.84	5.56	-2.2
Cultivated Land	2254.96	6.92	2706.36	8.30	0.8
Barren Land	0.04	0.00	24.88	0.08	34.0
Riverbed	464.72	1.43	753.36	2.31	2.2
Waterbodies	262.40	0.81	66.48	0.20	-6.1

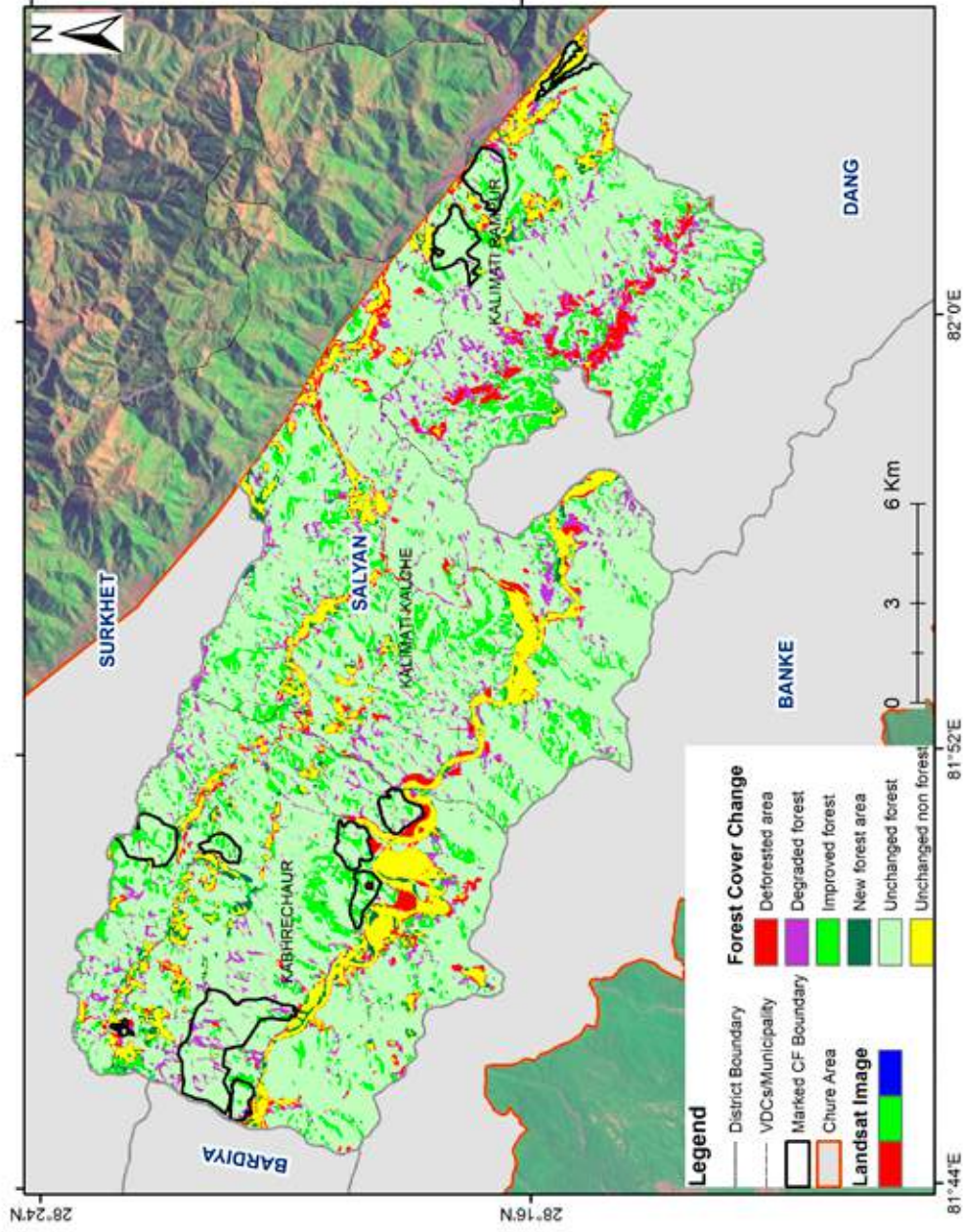
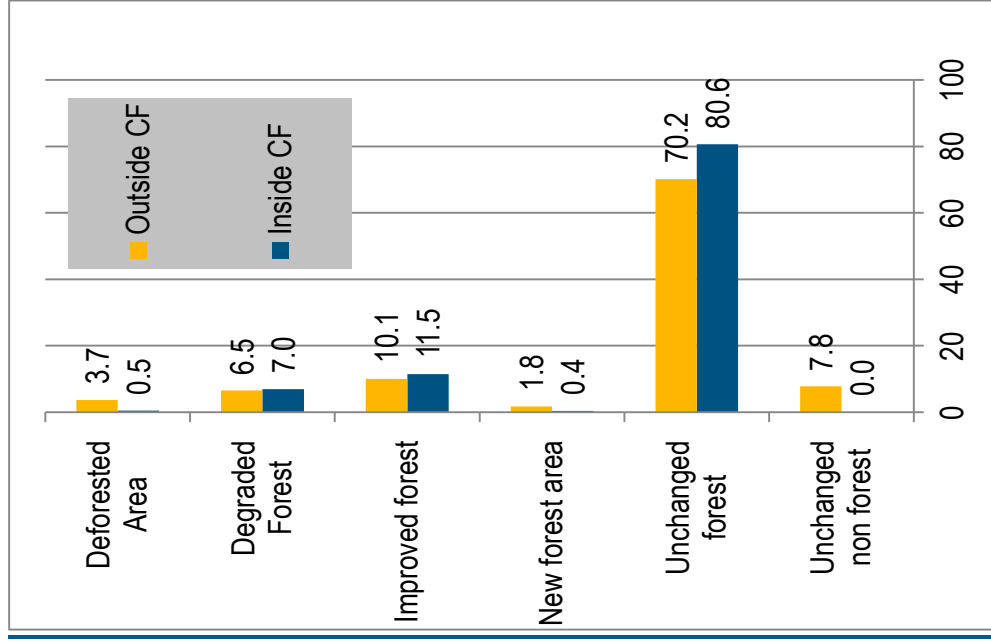
आम्मी ! सल्यान जिल्लाका चुरे क्षेत्रका नदीहरूको पानीले ओ गटेको भाग त प्रतिवर्ष ६.१% का दरले हवात घटेको पाइयो ।

Forest cover change in Churia - Salyan District



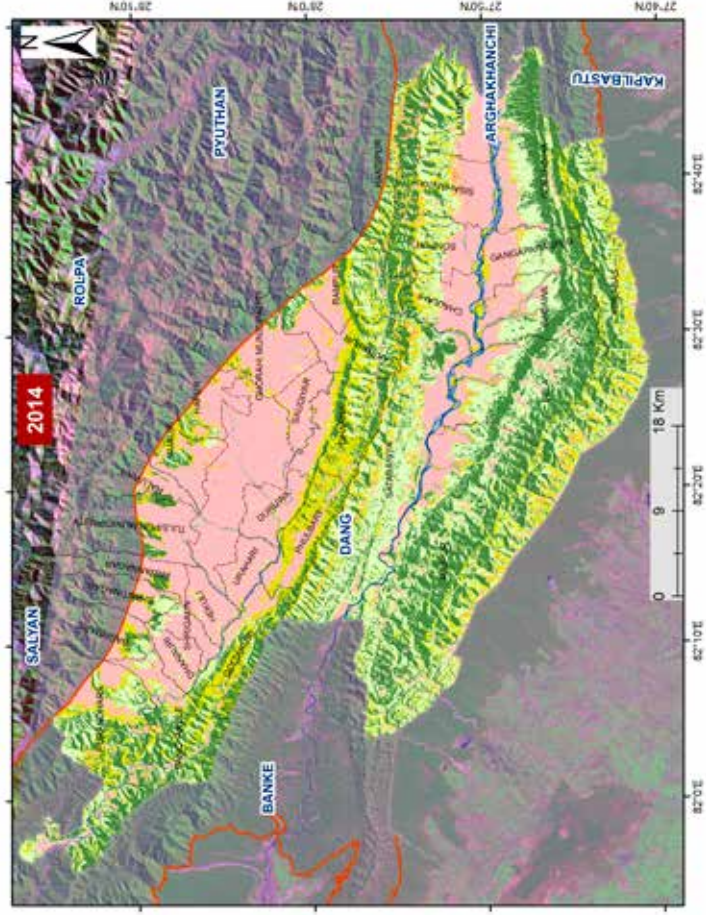
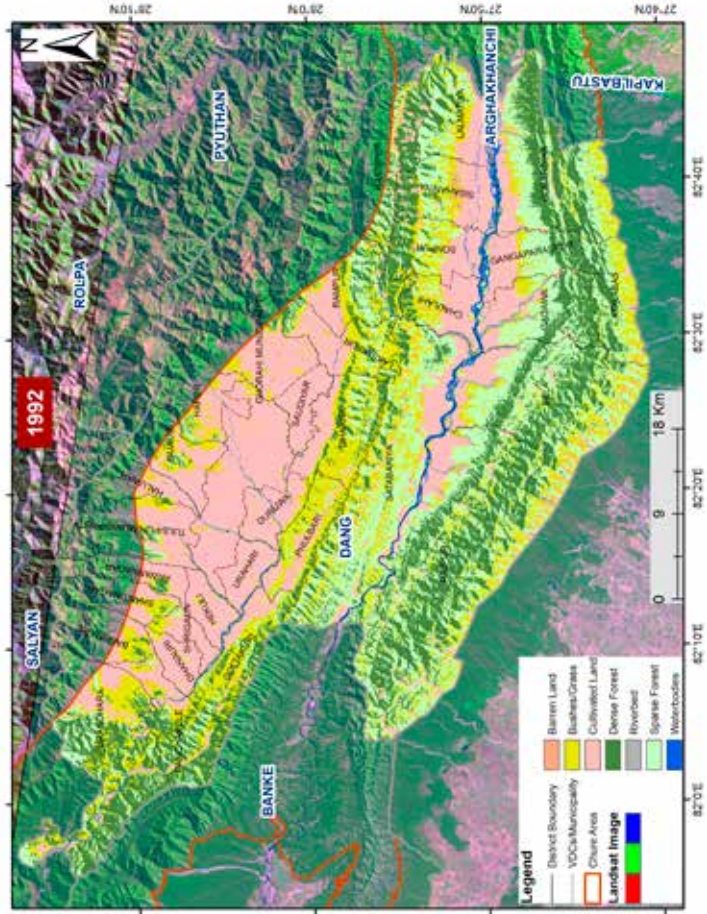
सल्यान जिल्लाको चुरे क्षेत्रमा भएको वाँझो जग्गामा रुख बढाउन सकिने ठाँउ प्रसस्त छन् ।

Forest cover change in Community Forests of Churia - Salyan District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	7.88	110.72	182.4	6.04	1279.64	0
Outside CF (Area in ha)	1137.36	2016.6	3116.56	546.6	21725.68	2421.72

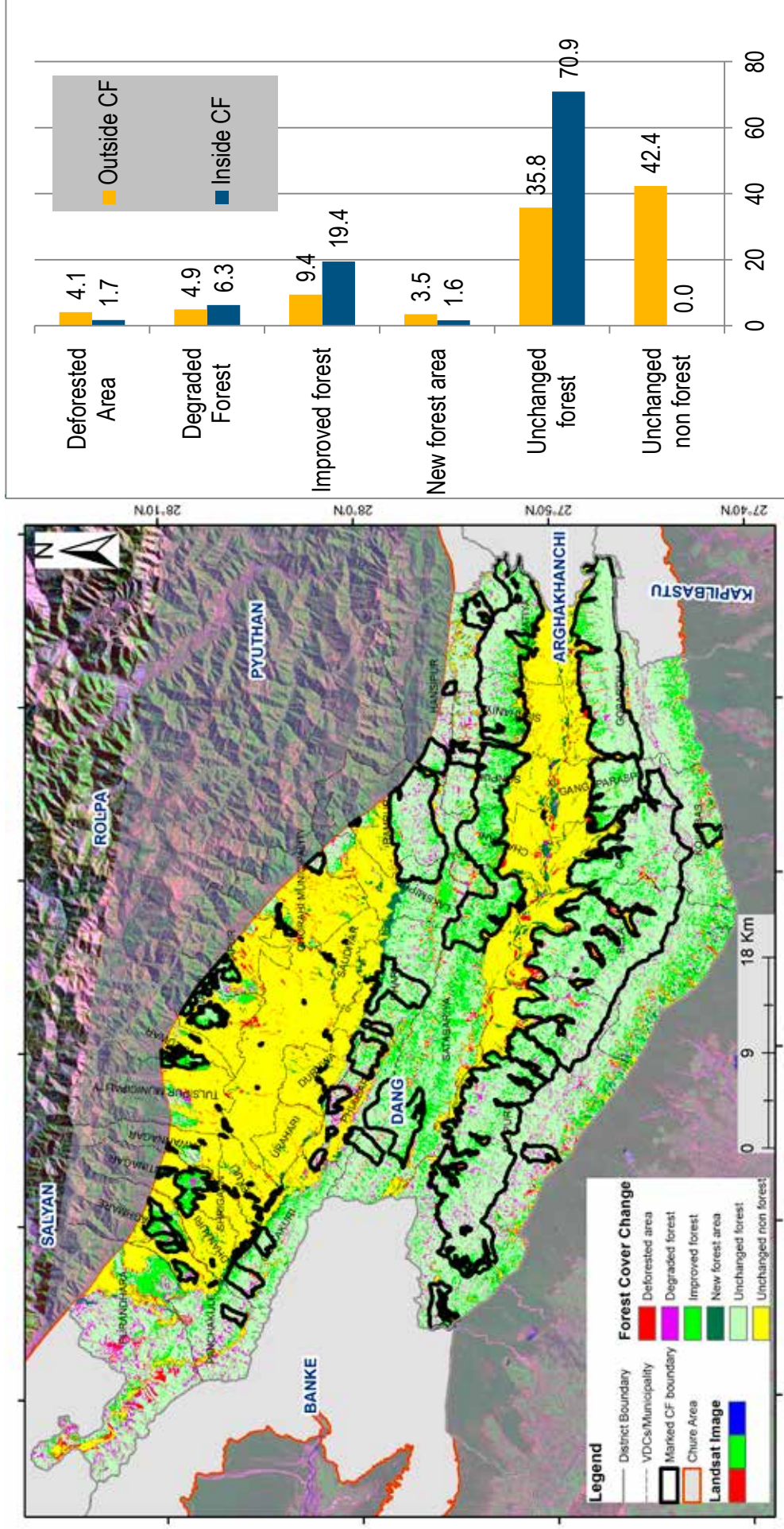
Land cover change in Churia - Dang District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	56880.52	22.84	65891.52	26.46	0.7
Sparse Forest	64420.12	25.87	66408.64	26.66	0.1
Bushes/Grass	45061.28	18.09	32993.28	13.25	-1.4
Cultivated Land	69948.72	28.09	70378.32	28.26	0.0
Barren Land	3015.76	1.21	3525.12	1.42	0.7
Riverbed	6337.48	2.54	7740.12	3.11	0.9
Waterbodies	3395.64	1.36	2115.64	0.85	-2.1

विगत २२ वर्षको अवधिमा भण्डै १०००० हे. को हैसियतले जंगल क्षेत्र राम्रि घना जंगलमा बदलिएको कुरा लाई सुखद मान्नु पर्छ ।

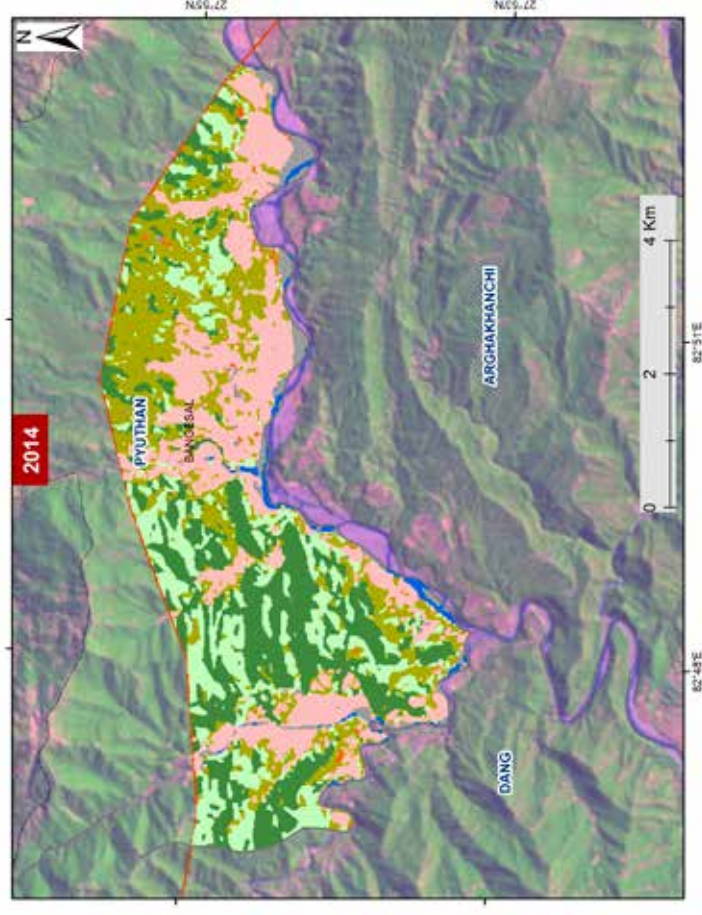
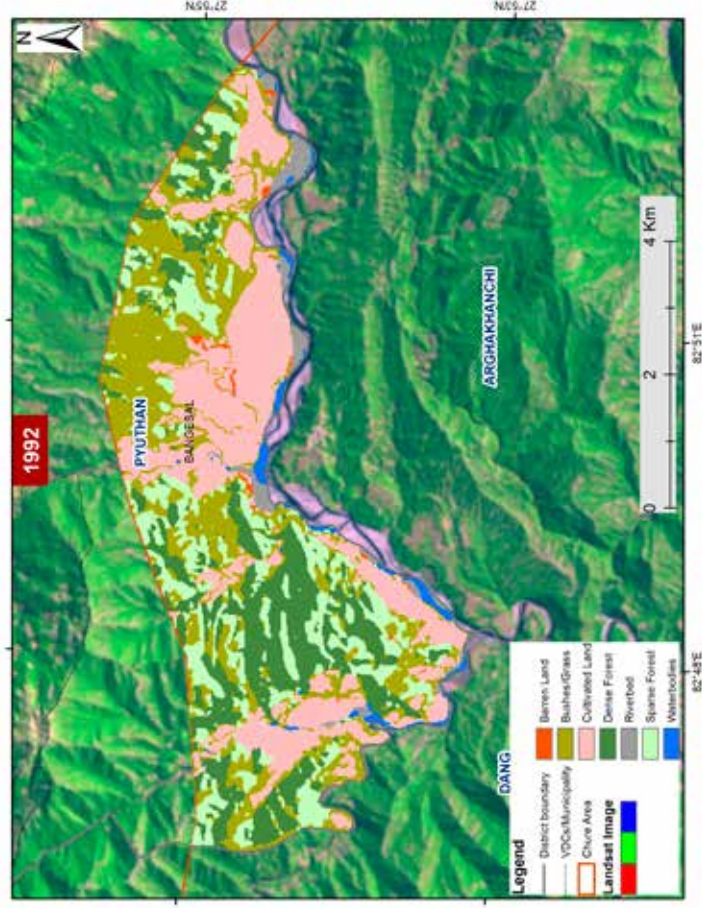
Forest cover change in Community Forest of Churia - Dang District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	1190.52	4450.64	13785.92	1169.08	50301.56	0
Outside CF (Area in ha)	7224.92	8783.88	16674.28	6202.92	63627.72	75322.28

सामुदायिक वनले ओगटेको क्षेत्रमध्ये भण्डै ५००० हे. क्षेत्र विगत २२ वर्ष देखि जस्ताको तस्तै रहनुलाई के भन्ने ? यो वनमा गोडमेल गर्न सकिएमा भन राम्रो हुने थियो कि ?

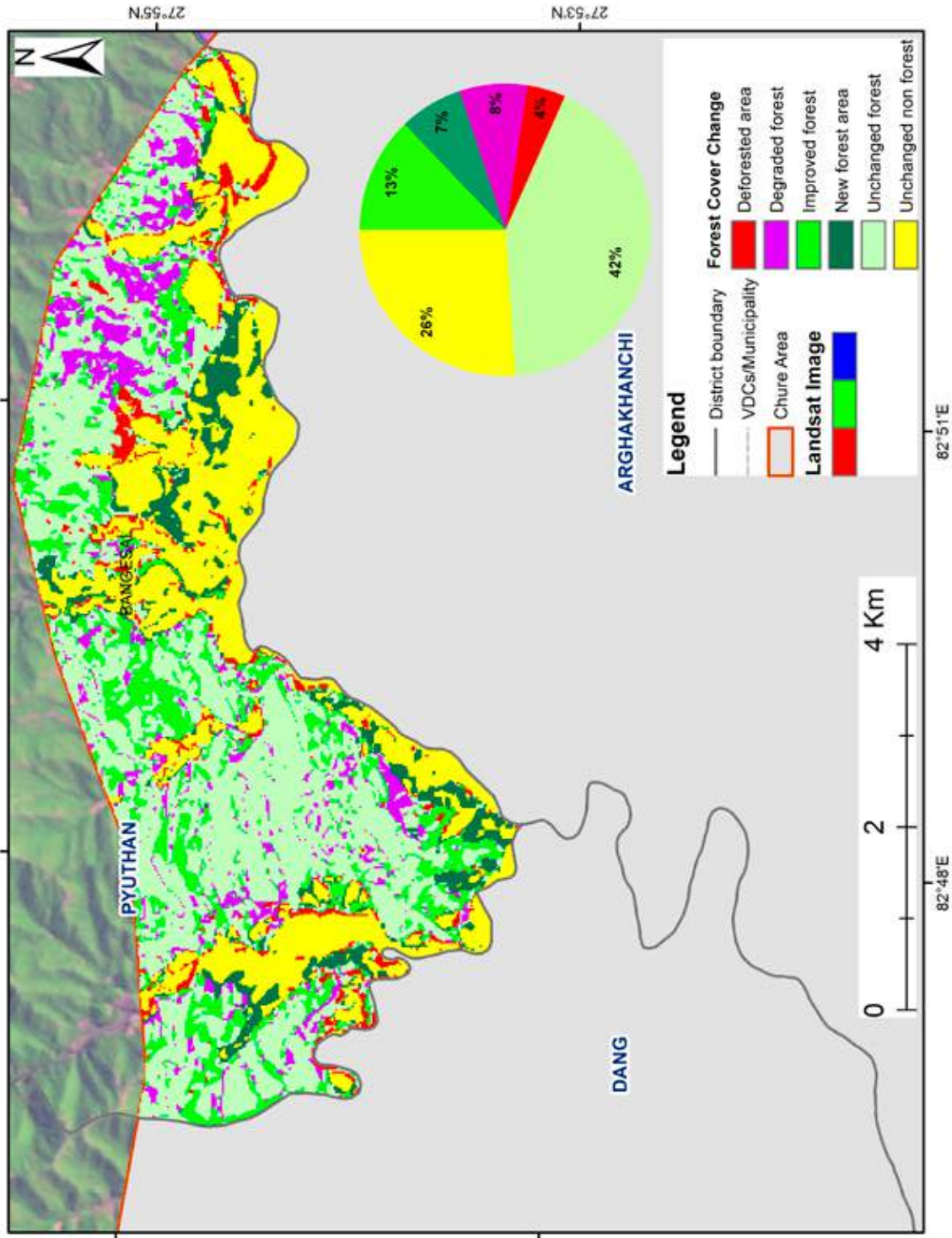
Land cover change in Churia - Pyuthan District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	637.56	21.03	758.28	25.04	0.8
Sparse Forest	594.64	19.61	620.76	20.49	0.2
Bushes/Grass	797.76	26.31	727.68	24.03	-0.4
Cultivated Land	851.96	28.10	754.80	24.92	-0.5
Barren Land	15.64	0.52	11.72	0.39	-1.3
Riverbed	81.36	2.68	111.44	3.68	1.4
Waterbodies	52.68	1.74	44.16	1.46	-0.8

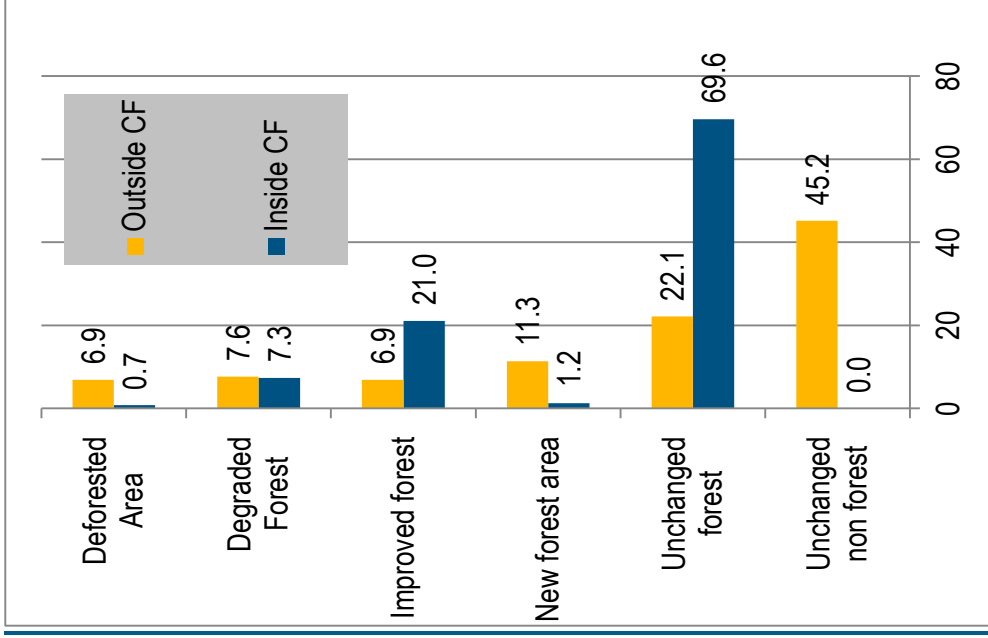
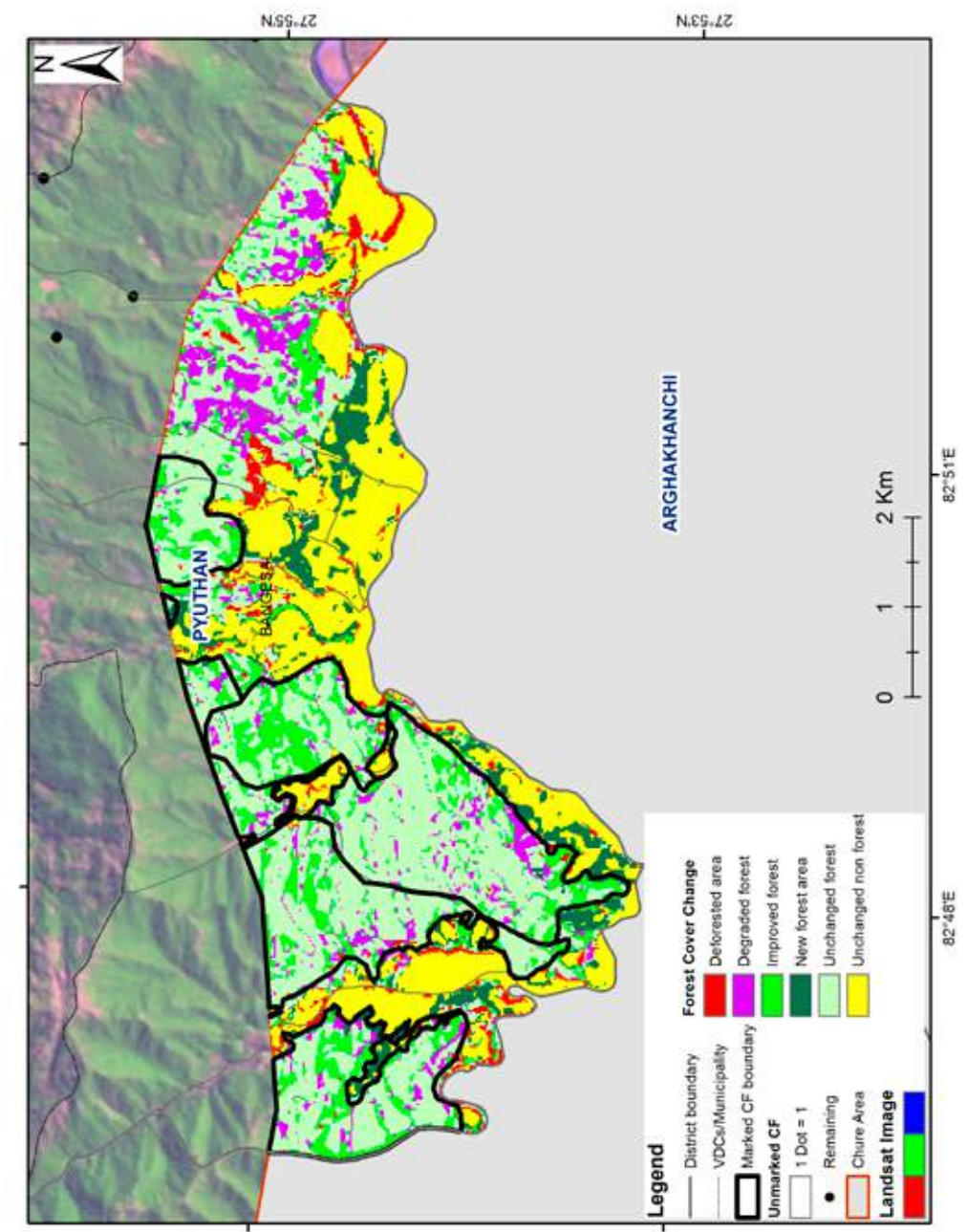
प्युठान जिल्लाको सानो क्षेत्रमात्र चुरे क्षेत्रमा परेको छ ।

Forest cover change in Churia - Pyuthan District



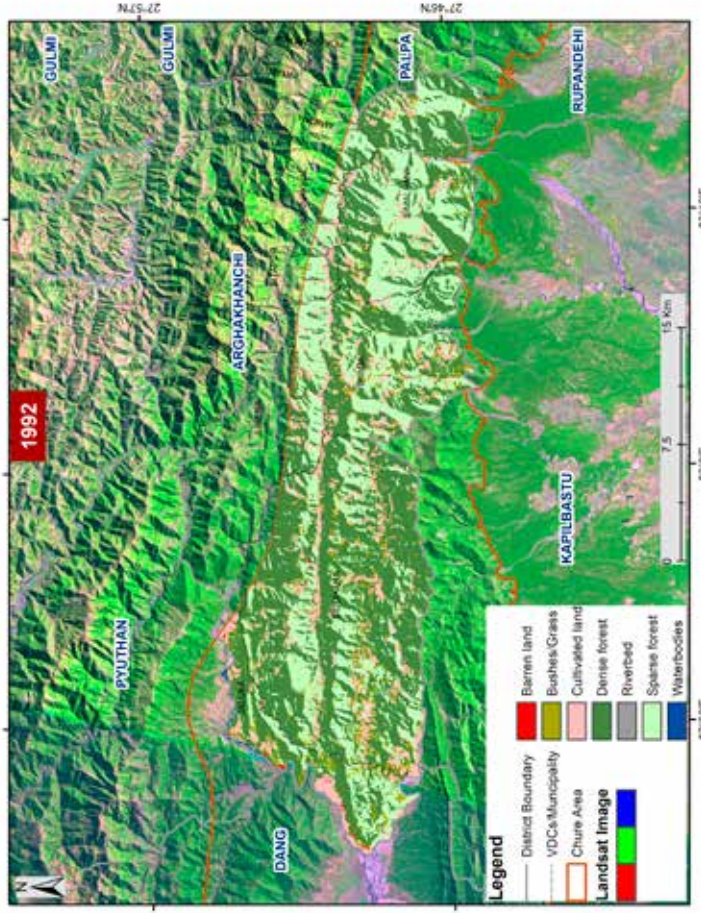
चुरे रहेका सामुदायिक वनको आकार तुलनात्मक रूपमा ठूलो रहेको पाइयो ।

Forest cover change in Community Forests of Churia - Pyuthan District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	9.56	93.56	268.64	15.88	889.12	0
Outside CF (Area in ha)	119.28	132.72	119.52	197	385.32	787

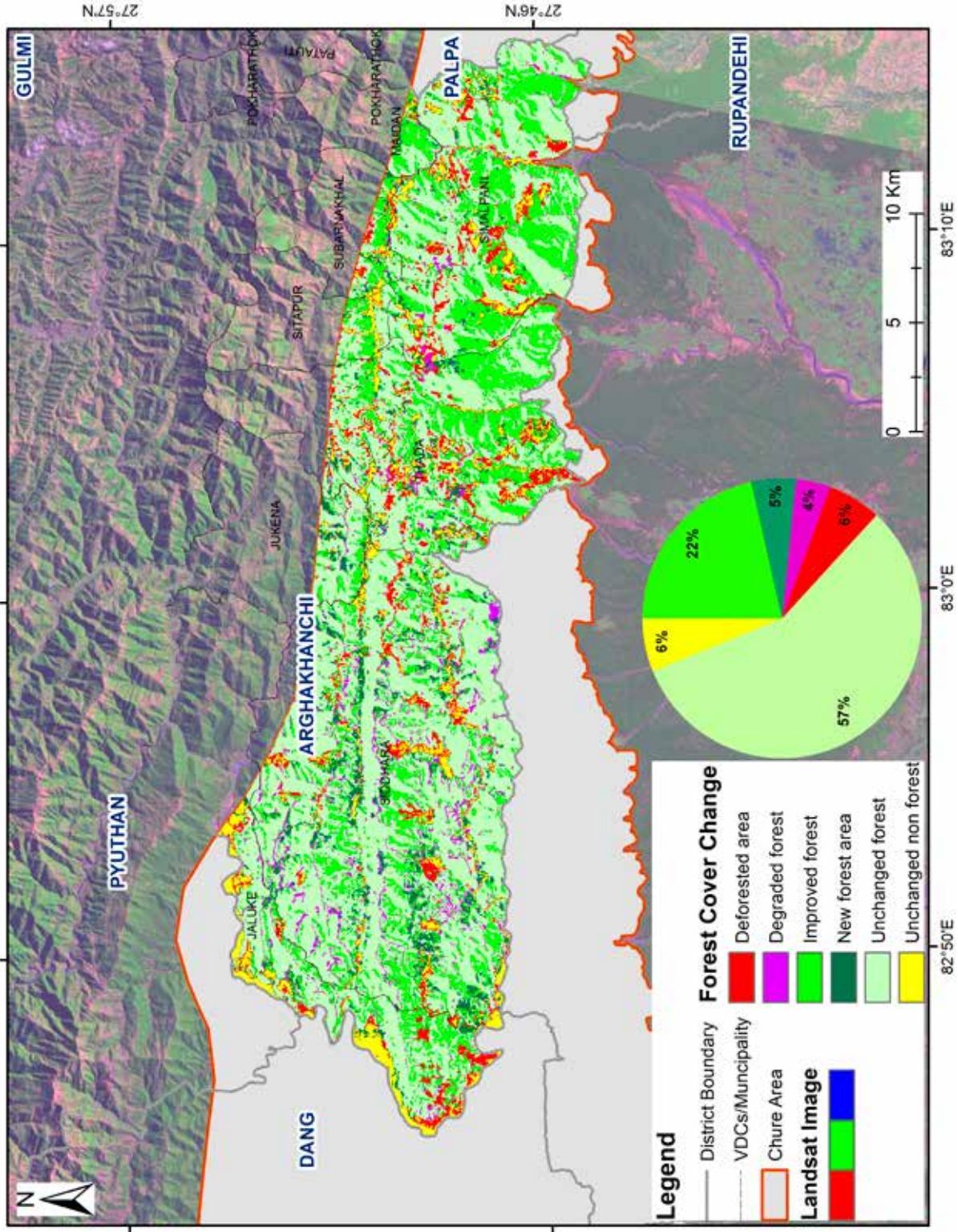
Land cover change in Churia - Arghakhanchi District



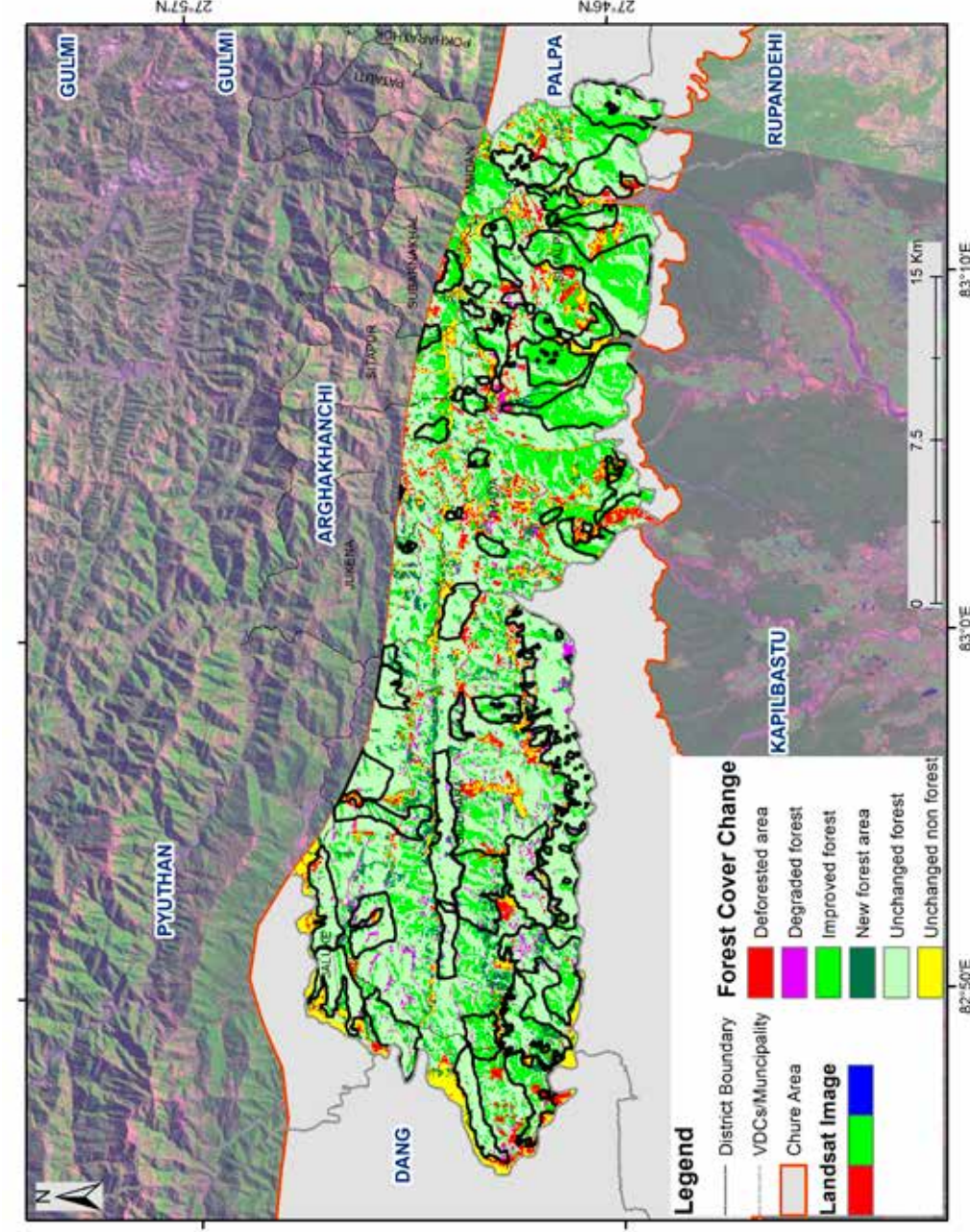
Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	23004.32	49.60	30226.64	65.19	1.2
Sparse Forest	15353.08	33.10	9837.24	21.22	-2.0
Bushes/Grass	2772.60	5.98	576.00	1.24	-6.9
Cultivated Land	4681.72	10.09	4804.76	10.36	0.1
Barren Land	65.32	0.14	129.20	0.28	3.1
Riverbed	389.20	0.84	623.12	1.34	2.2
Waterbodies	115.20	0.25	170.16	0.37	1.8

सन् १९९२ मा २३००४ हे. घना जंगल भएको अर्घाखाँचीको चुरे क्षेत्रमा २२ वर्ष पछि थप ७००० हे. घना क्षेत्र बढ्यो । यसलाई शुभ समाचारको रूपमा लिनु पर्दछ ।

Forest cover change in Churia - Arghakhanchi District



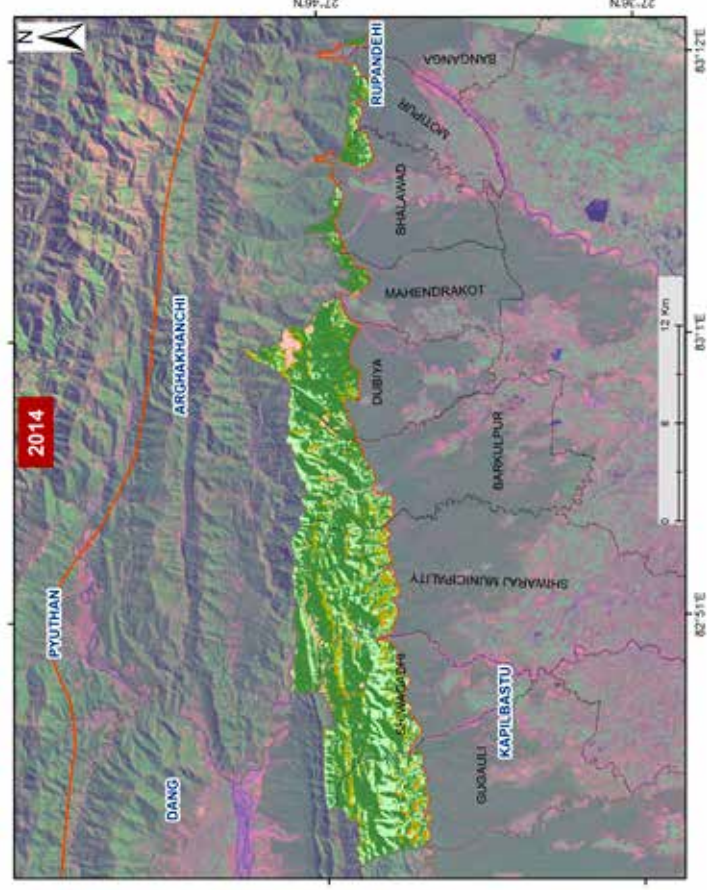
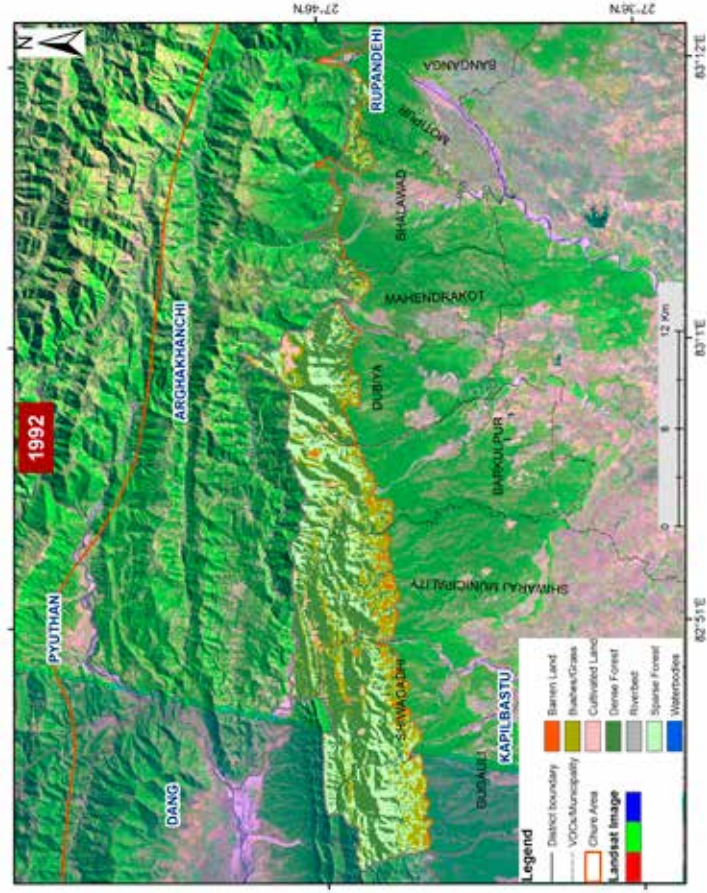
Forest cover change in Community Forest of Churia - Arghakhanchi District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	313.36	617.84	4161.68	501.84	10914.04	0
Outside CF (Area in ha)	2557.72	1237.36	5782.56	1889.44	15527.36	2855.28

अर्घखाचि जिल्लामा जंगलको हैसियत राम्रो हुनुको एक मुख्य कारण चुरेमा सामुदायिक वन क्षेत्रको विस्तारले पौन हो भन्न सकिन्छ ।

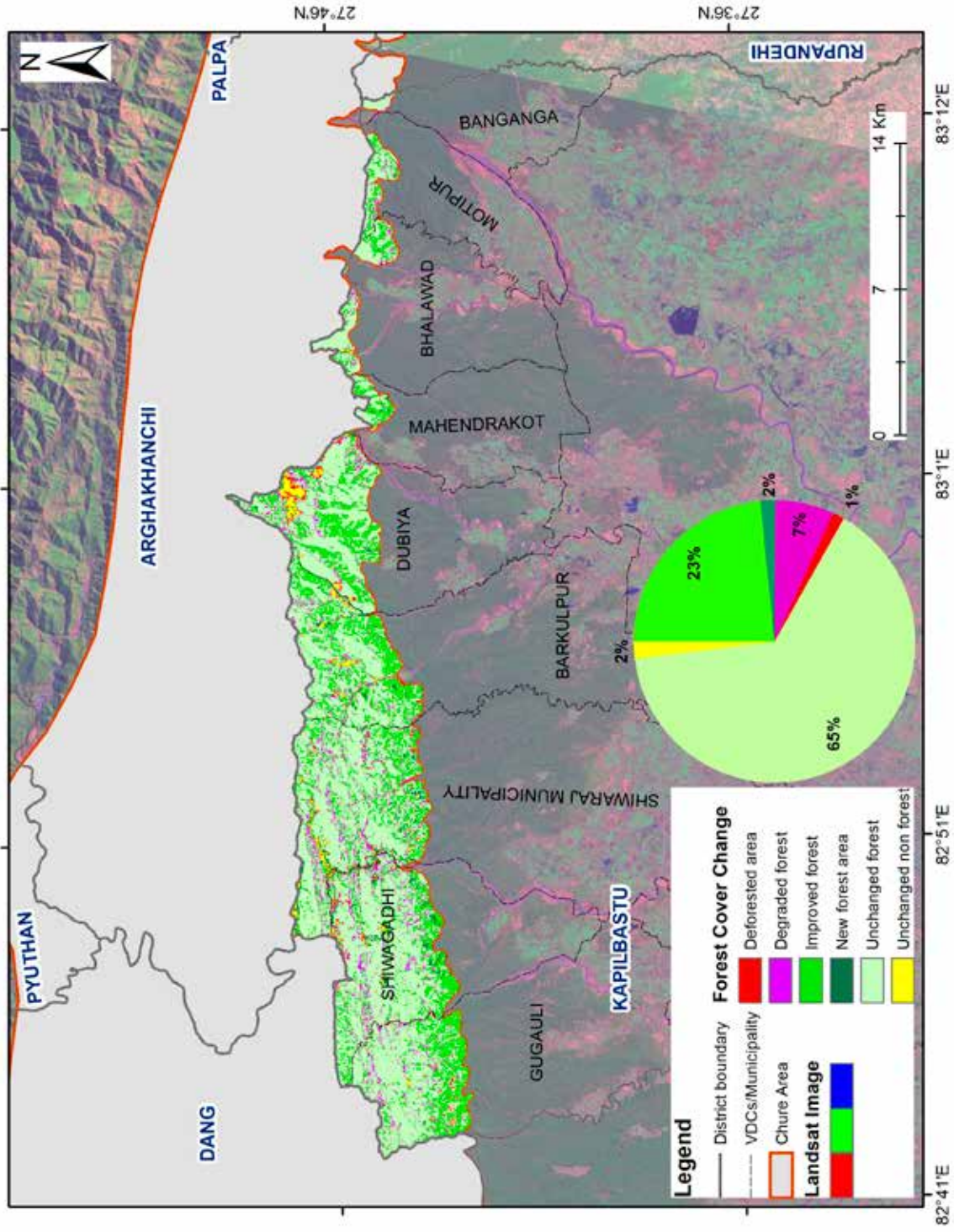
Land cover change in Churia - Kapilvastu District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	8752.32	46.23	11384.04	60.15	1.2
Sparse Forest	6040.76	31.91	4631.20	24.47	-1.2
Bushes/Grass	3432.68	18.13	2274.28	12.02	-1.9
Cultivated Land	318.68	1.68	371.20	1.96	0.7
Barren Land	198.64	1.05	64.64	0.34	-5.0
Riverbed	175.48	0.93	186.00	0.98	0.3
Waterbodies	13.08	0.07	15.96	0.08	0.9

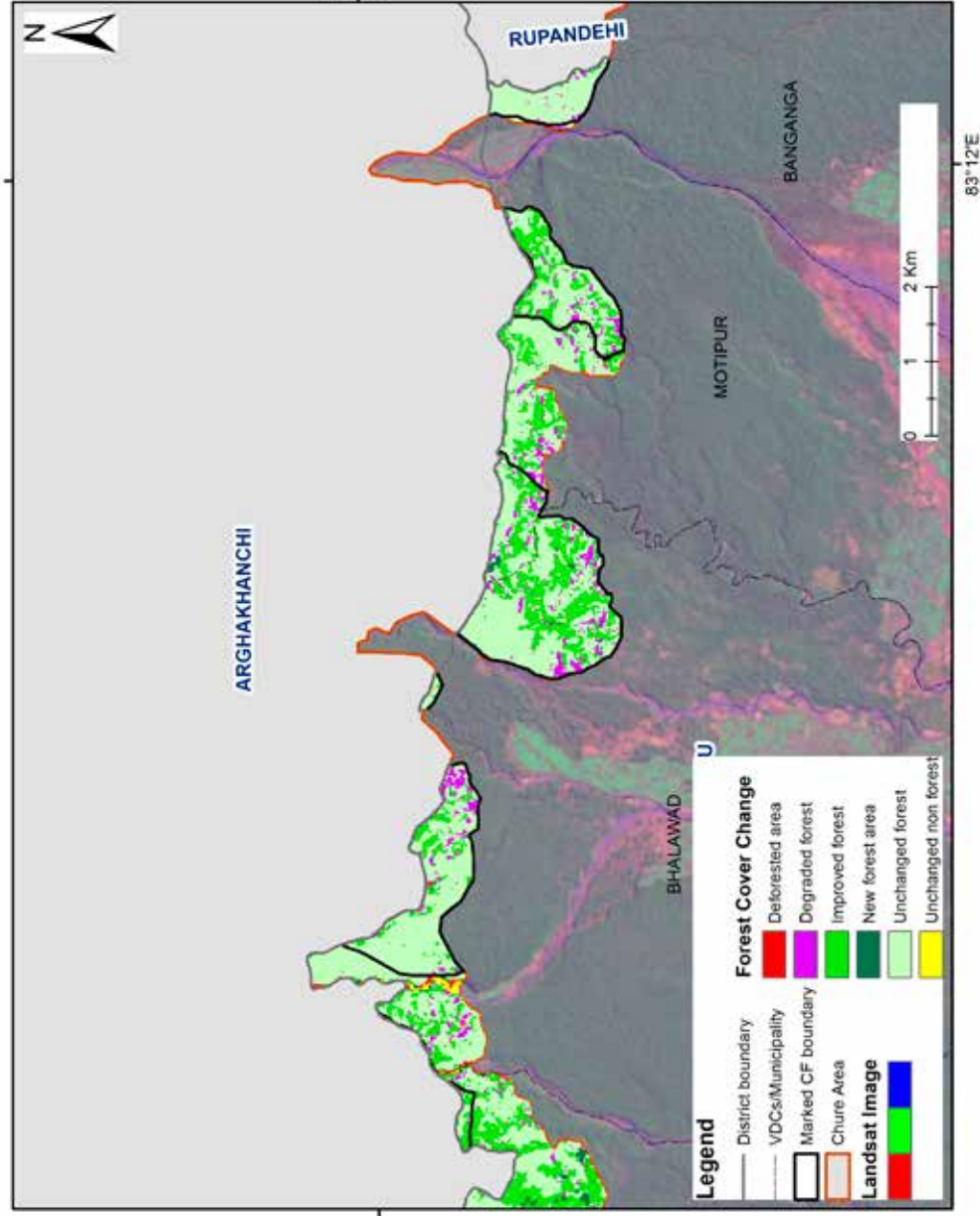
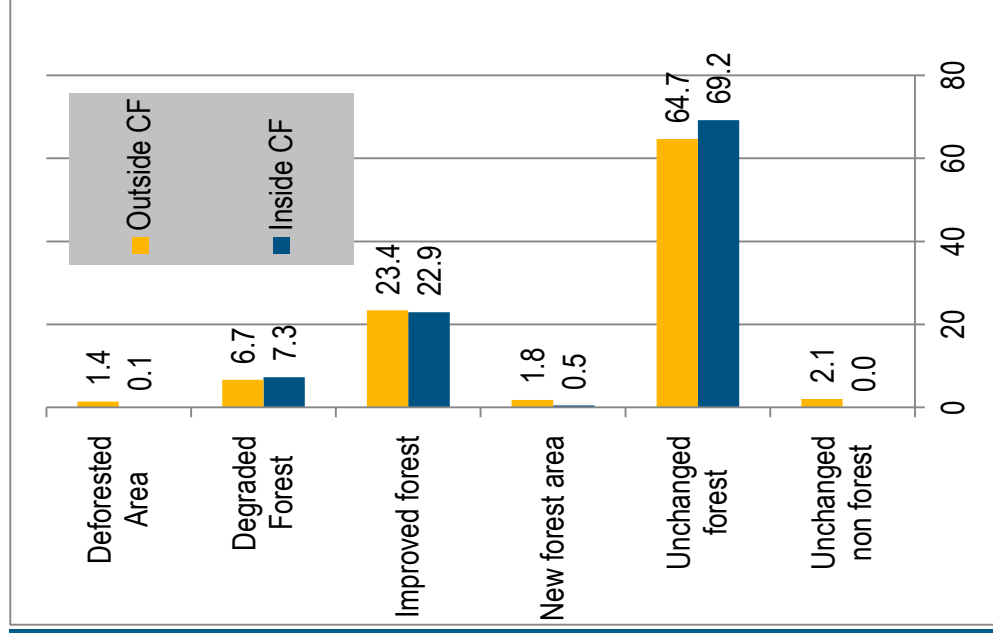
कपिलवस्तु जिल्लाको चुरे क्षेत्रमा रहेको जंगल मध्ये ४४१० हे. को हैसियत राम्रो भएको पाइयो भने १२२३० हे. क्षेत्रमा २२ वर्षको अविद्यमान जंगलको हैसियत जस्ताको तस्तै रहनु भनेको थप व्यवस्थापनका कृयाकलापको आवश्यकता छ भन्नु पनि हो ।

Forest cover change in Churia - Kapilvastu District



१२६५ हे. क्षेत्रको हैसियत अलि खस्कीए पनि ४४१० हे. क्षेत्रको हैसियत बढ्को पाइएको छ ।

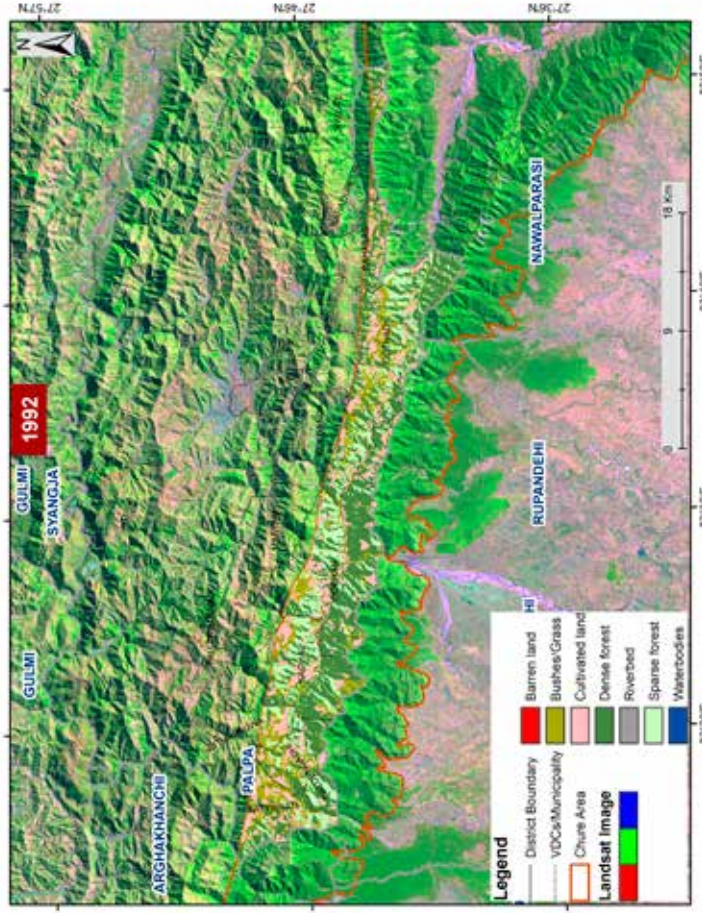
Forest cover change in Community Forests of Churia - Kapilvastu District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	0.8	57.32	180.88	3.84	545.92	0
Outside CF (Area in ha)	259.2	1207.76	4229.64	320.24	11684.2	371.16

सामुदायिक वन र बाहिरको जंगलको हैसियत उस्तै उस्तै पाइयो ।

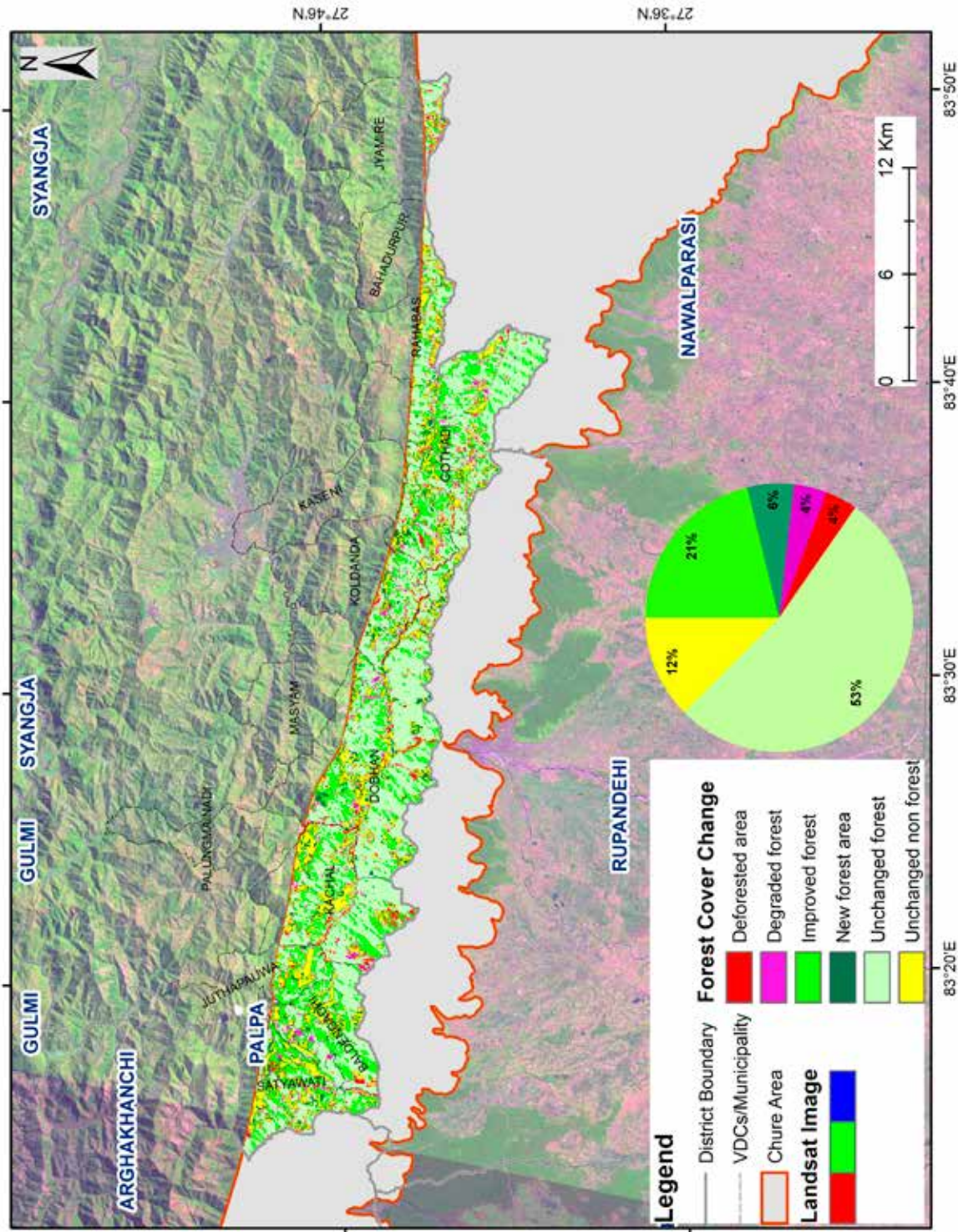
Land cover change in Churia - Palpa District



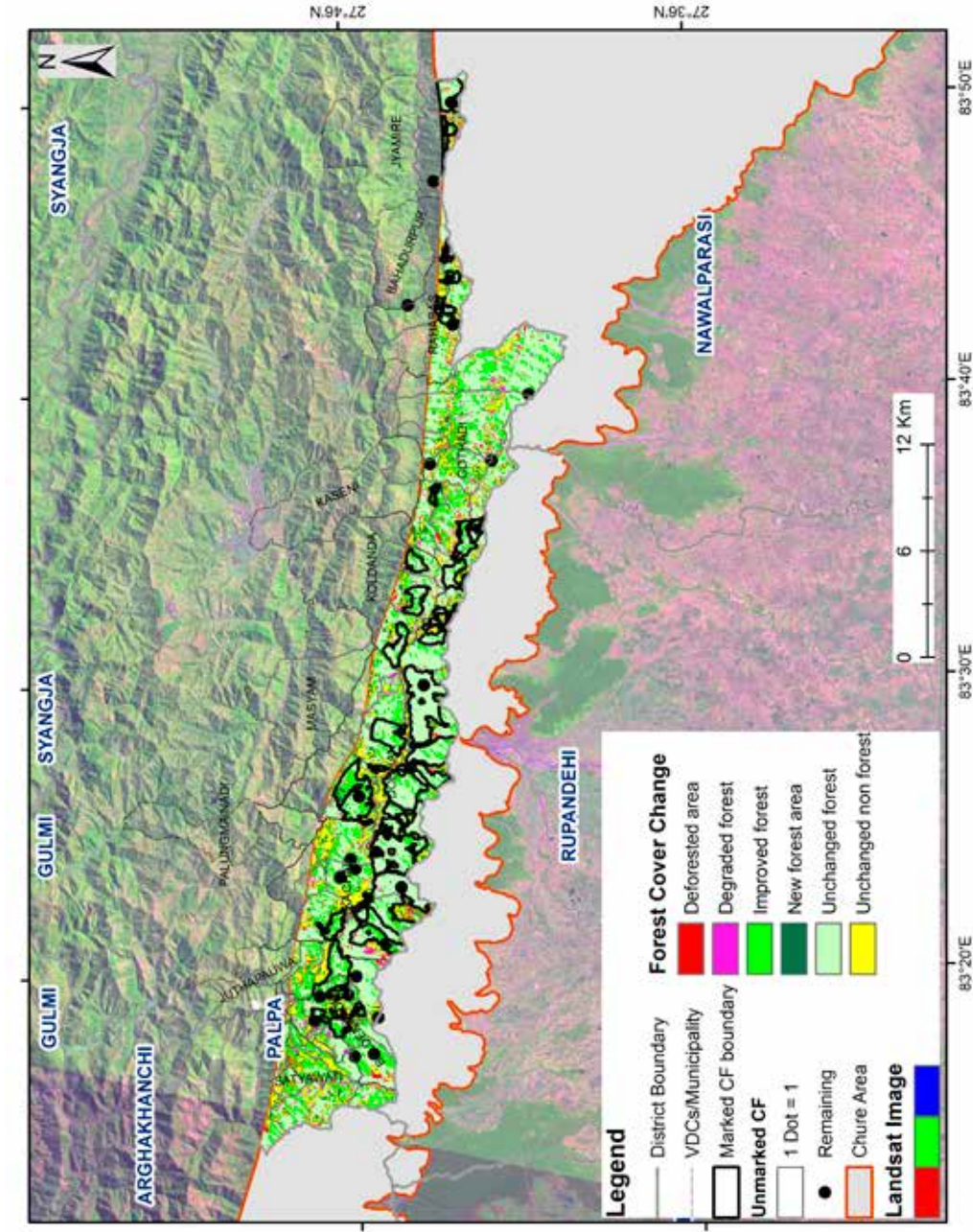
Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	10984.24	43.93	13300.44	53.21	0.9
Sparse Forest	5494.68	21.97	6543.60	26.18	0.8
Bushes/Grass	3997.40	15.99	1085.84	4.34	-5.8
Cultivated Land	4394.36	17.57	3761.12	15.05	-0.7
Barren Land	4.44	0.02	20.92	0.08	7.3
Riverbed	85.64	0.34	265.64	1.06	5.3
Waterbodies	45.24	0.18	18.08	0.07	-4.1

पाल्पा जिल्लाको चुरे क्षेत्रको फाटफुट जंगल भएको केहि भागको हैसियत भन खस्कीएको पाइएको छ । सानो क्षेत्रमा त्यस्तो भएकाले खासै फरक त नपर्ला । तर बाँक क्षेत्रको लागि विचार पुर्याउनु पर्ला ।

Forest cover change in Churia - Palpa District



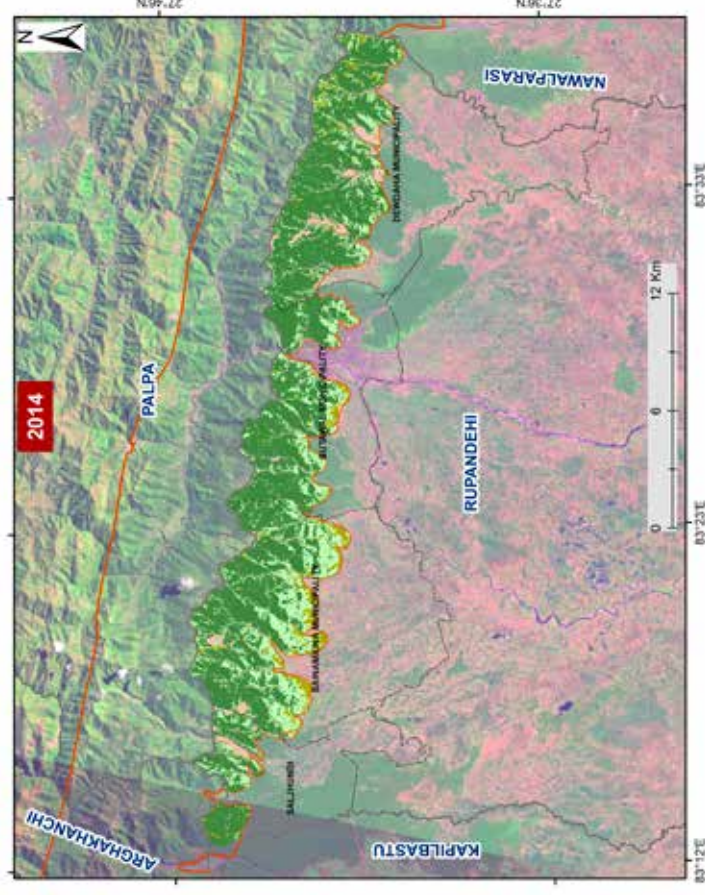
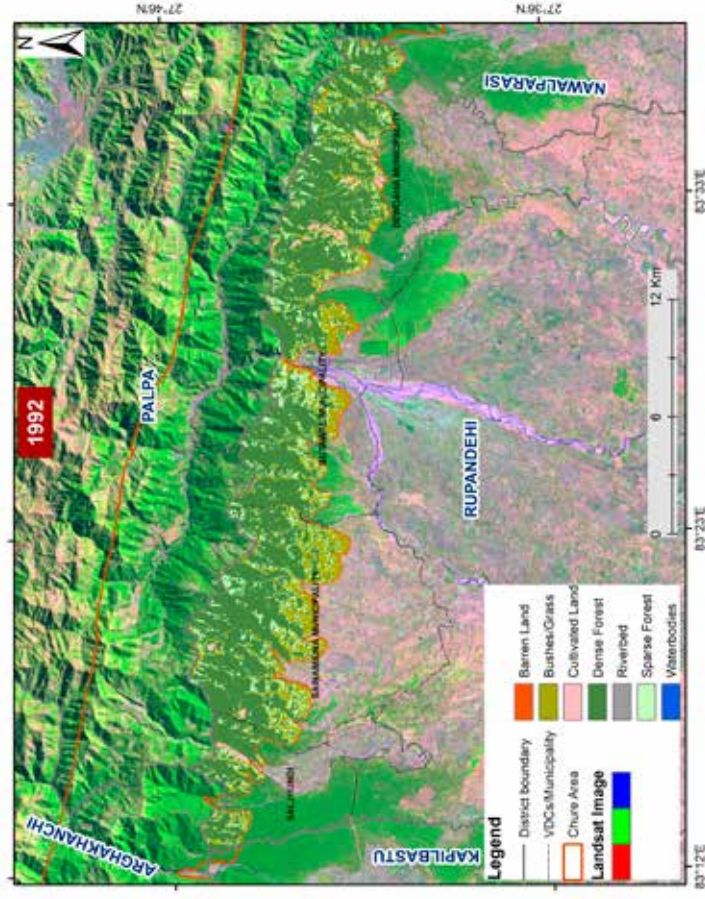
Forest cover change in Community Forest of Churia - Palpa District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	59.16	126.4	1271.28	117.68	4092.44	0
Outside CF (Area in ha)	909.28	868.64	4011.2	1283.96	9096.56	3110.2

पाल्पाको १३१०० हे. चुरेको क्षेत्र २२ वर्षको अवधिमा जस्ताको तस्तै रहनु राम्रो हो त ? गोडमेल गरेर यसको हैसियत बढाउन सकिन्थ्यो होला ।

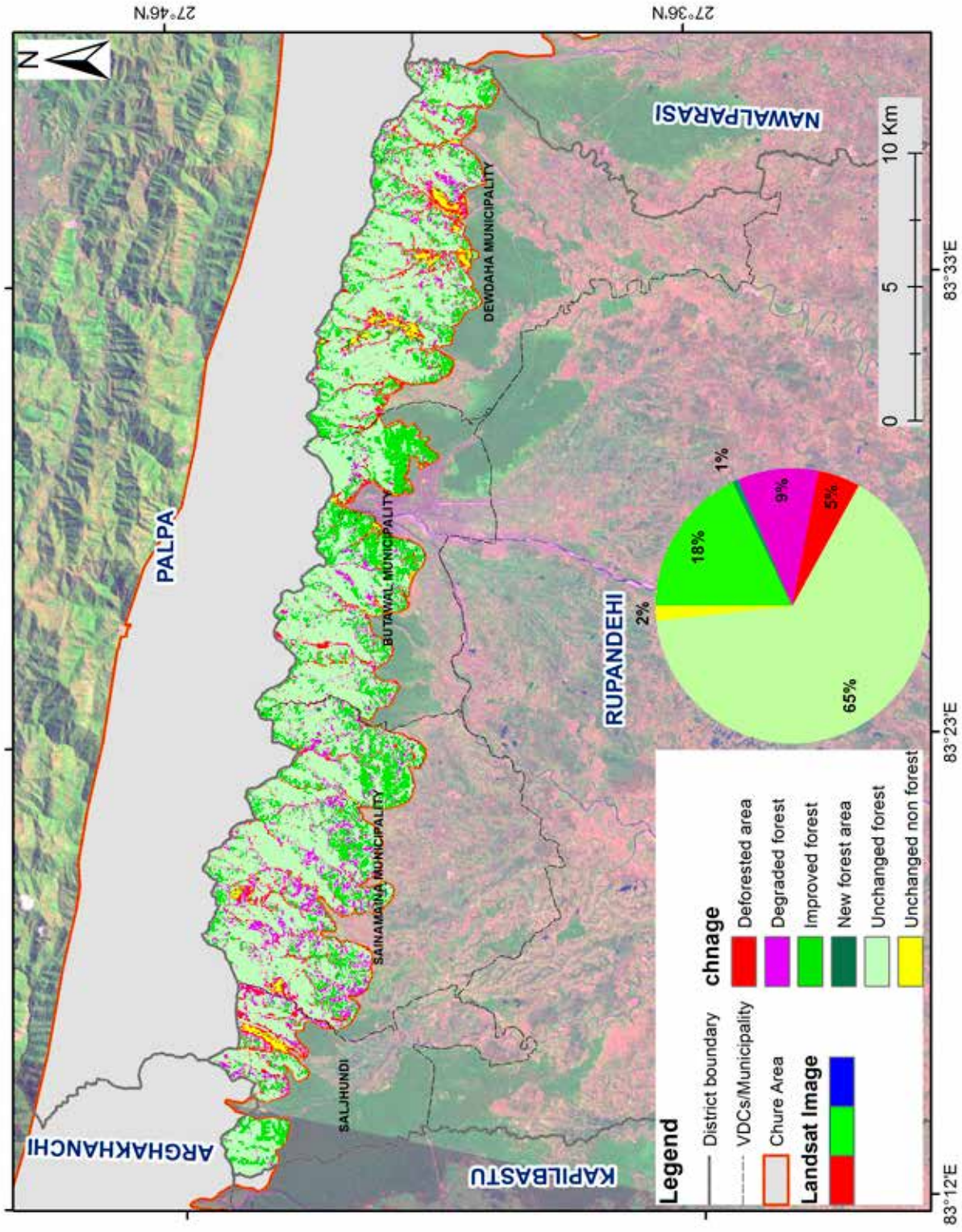
Land cover change in Churia - Rupandehi District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	10514.28	64.47	10453.48	64.07	0.0
Sparse Forest	2810.76	17.24	3772.48	23.12	1.3
Bushes/Grass	2578.12	15.81	968.80	5.94	-4.4
Cultivated Land	258.44	1.58	330.64	2.03	1.1
Barren Land	53.20	0.33	4.36	0.03	-10.7
Riverbed	90.20	0.55	783.32	4.80	10.3
Waterbodies	2.92	0.02	1.40	0.01	-3.3

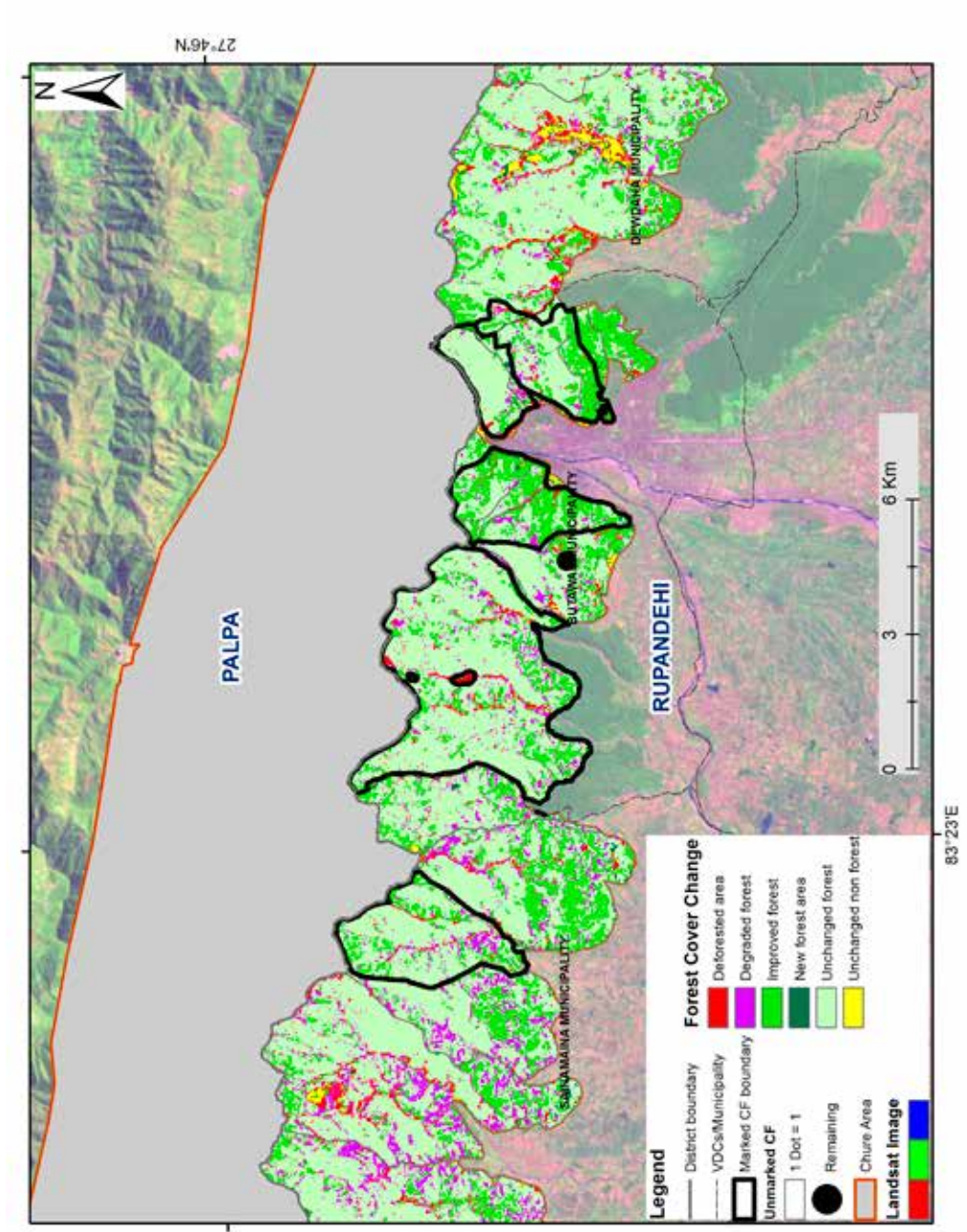
थोरै क्षेत्रमा भएपनि रुपन्देहि जिल्लाको चुरे क्षेत्रमा रहेको खहरे खोलाको बगर हवातै बढेको कारणले खोला किनारमा रहेको पर्ति बाँझो जग्गा पुरिएर हुन सक्छ ।

Forest cover change in Churia - Rupandehi District



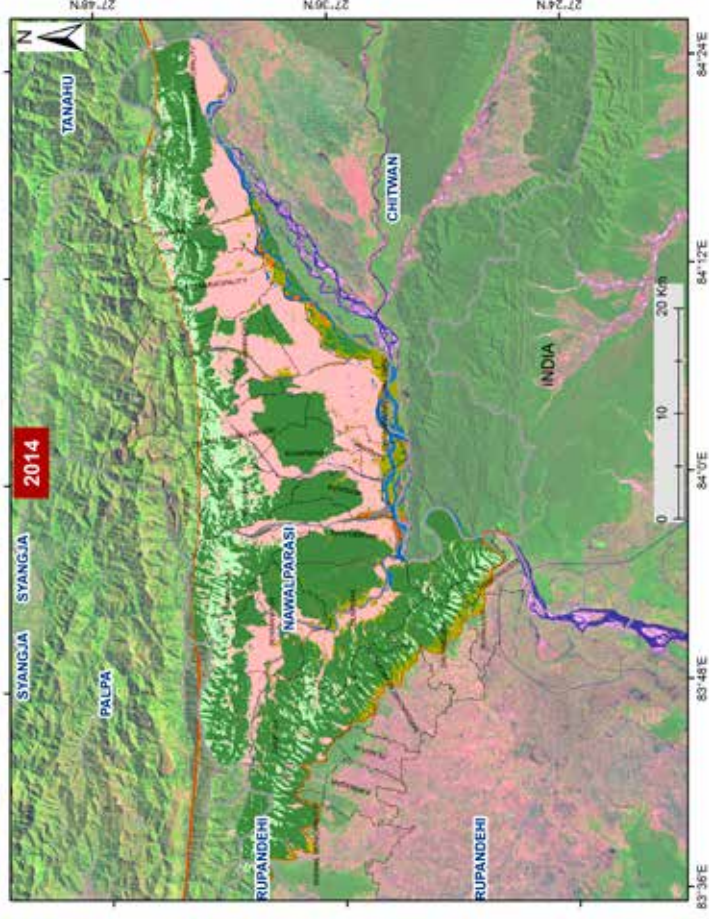
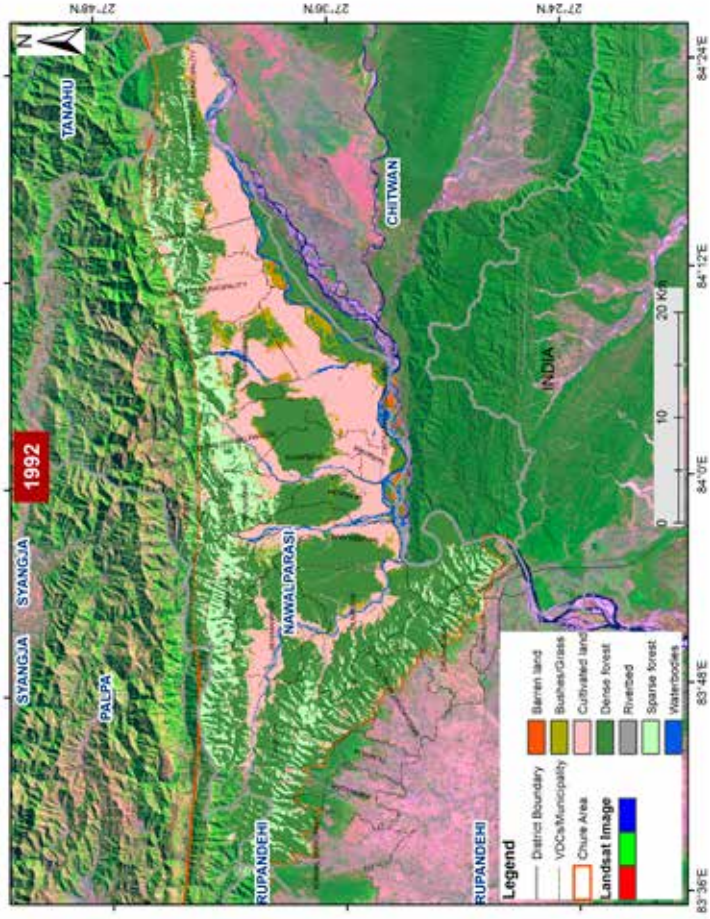
आंकडाले भन्छ २८८७ हे. क्षेत्रको जंगलको हैसियत बढेको त राम्रो हो तर १५५३ हे. क्षेत्रको जंगलको हैसियत त घटे को पो पाइयो । साथै १०५९२ हे. क्षेत्र जंगलको हैसियतमा न सुधार आयो न विगार नै भयो । तर राम्रो व्यवस्थापन भएको भए त्यो क्षेत्रको हैसियत बढ्न अवश्य सक्यो ।

Forest cover change in Community Forests of Churia - Rupandehi District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	93	235	743.2	17.76	2422.36	0
Outside CF (Area in ha)	716.16	1318.68	2144.48	95.64	8170.04	280.16

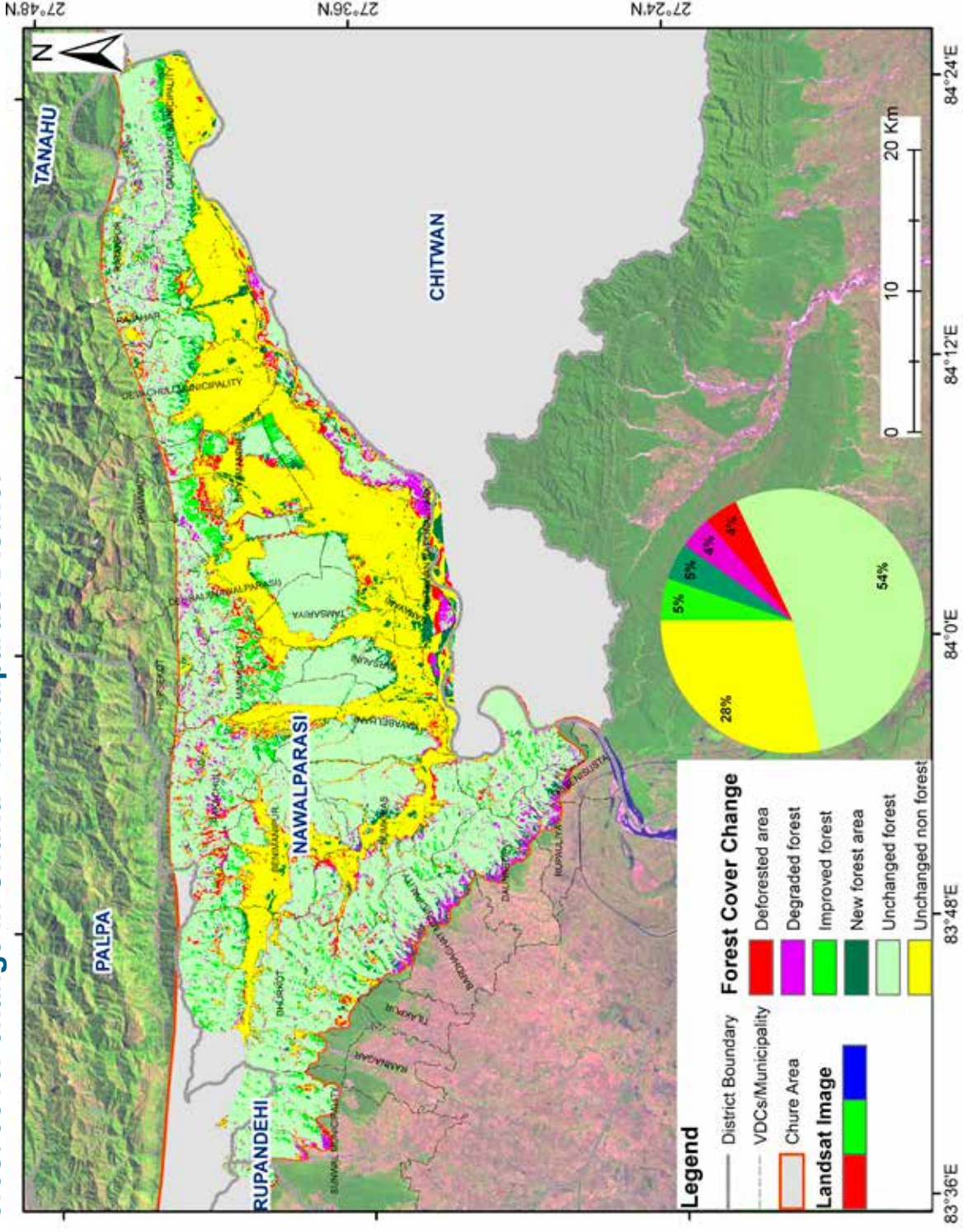
Land cover change in Churia - Nawalparasi District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	56950.48	49.12	58330.96	50.32	0.1
Sparse Forest	16254.96	14.02	13876.32	11.97	-0.7
Bushes/Grass	4587.00	3.96	6013.96	5.19	1.2
Cultivated Land	31115.04	26.84	30290.40	26.13	-0.1
Barren Land	673.40	0.58	635.60	0.55	-0.3
Riverbed	3001.88	2.59	4214.20	3.64	1.6
Waterbodies	3365.32	2.90	2569.12	2.22	-1.2

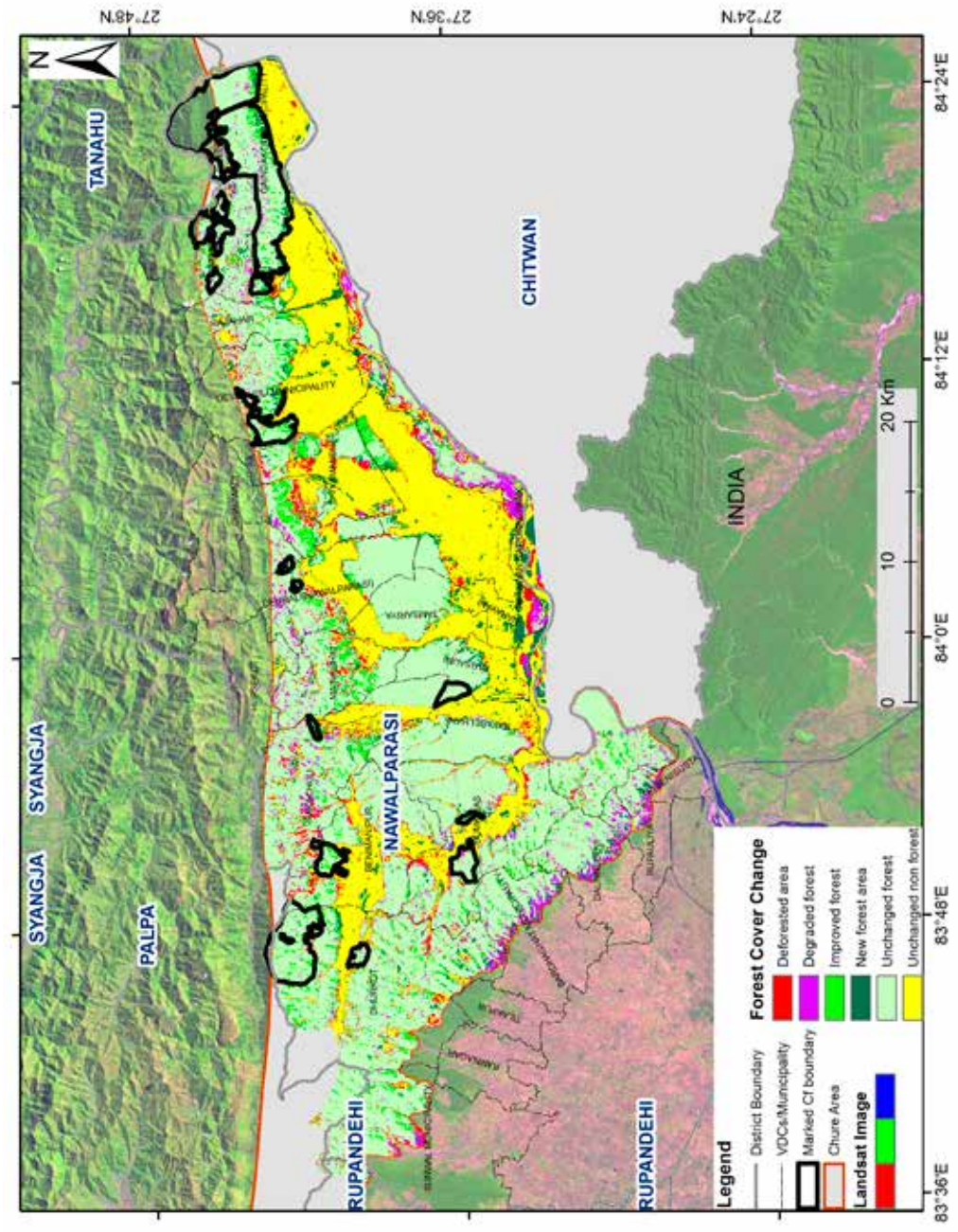
४८७१ हे. क्षेत्रमा वन फडानि हुनु, भण्डै त्यतिनै क्षेत्रका हैसियत विग्रनु राम्रो समाचार पक्कै हैन । तर नवलपरासिको चुरेको अर्को भागको ६०३३ हे. मा जंगलको हैसियत बढनु र ५२६६ हे. क्षेत्रमा नयाँ जंगल देखिनुले समष्टीगत रुपमा नवलपरासिको चुरेको भाग हल्ला भए जस्तो त्यति खस्कीएको देखिएन ।

Forest cover change in Churia - Nawalparasi District



२२ वर्षको अवधिमा ६२२४६ हे. क्षेत्र जस्ताको तस्तै रहनुलाई के भन्ने ?

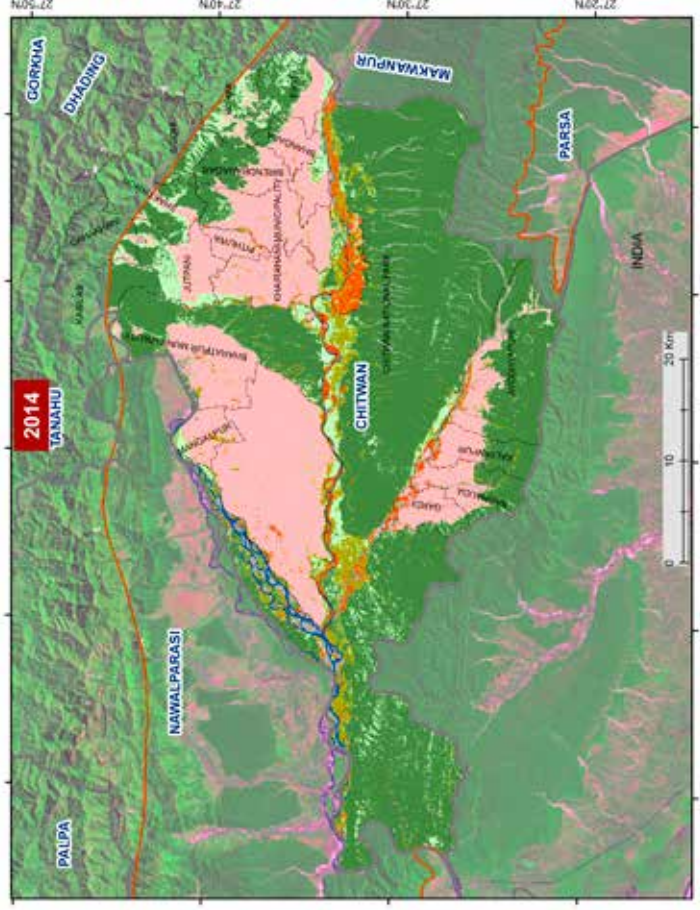
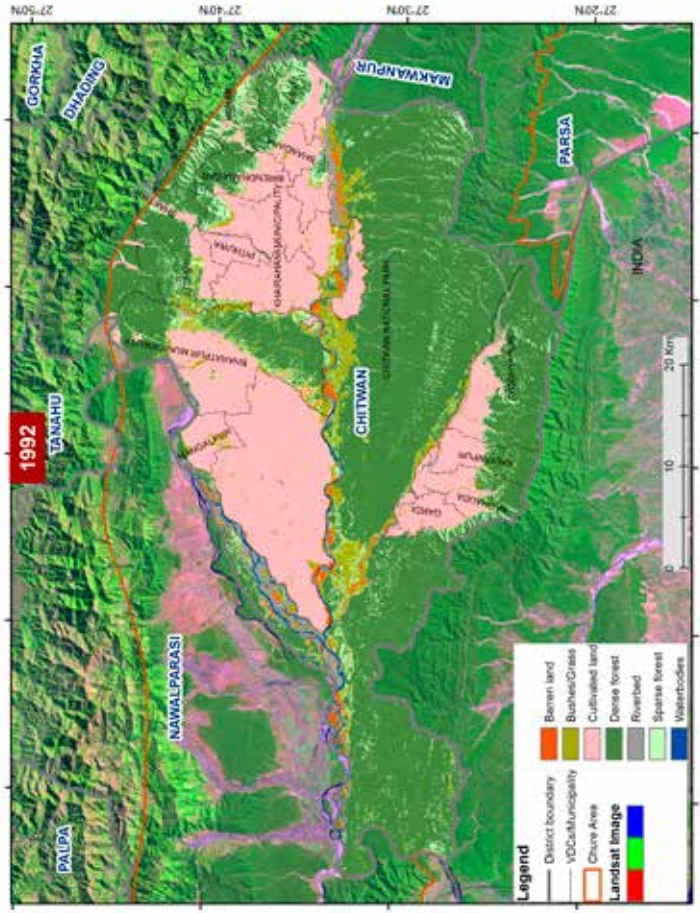
Forest cover change in Community Forest of Churia - Nawalparasi District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	108	270.84	826.6	375.36	6359.56	0
Outside CF (Area in ha)	4762.96	4321.72	5207.2	4857.64	55887.76	32852.84

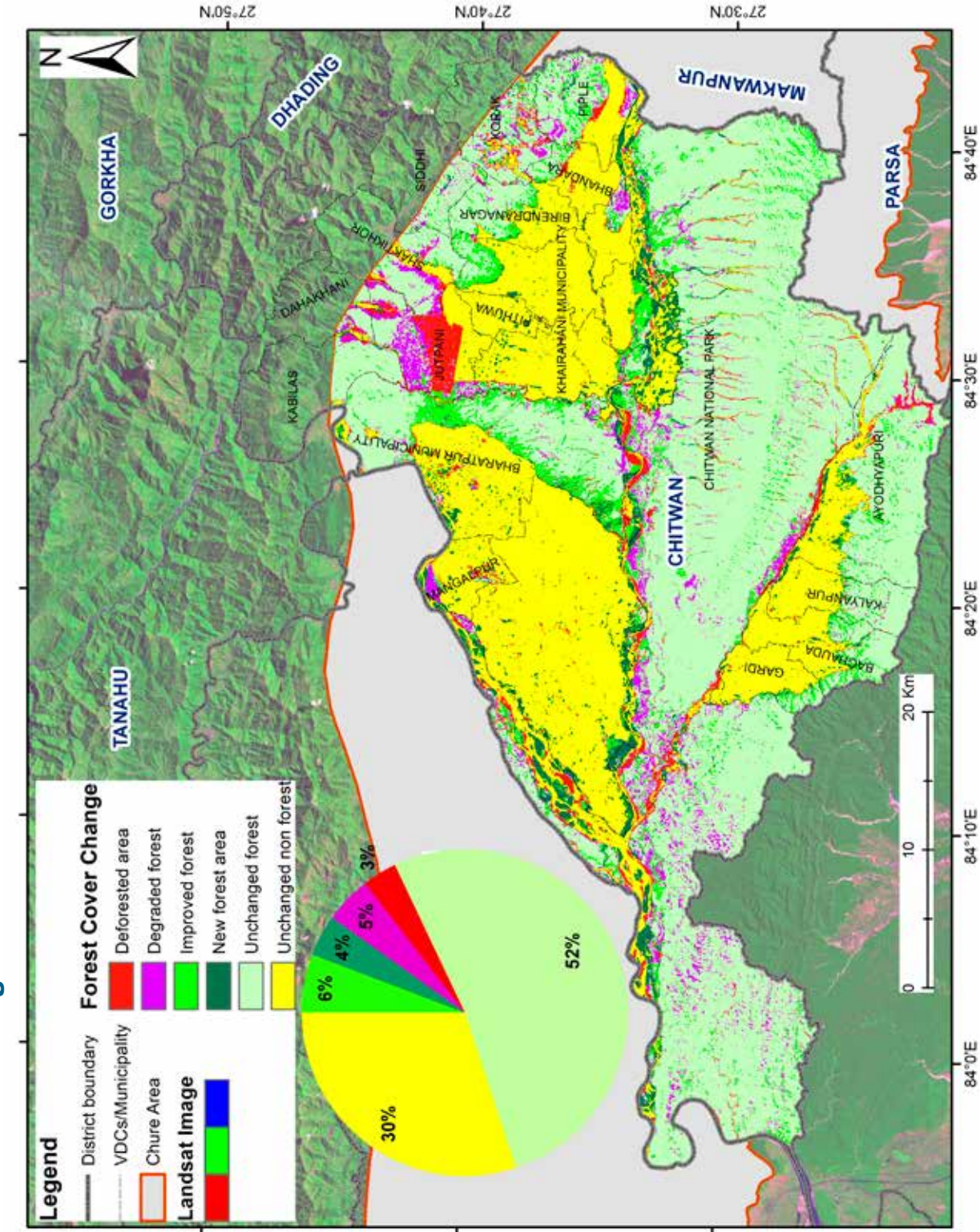
हैसियत सप्रिएको वनमध्ये सामुदायिक वन भित्रको क्षेत्र बाहिरको वन भन्दा बढी छ। यस्तै सामुदायिक वनले वनको हैसियत बढाउन मद्दत गर्छ, भन्ने स्पष्ट सन्देश दिन्छ।

Land cover change in Churia - Chitwan District



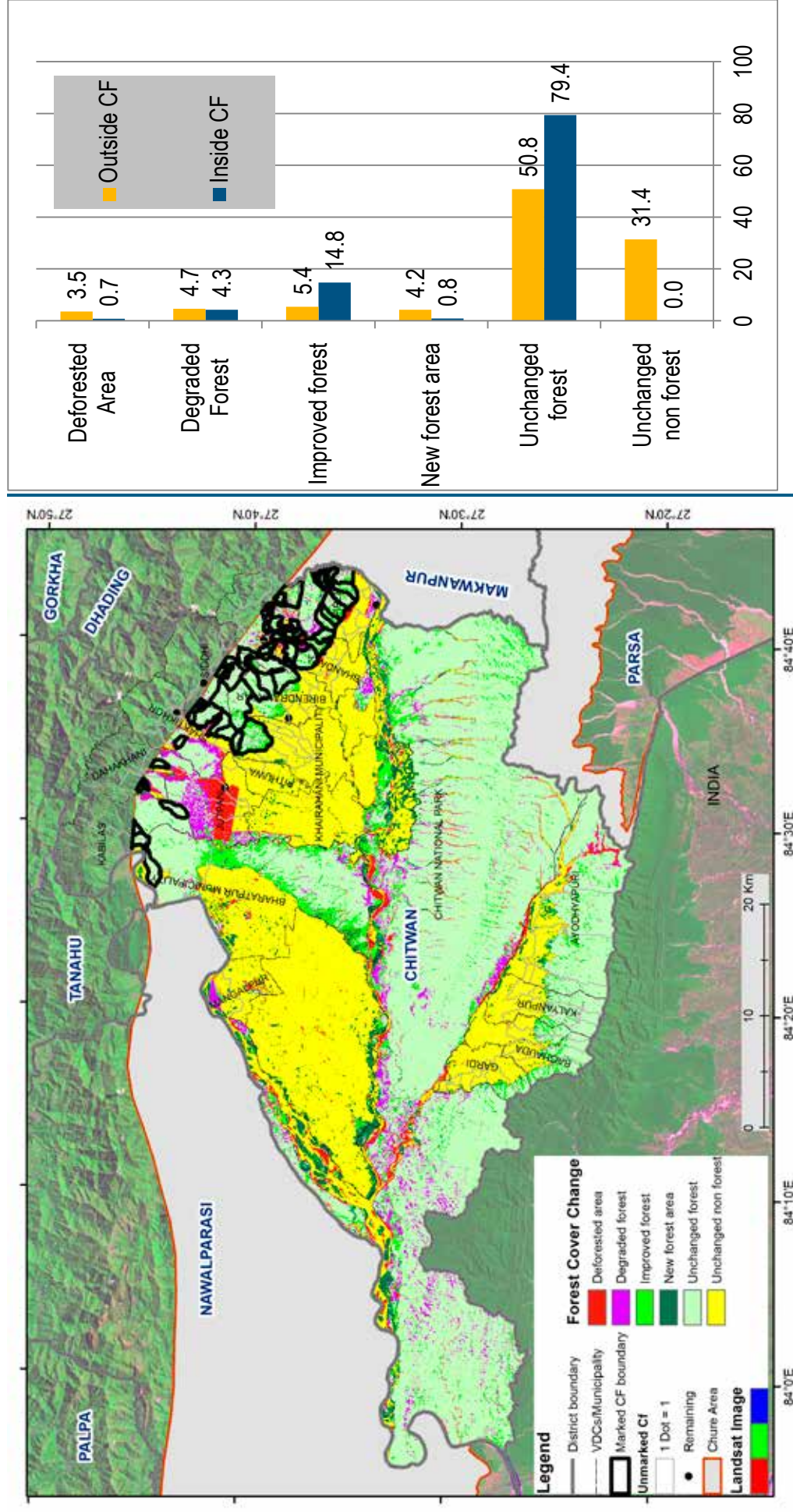
Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	100281.48	53.21	100239.88	53.17	0.0
Sparse Forest	14861.72	7.89	16035.12	8.51	0.3
Bushes/Grass	9063.56	4.81	9238.92	4.90	0.1
Cultivated Land	53214.96	28.24	51196.08	27.16	-0.2
Barren Land	1930.32	1.02	4901.72	2.60	4.3
Riverbed	7096.76	3.77	3984.04	2.11	-2.6
Waterbodies	1998.88	1.06	2936.64	1.56	1.8

Forest cover change in Churia - Chitwan District



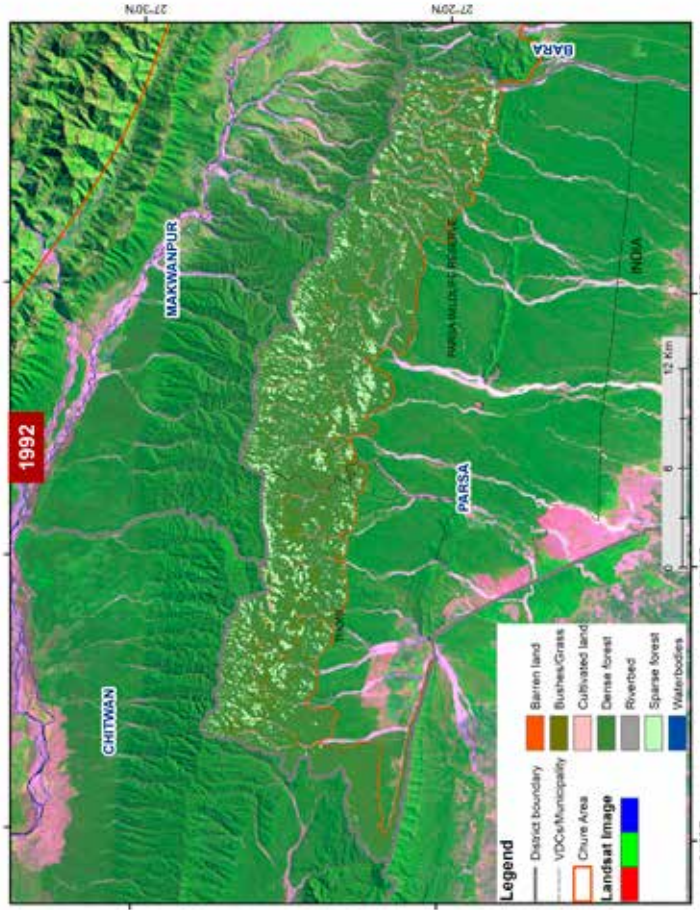
चितवन जिल्लाको चुरे क्षेत्रमा वन जंगलमा आएको परिवर्तन सबैतिर एकनास छैन । ६४३७ हे. क्षेत्र वन फडानि भएछ भने ८६५७ हे. क्षेत्रको हैसियत विप्रेको छ । तर १०८७९ हे. क्षेत्रको जंगलको हैसियत बढेको पाइएको छ भने ७६९४ हे. क्षेत्रमा नयाँ वन आएको कुराले राम्रो सन्देश दिएको छ ।

Forest cover change in Community Forests of Churia - Chitwan District



तुलनात्मक रूपमा सामुदायिक वन राम्रो देखियो तथापी १७०३ हे. जंगल क्षेत्रमा व्यवस्थापन गर्दा वन जंगलको हैसियत बढाउन सकिने पाइयो ।

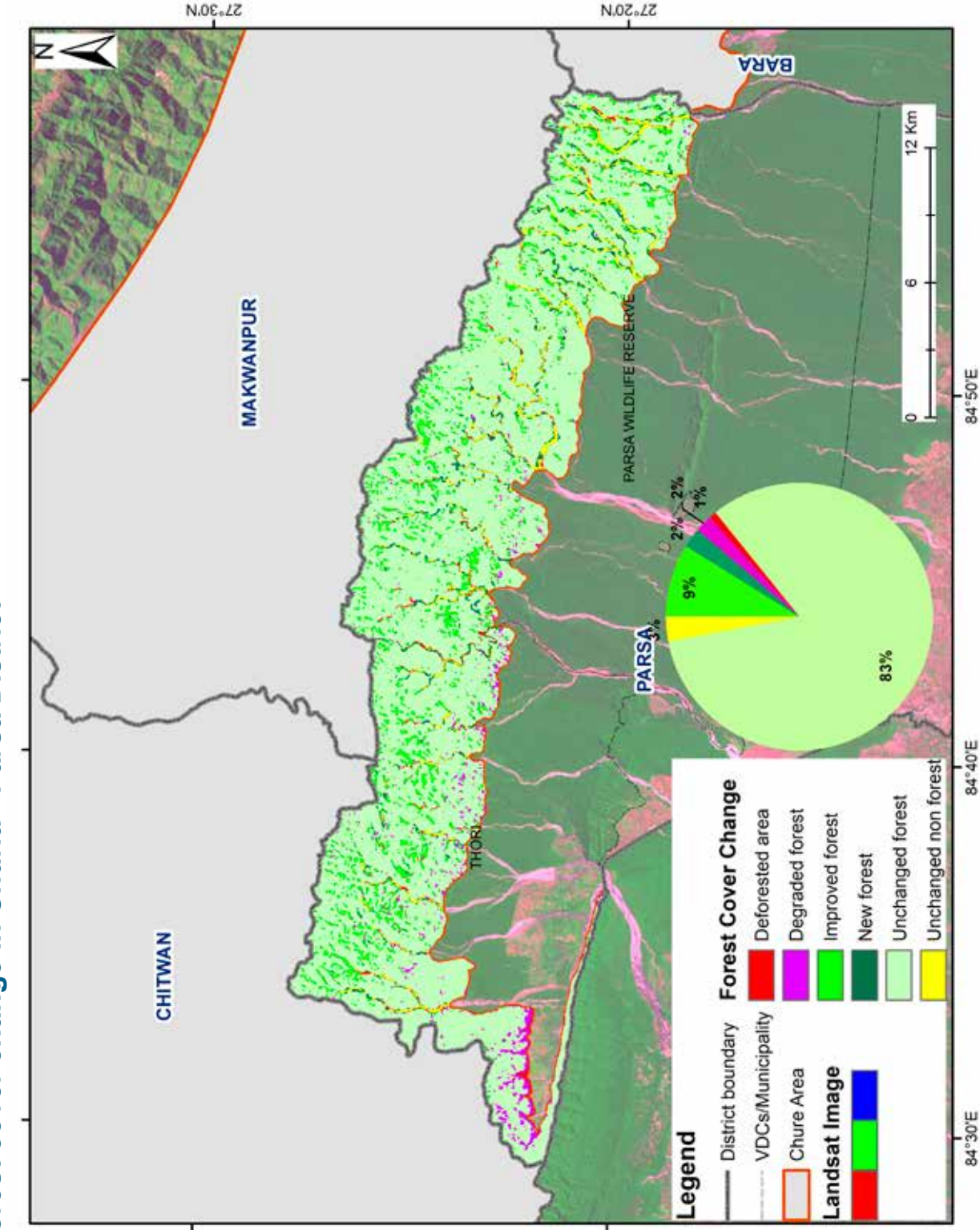
Land cover Change in Churia - Parsa District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	22338.00	77.37	25281.24	87.59	0.6
Sparse Forest	3464.44	12.00	2154.48	7.46	-2.1
Bushes/Grass	1416.44	4.91	298.20	1.03	-6.8
Cultivated Land	299.60	1.04	130.84	0.45	-3.7
Barren Land	211.44	0.73	84.16	0.29	-4.1
Riverbed	1118.68	3.87	902.60	3.13	-1.0
Waterbodies	22.12	0.08	12.68	0.04	-2.5

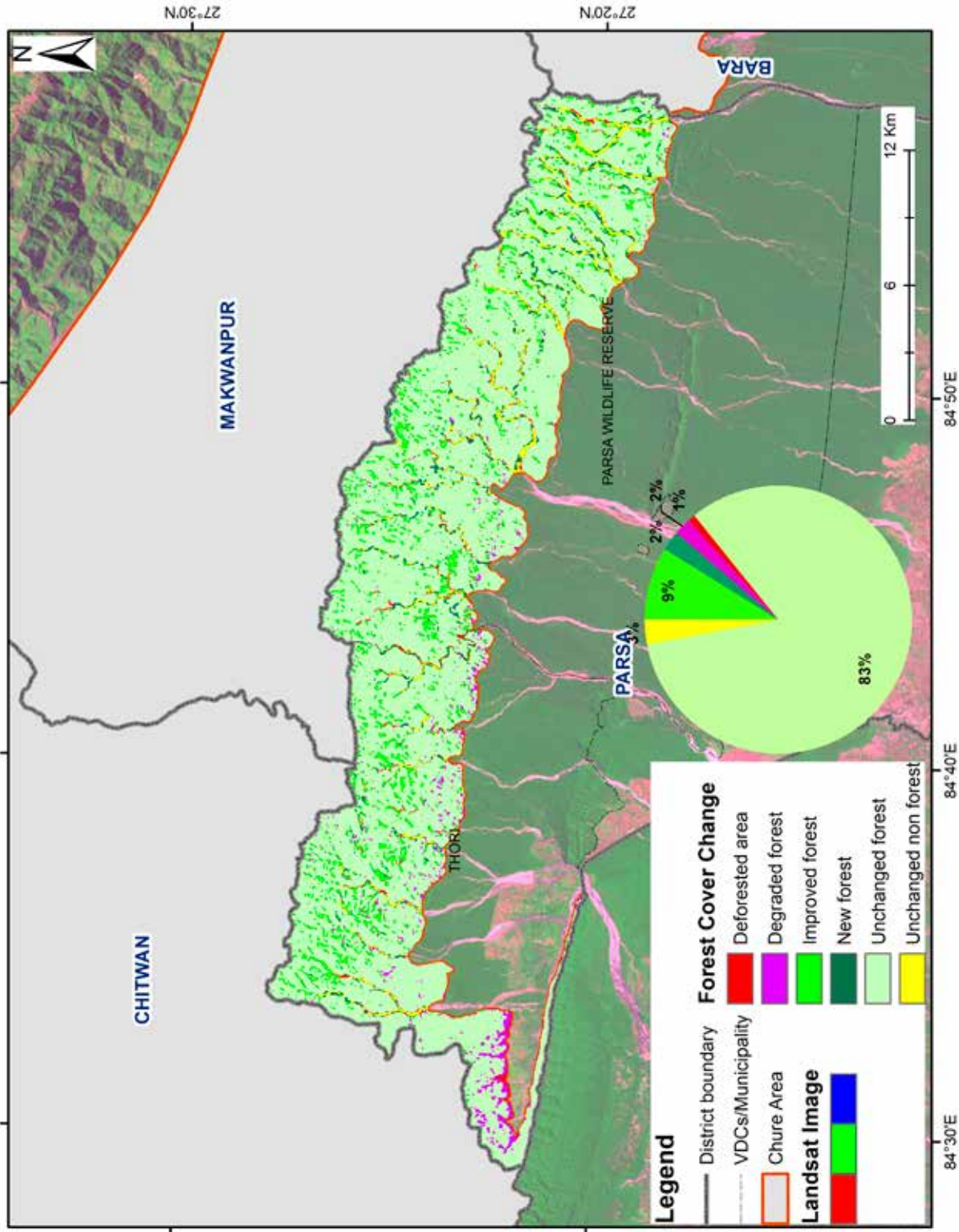
पर्सा जिल्लाको चुरे क्षेत्रको जंगलको हैसियतमा समष्टीगत रुपमा सुधार आएको देखियो । तर खोला छेउको बाँभो जग्गा र खेति योग्य भूमिको केहि हुन नसकेको आंकडाले जनाउँछ ।

Forest cover change in Churia - Parsa District

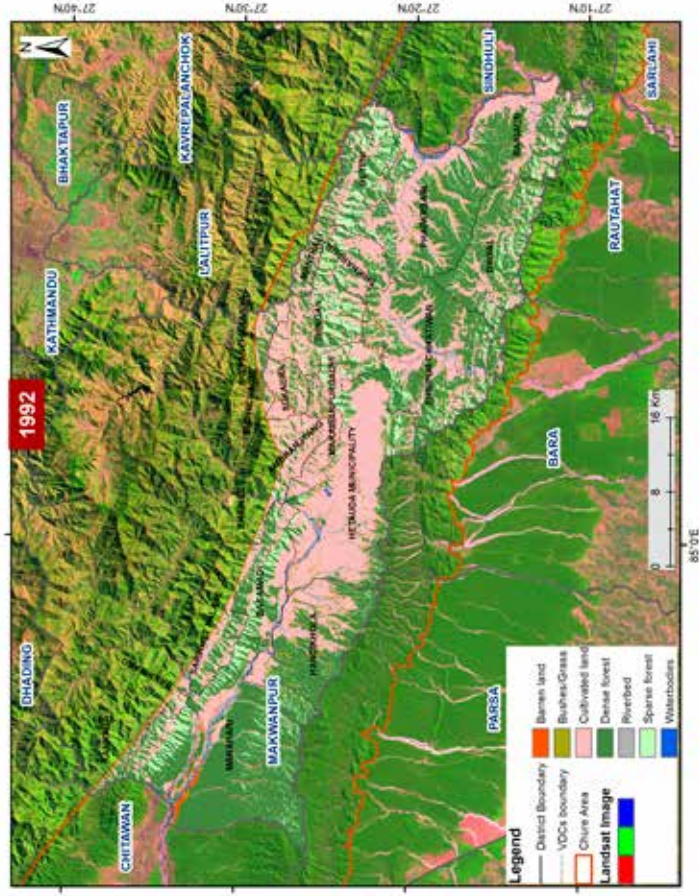


पर्सो जिल्लामा रहेको चुरे क्षेत्रको वन जंगलमा २२ वर्षको अवधिमा आएको परिवर्तन निम्न प्रकार छ । २५१ हे. क्षेत्र वन फडानि, ५९७ हे. क्षेत्रमा हेसियत मा हास, २५४२ हे. क्षेत्रको वन जंगलको हेसियतमा सुधार तथा ६८५ हे. क्षेत्रमा नयाँ वन जंगलले ढाकेको पाइयो ।

Forest cover change in Churia - Parsa District



Land cover change in Churia - Makwanpur District

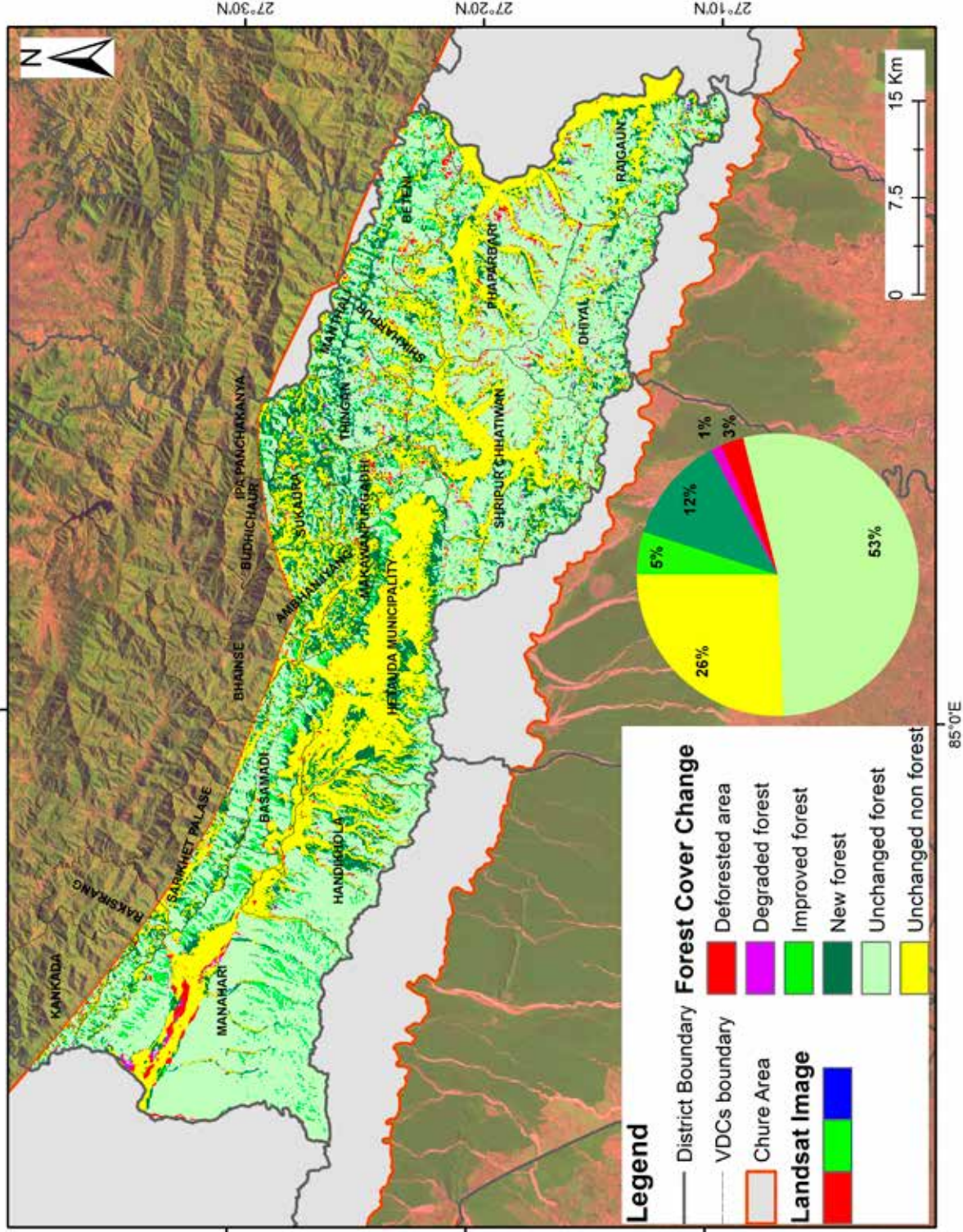


Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	69068.40	46.30	84290.88	56.32	0.9
Sparse Forest	15281.56	10.24	18380.72	12.28	0.8
Bushes/Grass	4394.28	2.95	2104.04	1.41	-3.3
Cultivated Land	51237.60	34.34	36529.92	24.41	-1.5
Barren Land	1765.56	1.18	1109.36	0.74	-2.1
Riverbed	6136.60	4.11	6182.56	4.13	0.0
Waterbodies	1303.24	0.87	1073.96	0.72	-0.9

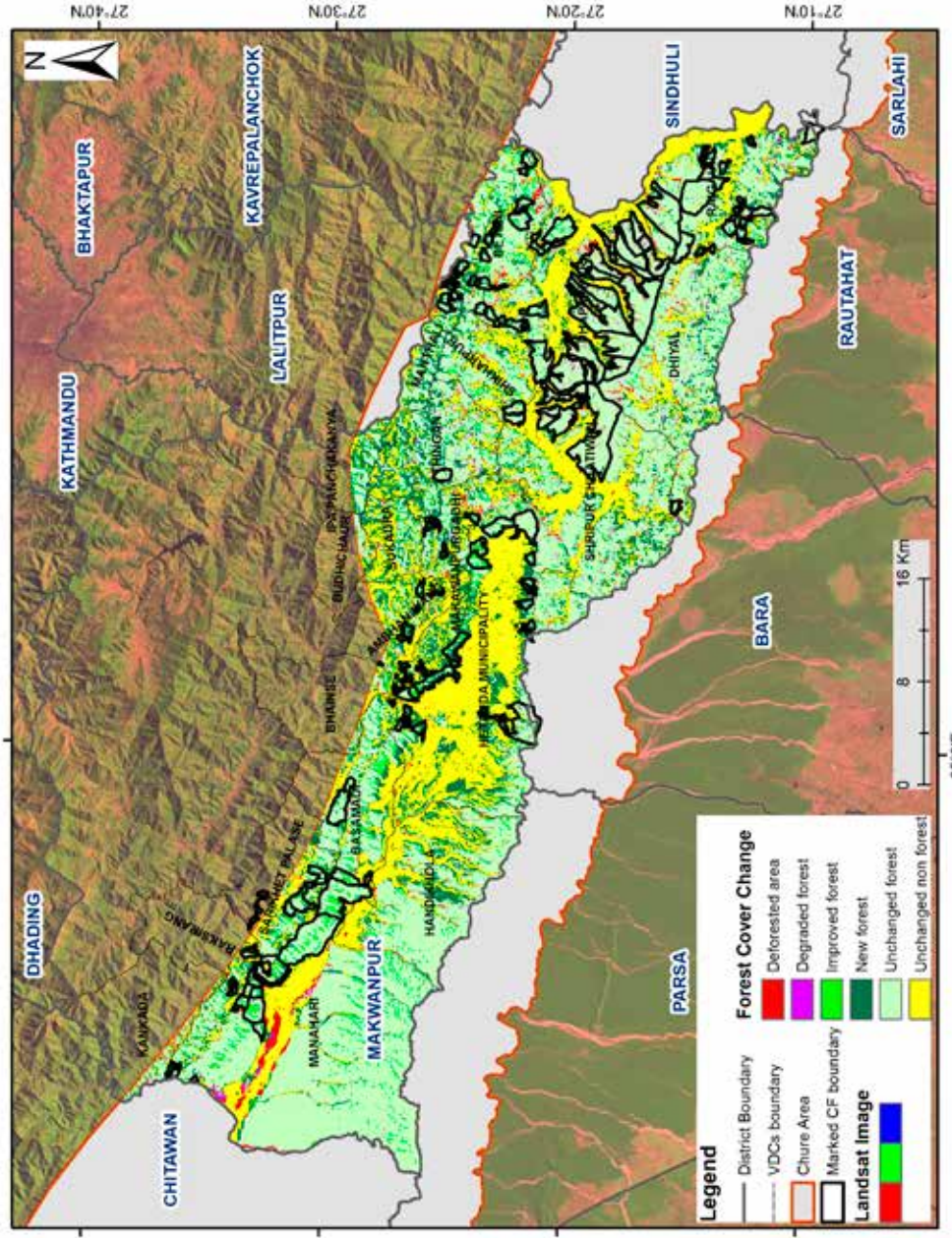
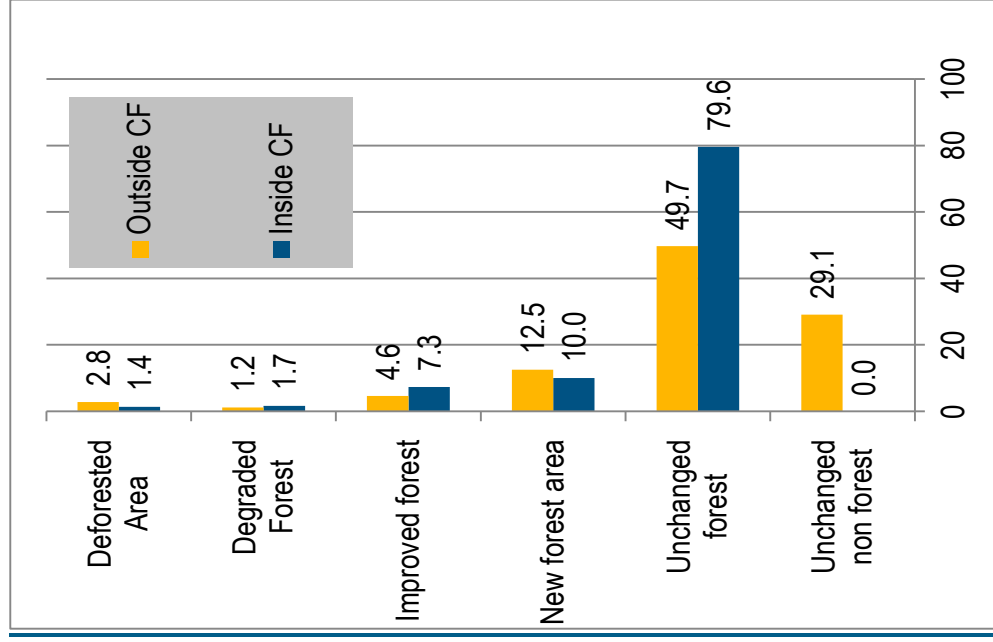
मकवानपुर जिल्लाको चुरे क्षेत्रमा भाडी वन, खेति योग्य भूमि र बाँफो जग्गा घट्ने क्रम जारी देखियो भने केहि मात्रामा भएपनि फाटफुट जंगल भएको क्षेत्र घना जंगलमा बदलिएको आंकडालाई सुखद मान्नु पर्दछ ।

Forest cover change in Churia - Makwanpur District

जंगलको विनास भएको क्षेत्र ४५९५ हे. तथा हैसियत विगेको क्षेत्र २१२५ हे. भन्दा हैसियत सप्रिएको ८५११ हे. क्षेत्र ले मकवानपुर जिल्लाको चुरेको समष्टीगत अनुहार राम्रो भएको छ भन्न सकिन्छ ।



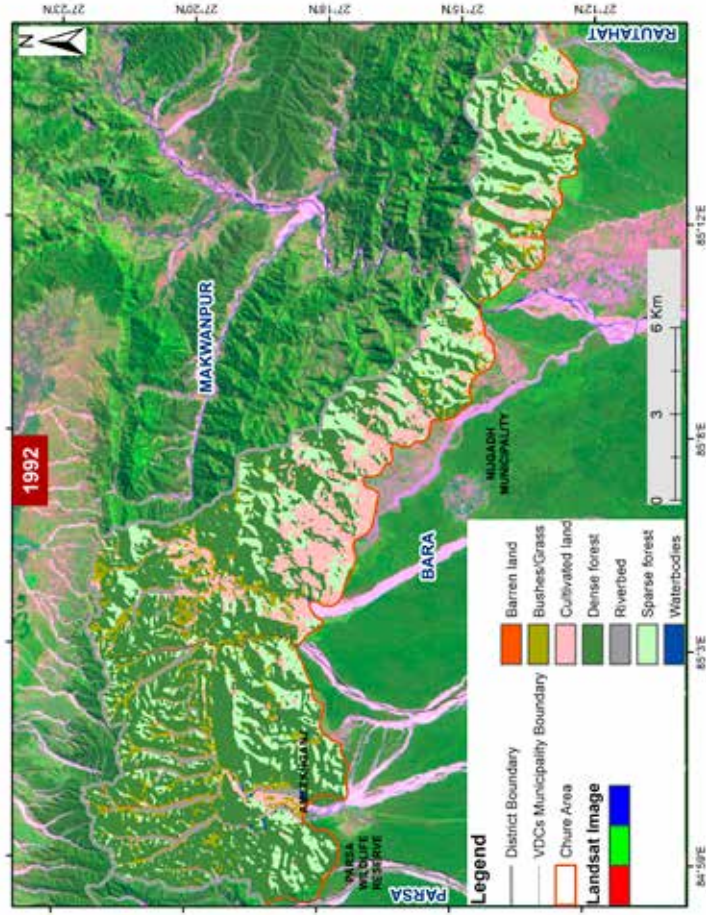
Forest cover change in Community Forests of Churia - Makwanpur District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	288.96	350.72	1529.28	2083.84	16593.12	0
Outside CF (Area in ha)	4306.84	1774.44	6982.16	19045.2	75514.88	44209.72

समष्टीगत रुपमा हेर्दा तुलनात्मक रुपले सामुदायिक वन भित्रको वन जंगल बाहिरको वन जंगल भन्दा र भन्ने पाइयो । तर निज वनले होमेर नयाँ वन बन्ने क्रम सामुदायिक वन भन्दा बाहिर बढी पाइयो ।

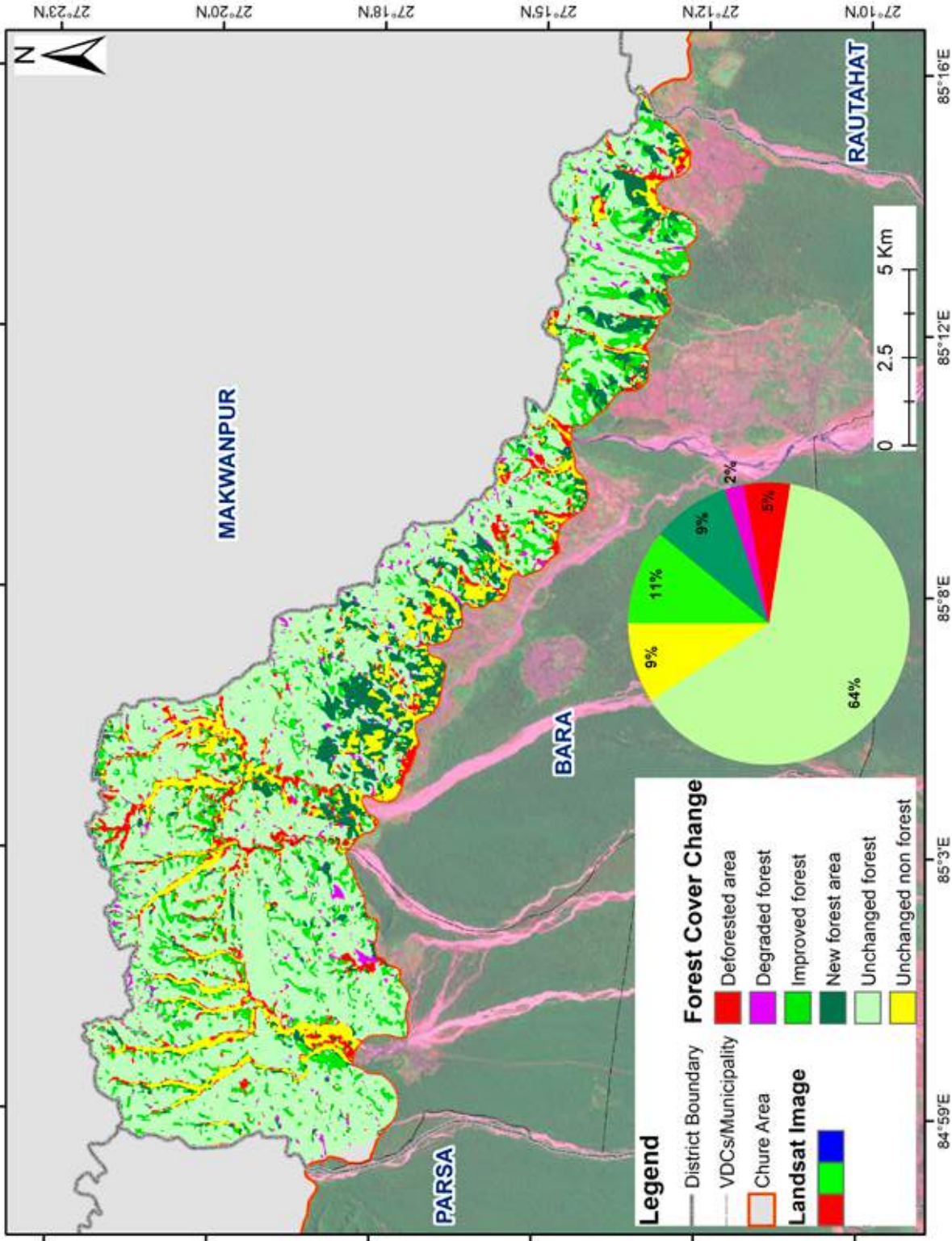
Land cover change in Churia - Bara District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	8133.08	51.91	9591.68	61.19	0.8
Sparse Forest	3603.68	23.00	3353.44	21.39	-0.3
Bushes/Grass	1087.56	6.94	399.44	2.55	-4.5
Cultivated Land	2162.32	13.80	1521.52	9.71	-1.6
Barren Land	106.64	0.68	98.12	0.63	-0.4
Riverbed	529.60	3.38	648.28	4.14	0.9
Waterbodies	46.00	0.29	62.64	0.40	1.4

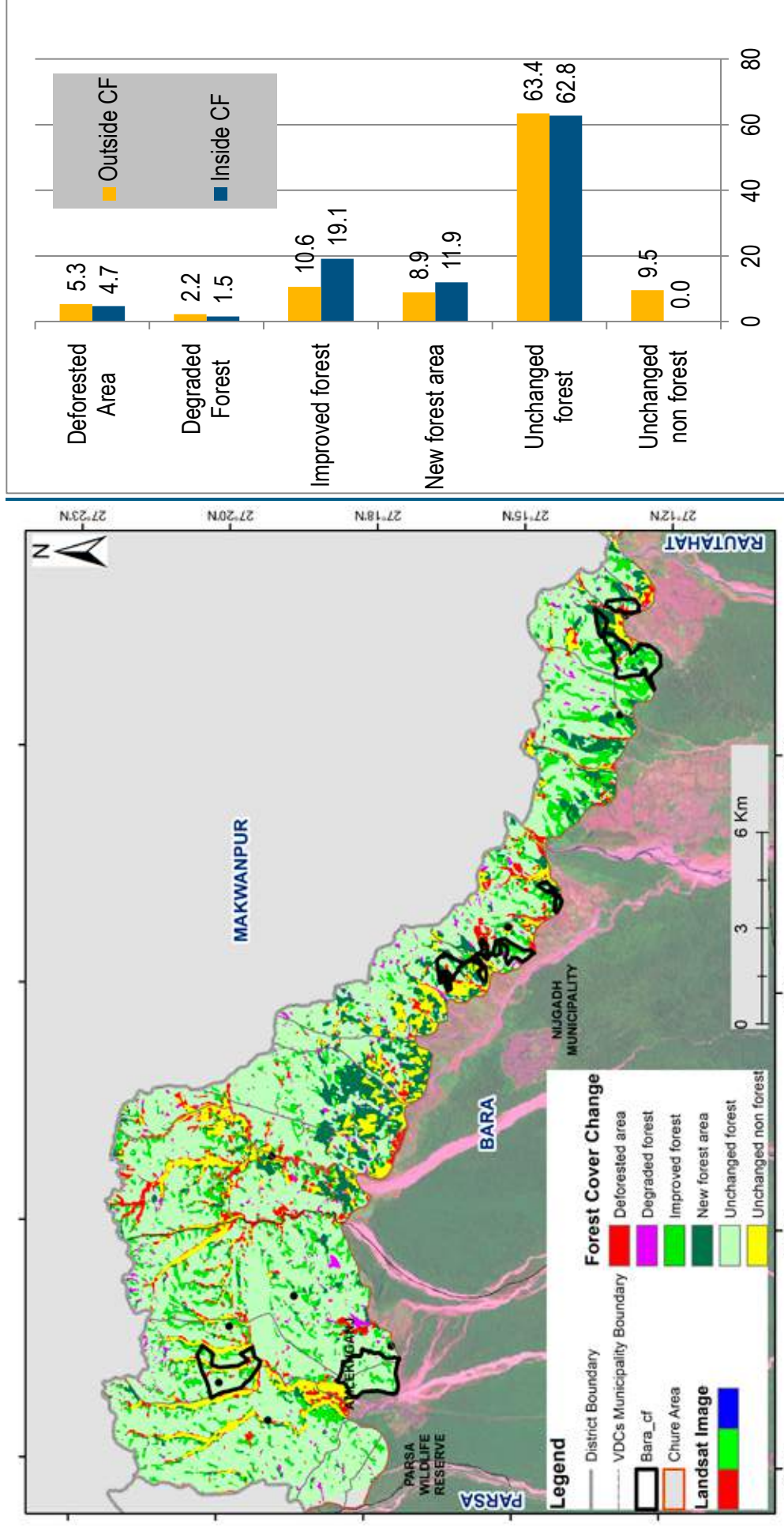
बारा जिल्लाको चुरे क्षेत्रमा फाटफुटे जंगल घट्यो, झाडीको क्षेत्र पनि घटेको पाइयो, खोला छेउको खेतको केहि भाग पनि बगर भएको पाइयो भने फाटफुटे जंगलको केहि भागको हैसियत सप्रेर घना जंगलले ओगटेको क्षेत्र २२ वर्षमा भण्डै १०% ले वृद्धि भएको पाइयो ।

Forest cover change in Churia - Bara District



बारा जिल्लामा रहेको चुरे क्षेत्र अत्यन्तै थोरै छ। तर पनि ८३१ हे. वन फडानि तथा ३४६ हे. को हैसियत विग्रिएता पनि १७०५ हे. क्षेत्रको हैसियत राम्रो हुनु र १४०४ हे. मा नयाँ वन देखिनुलाई राम्रो मान्नु पर्छ।

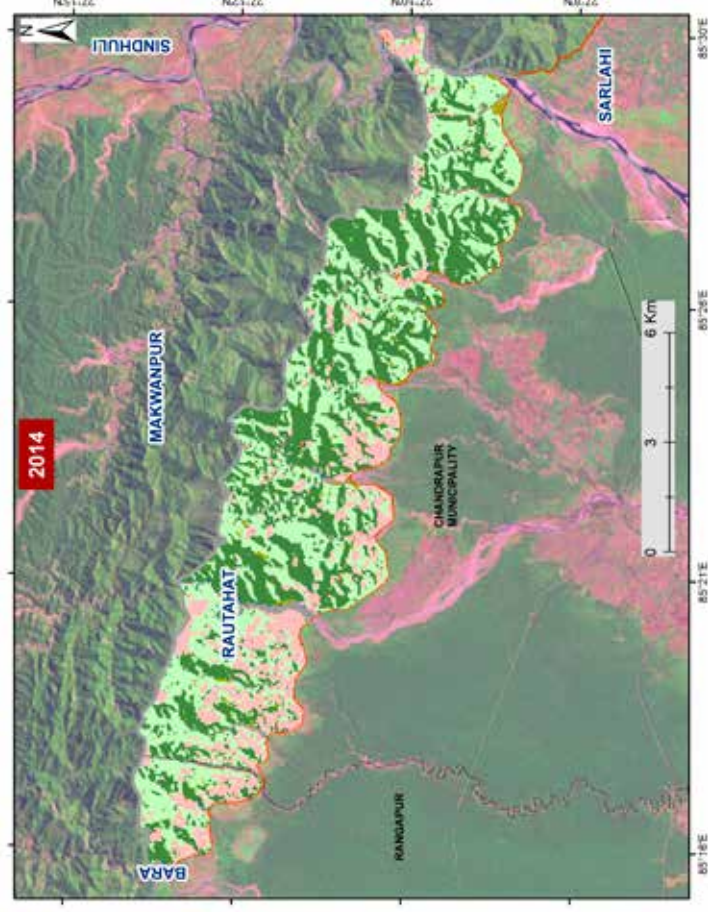
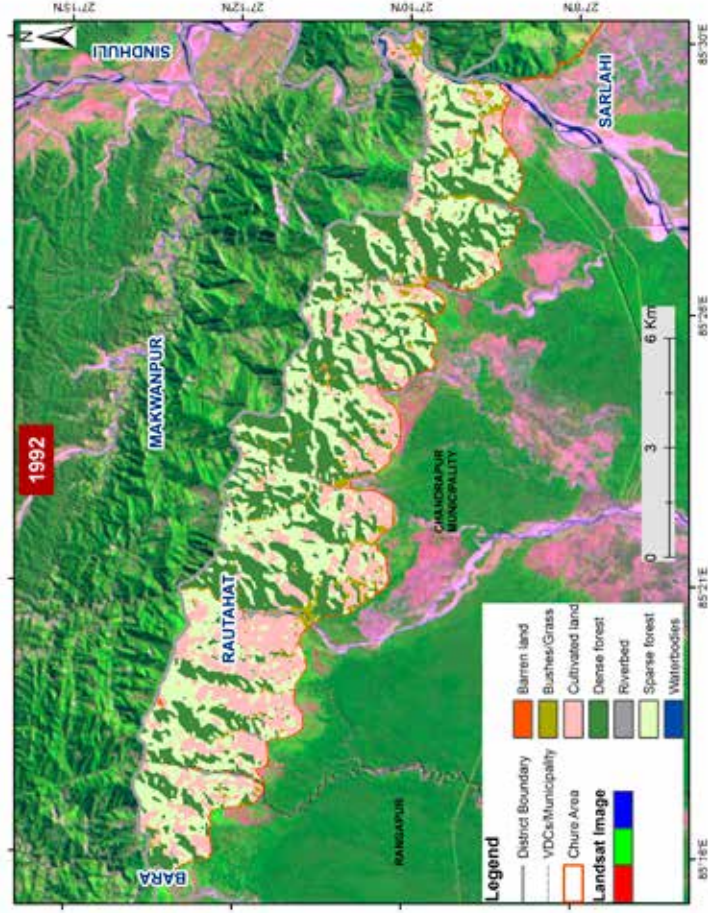
Forest cover change in Community Forest of Churia - Bara District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	29.68	9.64	121.6	75.76	398.92	0
Outside CF (Area in ha)	801.56	337.08	1583.68	1328.64	9513	1430.24

अरु जिल्ला जस्तै बारा जिल्लाको चुरेमापनि तुलनात्मक रुपमा सामुदायिक वनको हैसियत बाहिरको भन्दा राम्रो देखिएको छ ।

Land cover change in Churia - Rautahat District

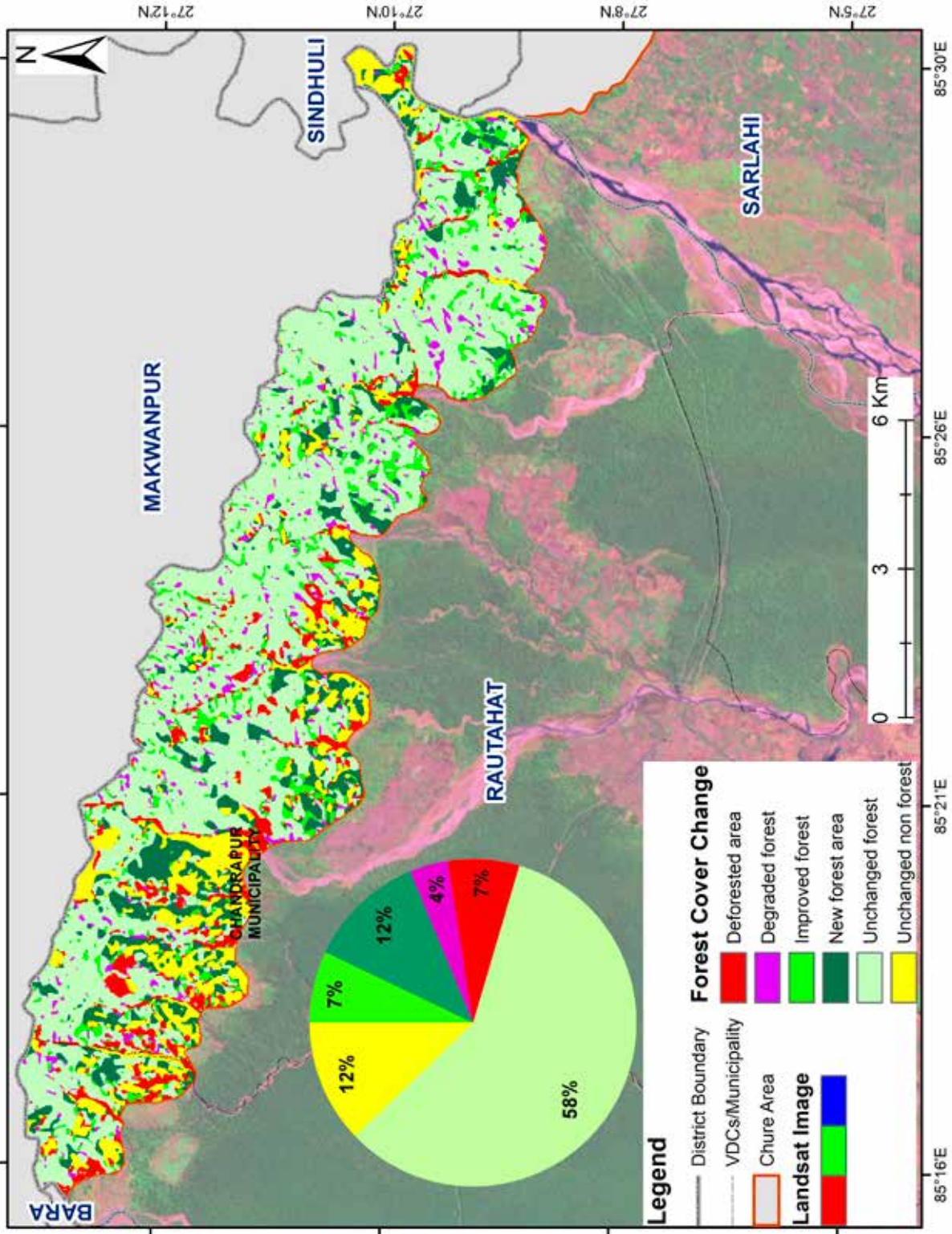


Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	2730.52	34.51	2957.36	37.34	0.4
Sparse Forest	2996.96	37.88	3377.96	42.65	0.5
Bushes/Grass	292.40	3.70	66.20	0.84	-6.5
Cultivated Land	1739.28	21.98	1255.00	15.84	-1.5
Barren Land	27.40	0.35	25.52	0.32	-0.3
Riverbed	86.44	1.09	206.44	2.61	4.0
Waterbodies	39.28	0.50	32.40	0.41	-0.9

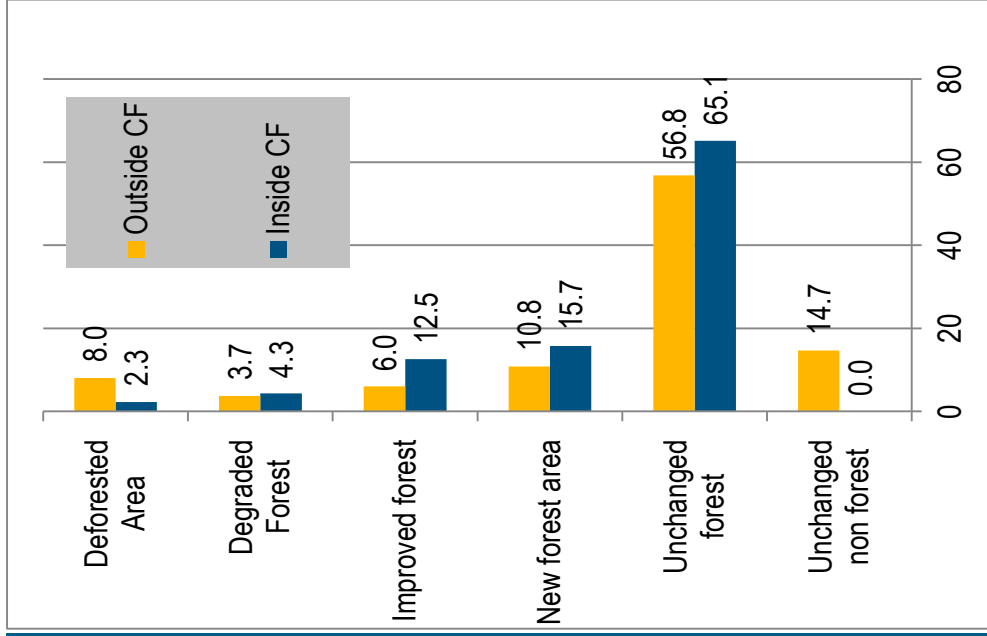
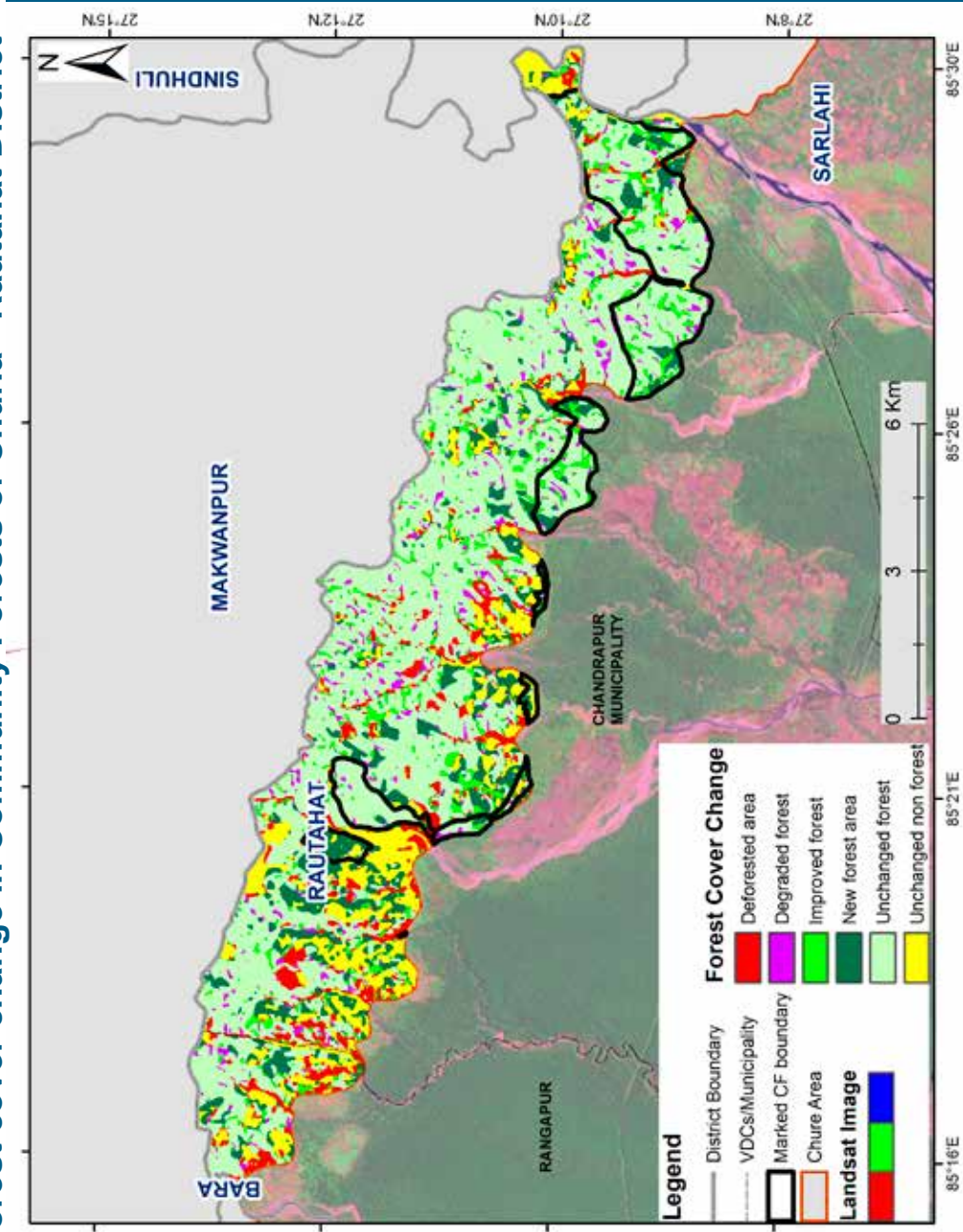
रौतहटको चुरे क्षेत्रको बाँझो जग्गा तथा खेतको केहि भाग खहरे खोलाले बगरमा बदलिदिएको आंकडाले प्रष्ट देखाउँछ ।

Forest cover change in Churia - Rautahat District

रौतहट जिल्लाको चुरेको ८०० हे. क्षेत्रमा वनको पनि हैसियत विप्रिएता करिब १४०० हे. क्षेत्रमा वन जंगल राम्रो भएको पाइएको छ ।



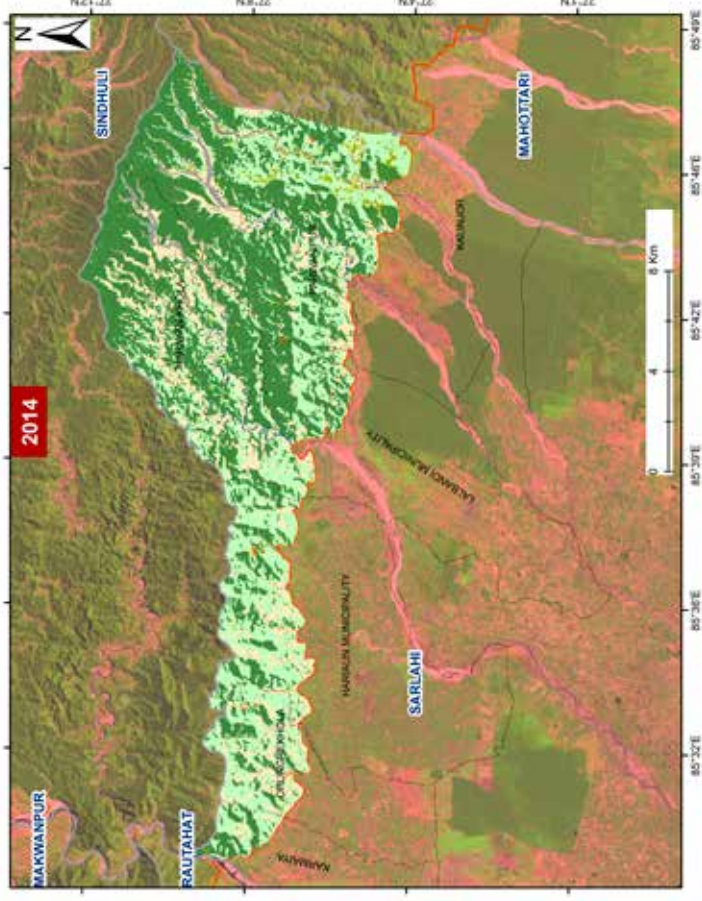
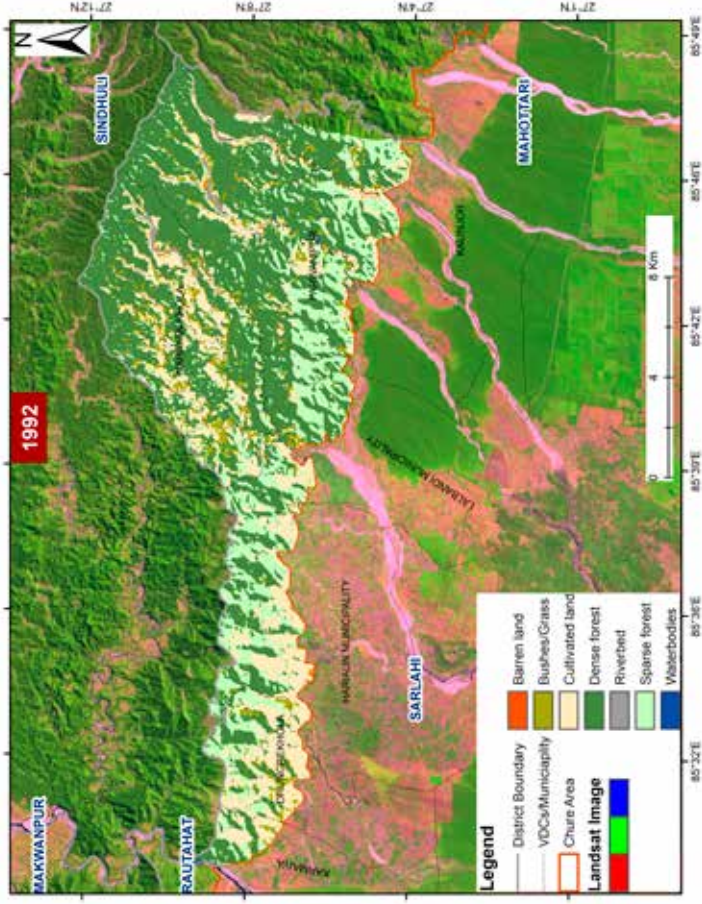
Forest cover change in Community Forests of Churia - Rautahat District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	30.44	58.12	168	210.6	872.44	0
Outside CF (Area in ha)	527.28	242.2	392.92	710.4	3736.56	963.76

अरु जिल्ला जस्तै तुलनात्मक हिसाबले सामुदायिक वनको हैसियत अरु वन भन्दा राम्रो पाइएको छ ।

Land cover change in Churia - Sarlahi District

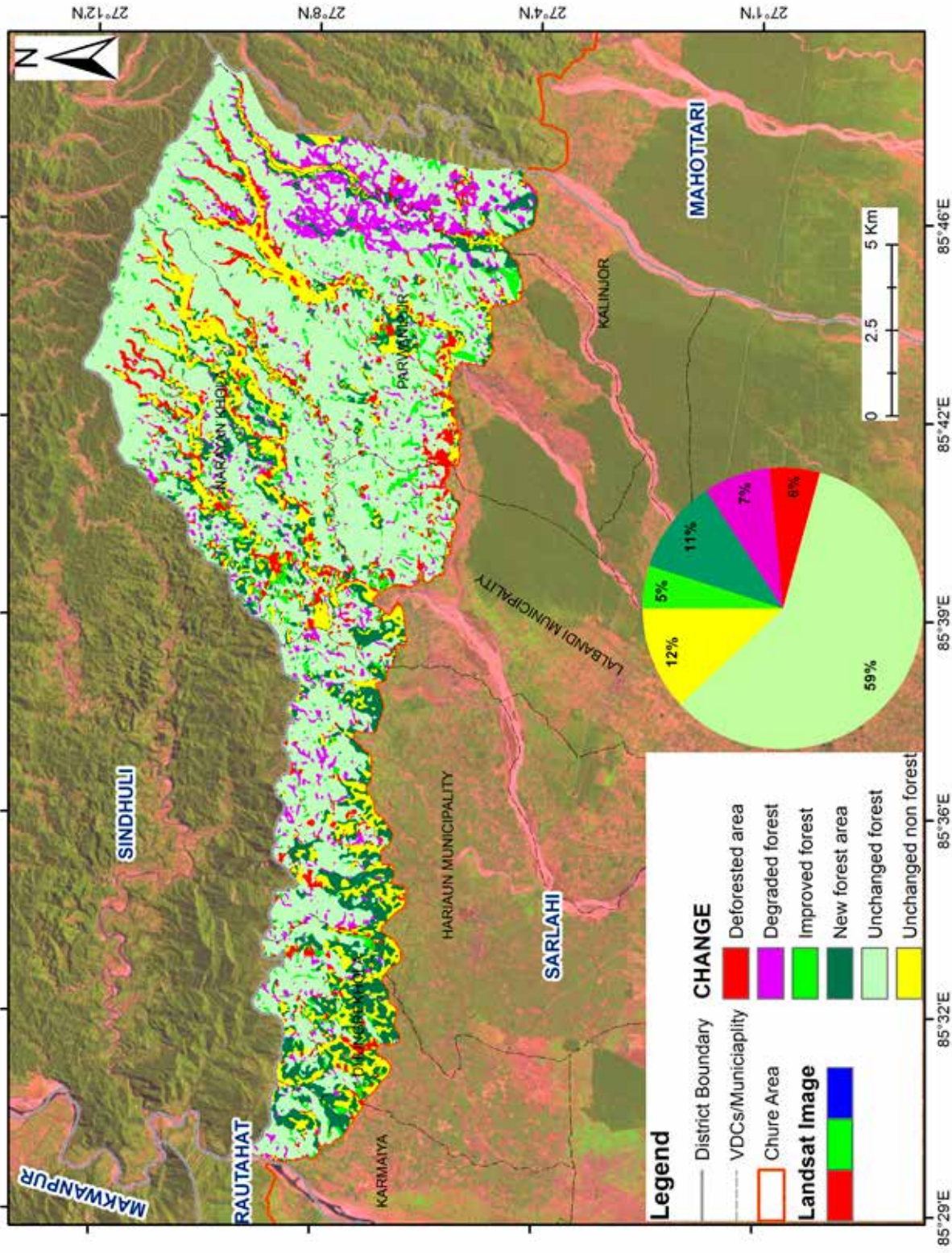


Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	9447.28	51.25	8784.12	47.62	-0.3
Sparse Forest	3792.48	20.57	6073.64	32.93	2.2
Bushes/Grass	1031.20	5.59	271.48	1.47	-5.9
Cultivated Land	3880.72	21.05	2745.68	14.88	-1.6
Barren Land	89.96	0.49	68.48	0.37	-1.2
Riverbed	139.32	0.76	449.32	2.44	5.5
Waterbodies	54.08	0.29	54.04	0.29	0.0

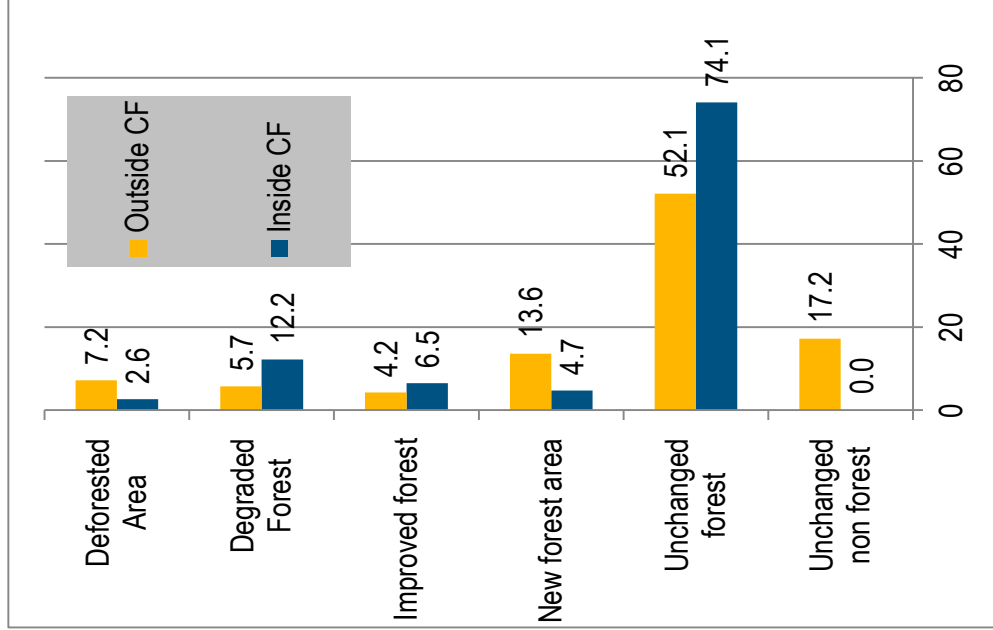
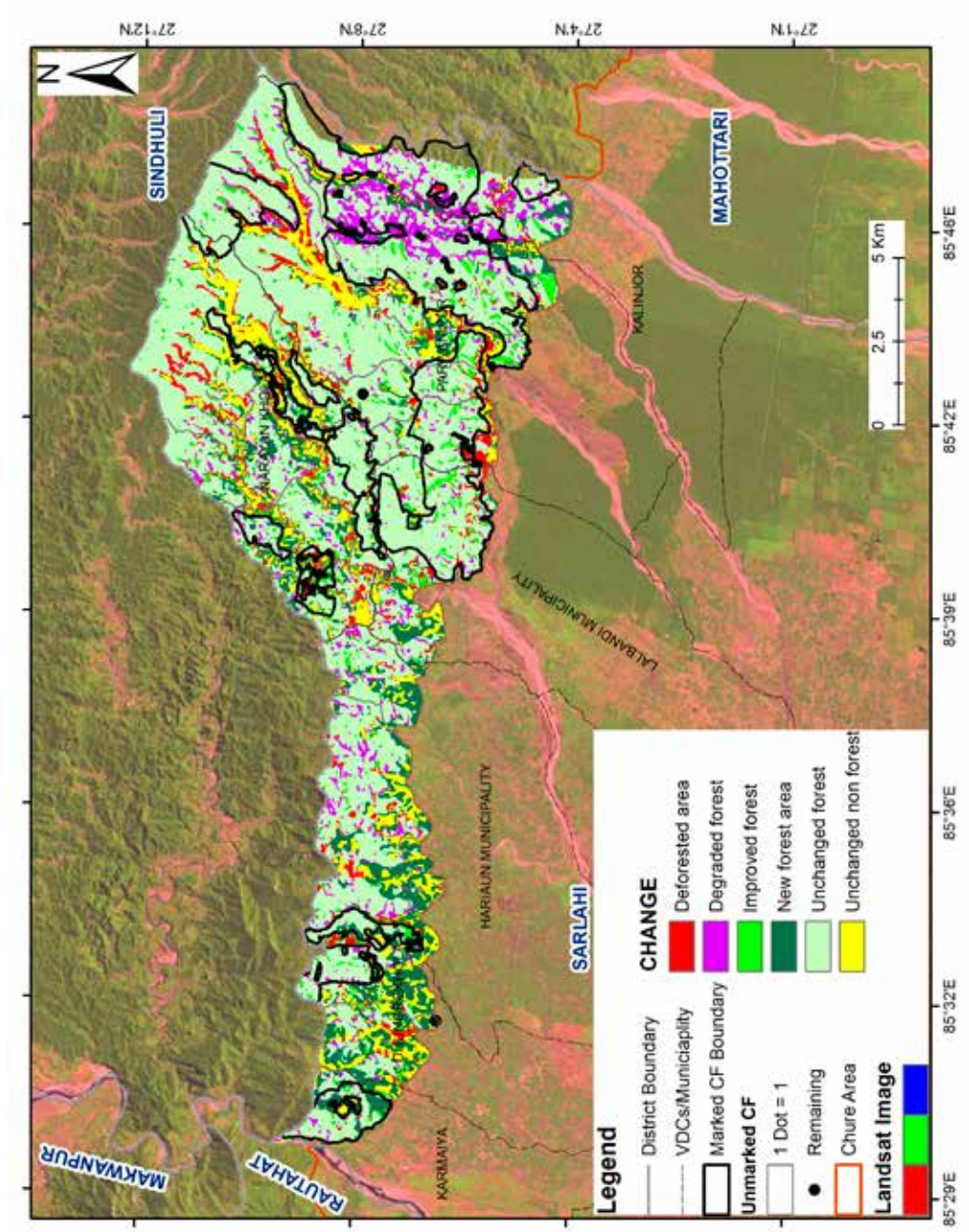
सर्लाही जिल्लाको चुरे क्षेत्रमा बुट्यान घट्टाई, नदी छेउको खेत पुरिदै, बाँझो जग्गा घट्टाई जाने क्रम जारी छ भने फाटफटे जंगलको क्षेत्र चाहिँ बढेको पाइएको छ । बगरले ढाकेको क्षेत्रफल थोरै भएपनि २२ वर्षमा १३९ हे. बाट बढेर ४४९ हे. क्षेत्रफलमा बगर फैलिएको छ ।

Forest cover change in Churia - Sarlahi District

यस जिल्लाको चुरेको २९०० हे. क्षेत्रको जंगलको हैसियत बढ्ने क्रम देखियो भने २४०० हे. क्षेत्रको वन जंगलको हैसियत घटेको पनि पाइयो ।



Forest cover change in Community Forest of Churia - Sarlahi District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	146	683.8	362.76	264.36	4162.28	0
Outside CF (Area in ha)	922.04	728.64	544.32	1743.72	6683.6	2204.76

निजि वनले होला सामुदायिक वन भित्रको भन्दा बाहिरको क्षेत्रमा नयाँ वन बढेको कुरा पाइयो भने सामुदायिक वन भित्रको वनको हैसियत बाहिरको वनको भन्दा राम्रो पाइयो ।

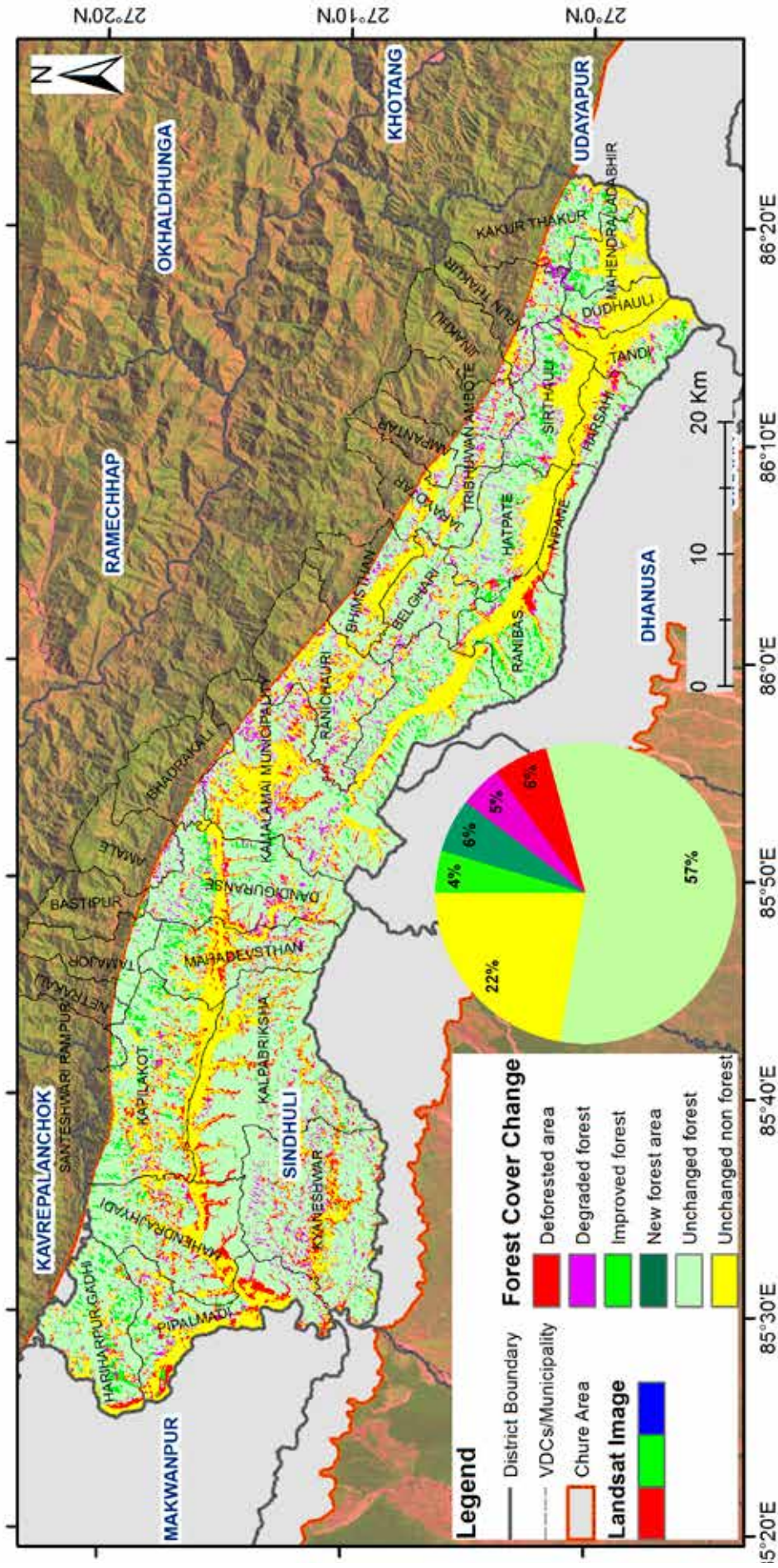
Land cover change in Churia - Sindhuli District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	77542.08	54.43	76489.76	53.40	-0.1
Sparse Forest	20132.08	14.13	22755.04	15.89	0.6
Bushes/Grass	5092.40	3.57	3746.08	2.62	-1.4
Cultivated Land	30985.68	21.75	32120.20	22.42	0.2
Barren Land	763.44	0.54	1457.00	1.02	3.0
Riverbed	5549.92	3.90	5425.72	3.79	-0.1
Waterbodies	2388.68	1.68	1240.56	0.87	-2.9

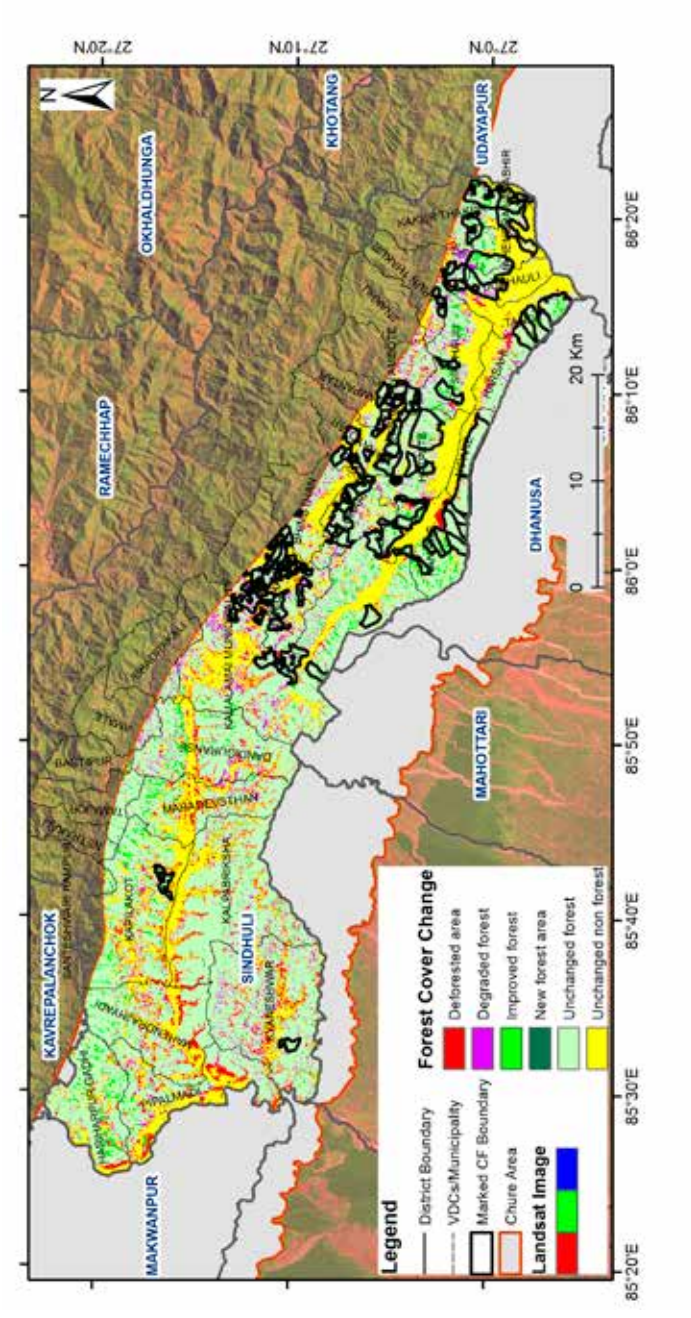
आकडाले भन्छ चुरे क्षेत्रको केहि भागको भाडी वन बाँझो जगामा बदलिएको हो कि ! किनभने ५०९.२ हे. मा फै लिएको भाडी वन २२ वर्ष पछि ३७४६ हे. मात्र रहेको बाँझो जग्गा बढेर १४५७ हे. पुगेछ ।

Forest cover change in Churia - Sindhuli District

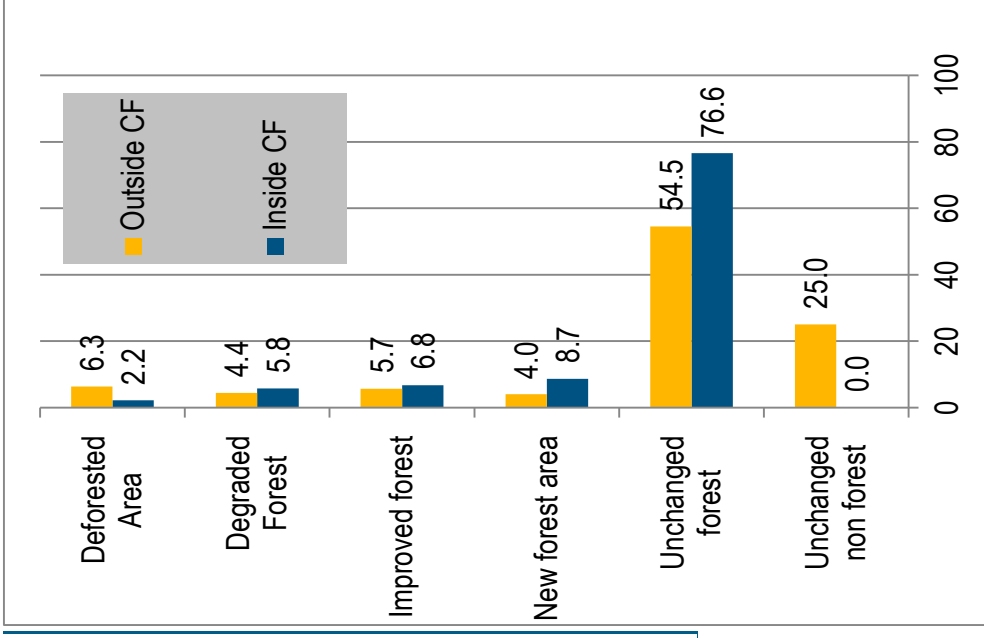


सिन्धुलि जिल्लाको चुरेको केहि भाग अरु जिल्लाको तुलनामा समस्या ग्रस्त छ कि जस्तो भान हुन्छ । कारण दर्शय हे. वन फडानि भएको तथा ६४९६ हे. को वन क्षेत्रको हैसियतमा कर्मि आएको आकडाले देखाउँछ । सन्तोष मान्नु पर्ने कुरा चाहिँ के छ भने यहि जिल्लाको चुरेको अर्को भागमा चाहिँ ६४७८ हे. क्षेत्रमा वन जंगलको हैसियत बढेको पाइएको छ भने ८२३० हे. क्षेत्रमा त नयाँ वन बनेको समेत पाइयो ।

Forest cover change in Community Forests of Churia - Sindhuli District

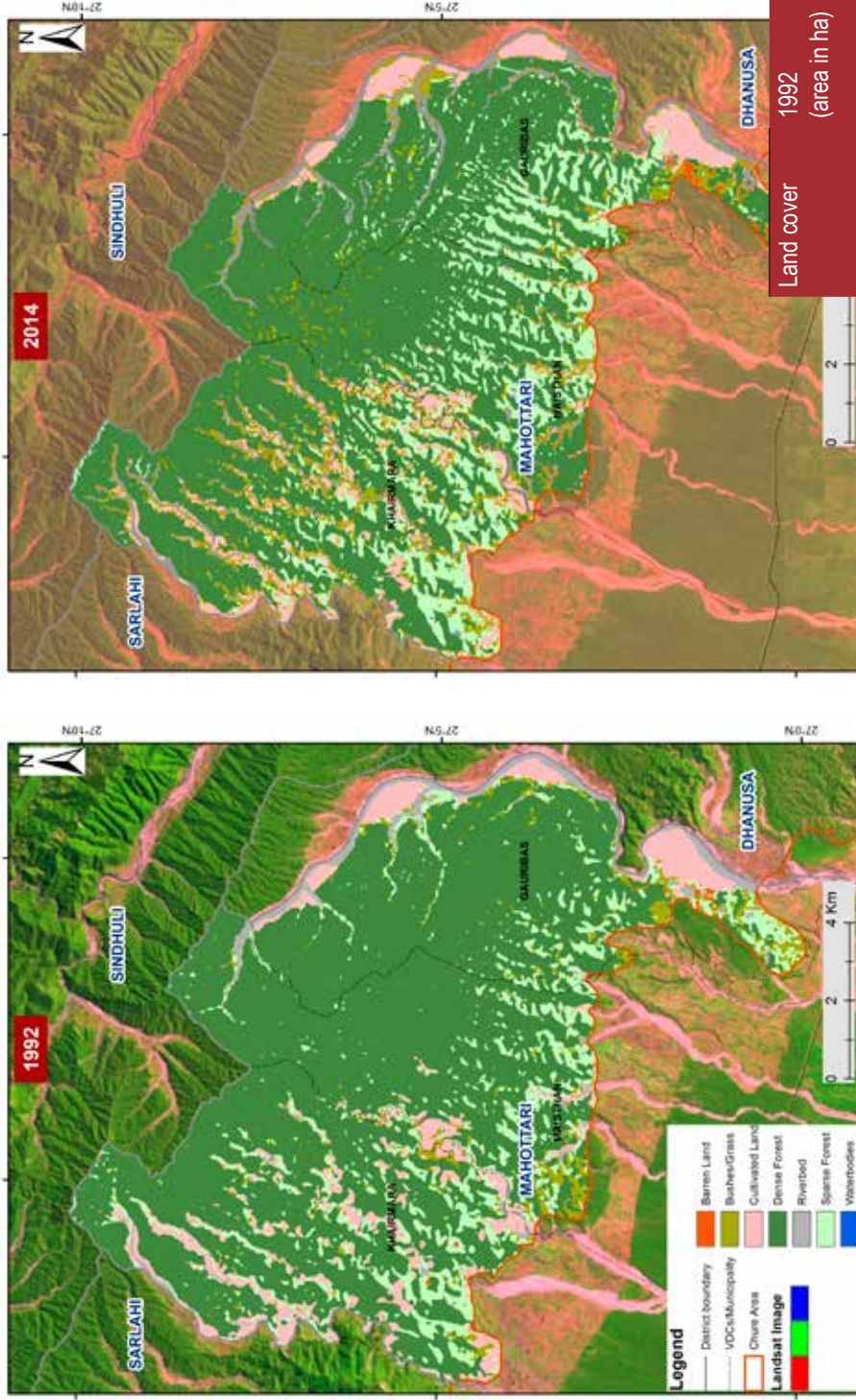


Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	351.2	920.32	1082.44	1393.56	12255.68	0
Outside CF (Area in ha)	7984.44	5575.76	7148.08	5084.8	68908.44	31626.12



८११६४ हे. वन क्षेत्रमा २२ वर्षको अवधिमा केहि पनि परिवर्तन नआउनुलाई के भन्ने ? वन व्यवस्थापनको अभाव ! जंगल त विग्रेन तर सप्रिन पनि त सप्रिएन छ नी !

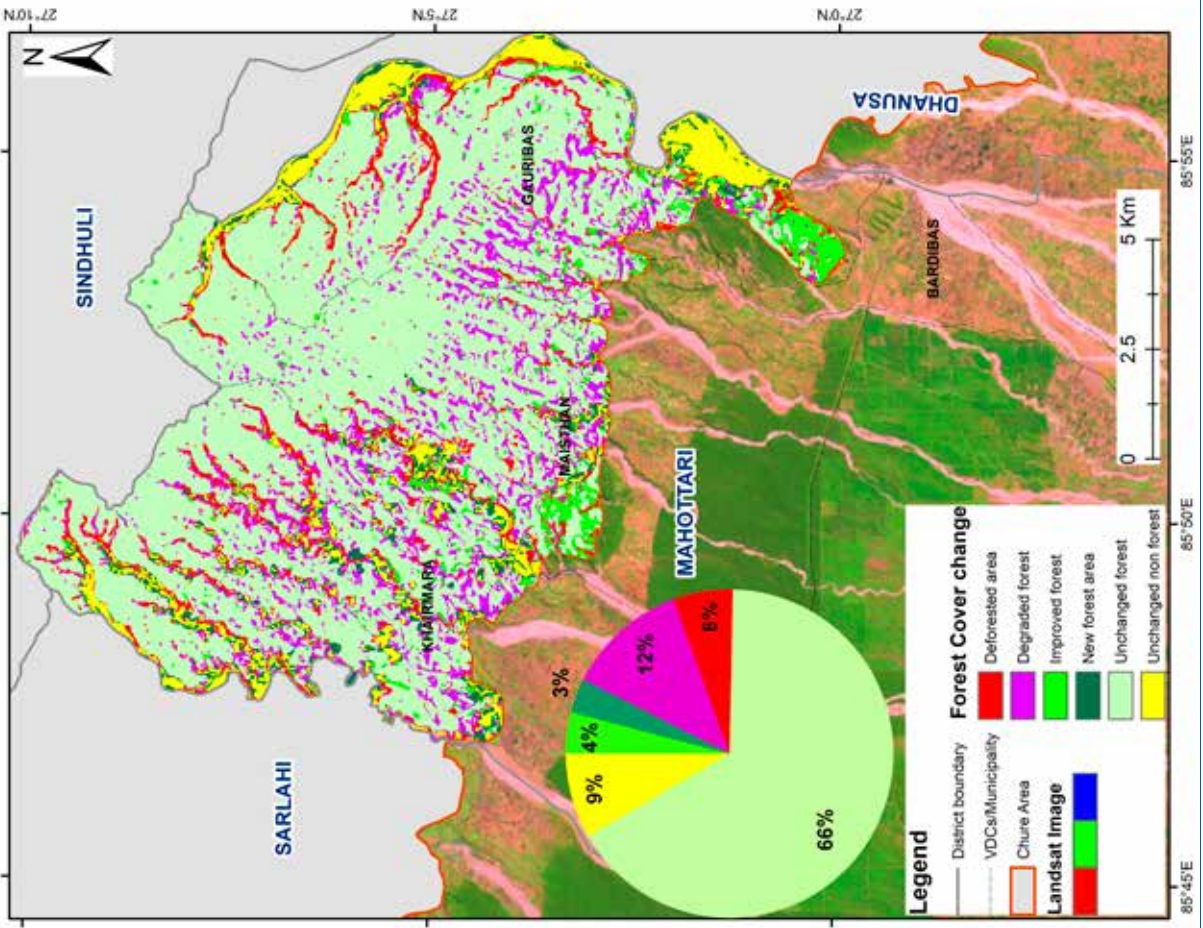
Land cover change in Churia - Mahottari District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	10604.76	72.31	9315.20	63.25	-0.6
Sparse Forest	1827.08	12.46	2179.80	14.80	0.8
Bushes/Grass	508.32	3.47	1128.12	7.66	3.7
Cultivated Land	1200.36	8.19	1042.20	7.08	-0.6
Barren Land	19.24	0.13	119.44	0.81	8.7
Riverbed	505.44	3.45	942.08	6.40	2.9
Waterbodies	0.16	0.00	0.32	0.00	3.2

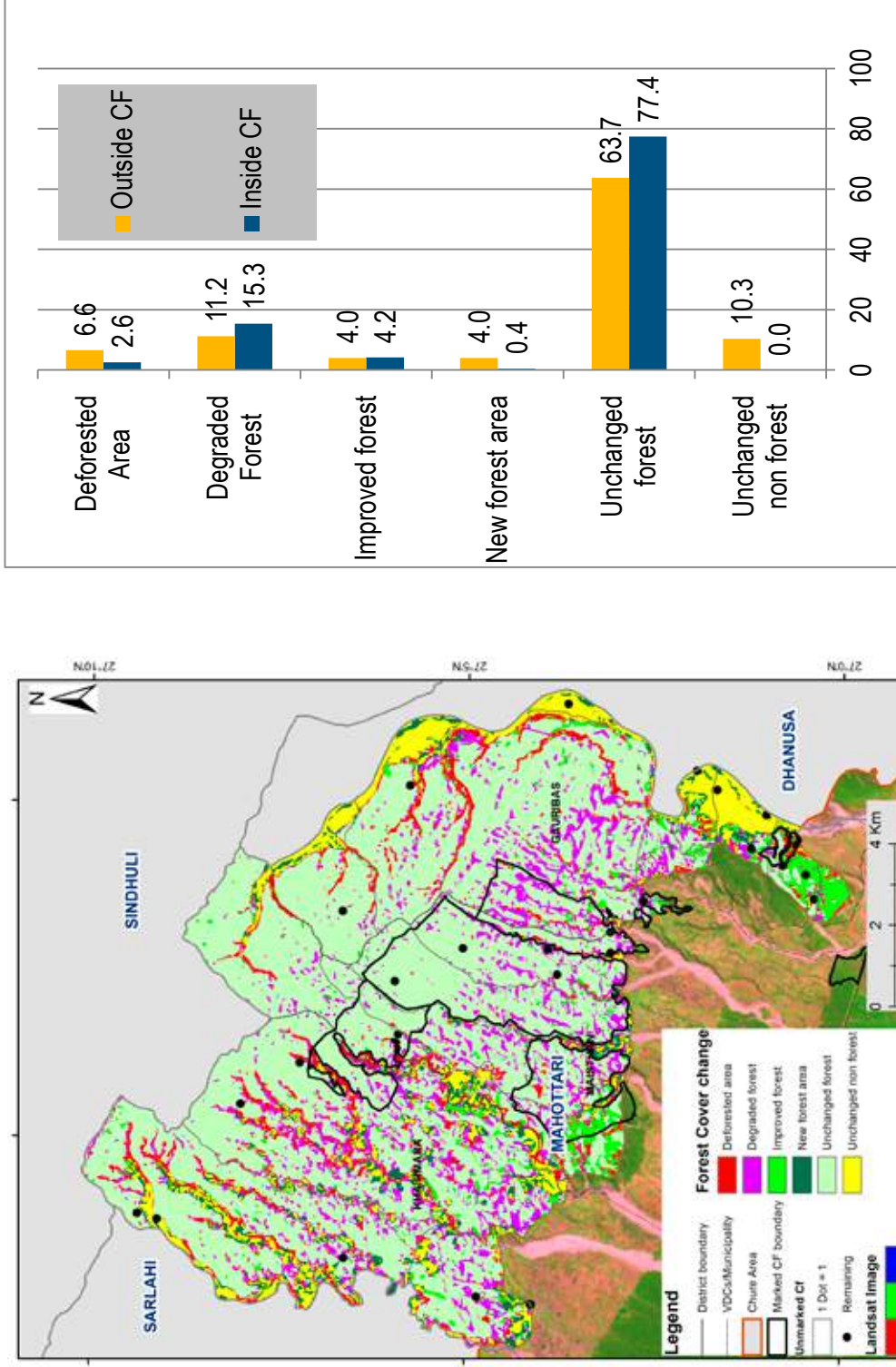
महोत्तरि जिल्लाको चुरे क्षेत्र समस्याग्रस्त छ जस्तो छ । प्रति वर्ष ८.७% को दरले बाँझो जग्गा बढ्नु तथा २.९ % का दरले बगरको क्षेत्रफल बढ्नुलाई शुभ संकेत मान्न सकिन्न ।

Forest cover change in Churia - Mahottari District



चुरेको करिब २६०० हे. को वन क्षेत्रको हैसियतमा हास आउनु तर केवल ११०० हे. क्षेत्रमा मात्र वनमा सुधार हुनुले महोत्तरिको चुरे क्षेत्रमा वन जंगलको संरक्षण गर्न थप पहलको आवश्यकता देखिन्छ ।

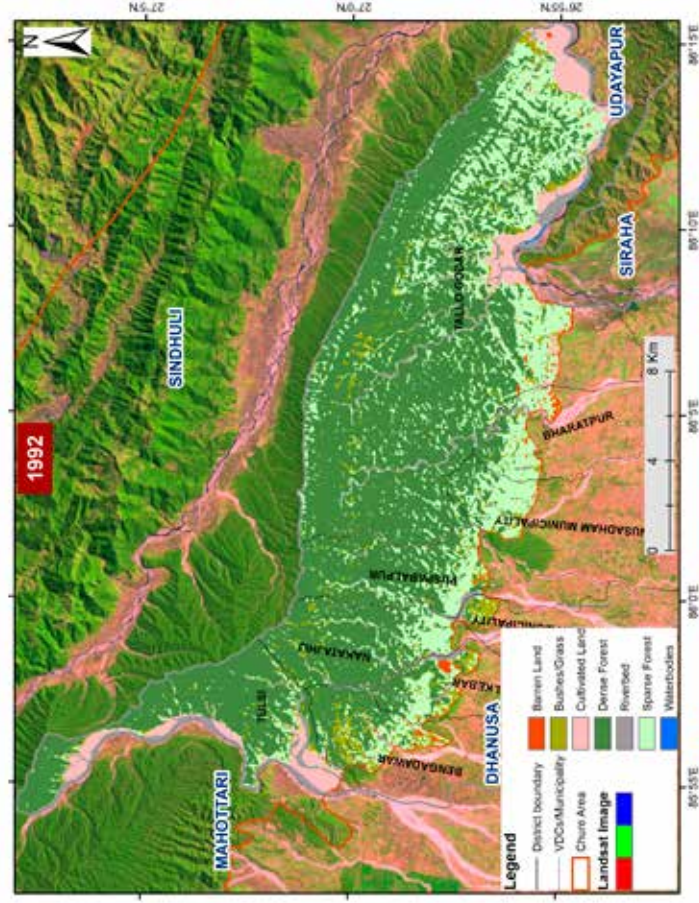
Forest cover change in Community Forest of Churia - Mahottari District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	70.68	419.16	115.56	11.08	2116.52	0
Outside CF (Area in ha)	791.92	1339.36	481.2	481.56	7599.36	1229.72

अचम्म लाग्दो कुरा त के छ भने महोत्तरि जिल्लाको चुरेका सामुदायिक वन भित्रको वनको हैसियत बाहिरको जंगलको भन्दा खराब भएको पाइएको छ ।

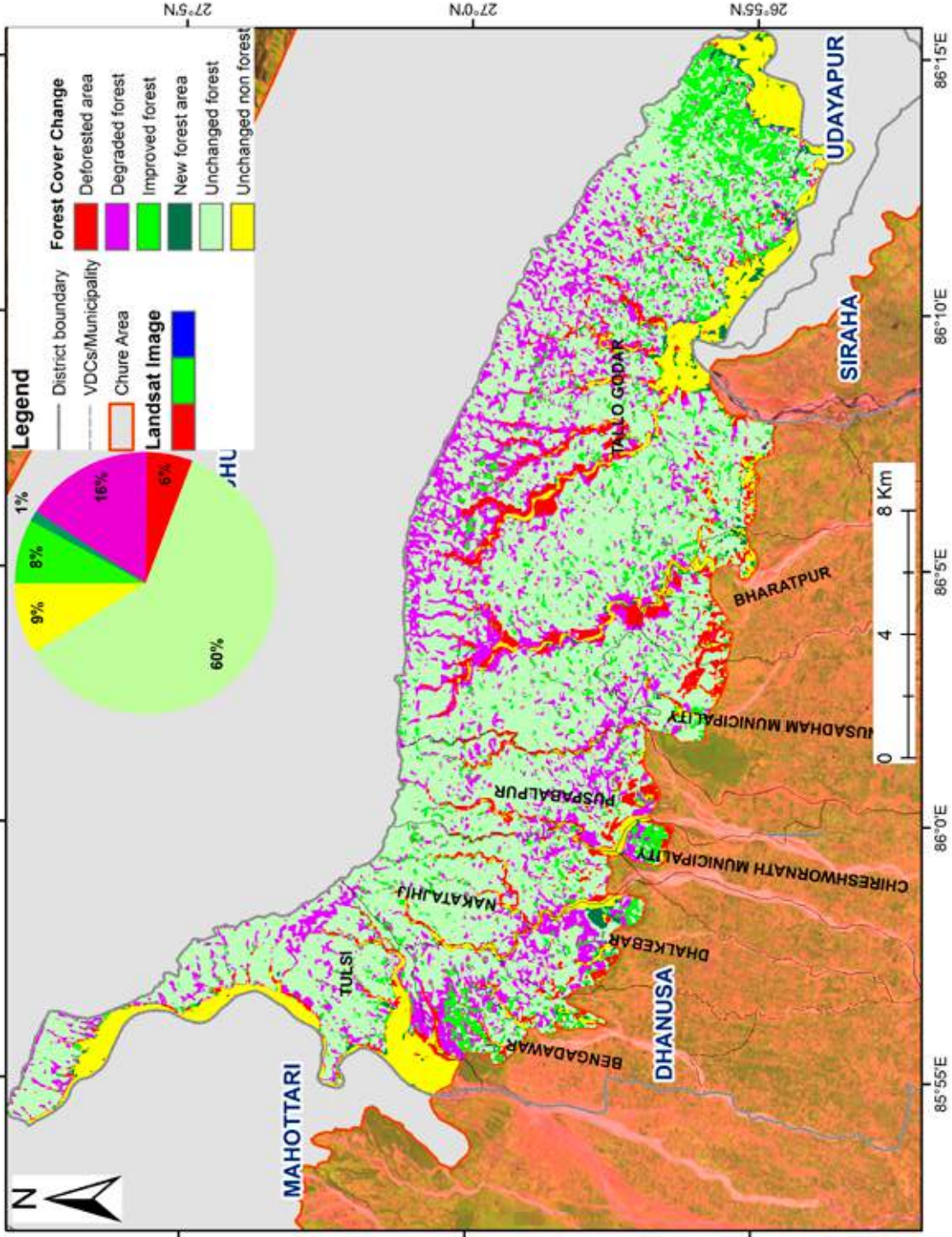
Land cover change in Churia - Dhanusha District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	18553.52	61.38	14936.56	49.39	-1.0
Sparse Forest	7185.44	23.77	10087.68	33.35	1.6
Bushes/Grass	1426.00	4.72	849.32	2.81	-2.3
Cultivated Land	1405.28	4.65	1808.96	5.98	1.2
Barren Land	178.84	0.59	366.36	1.21	3.3
Riverbed	1423.88	4.71	2177.84	7.20	2.0
Waterbodies	53.00	0.18	18.28	0.06	-4.7

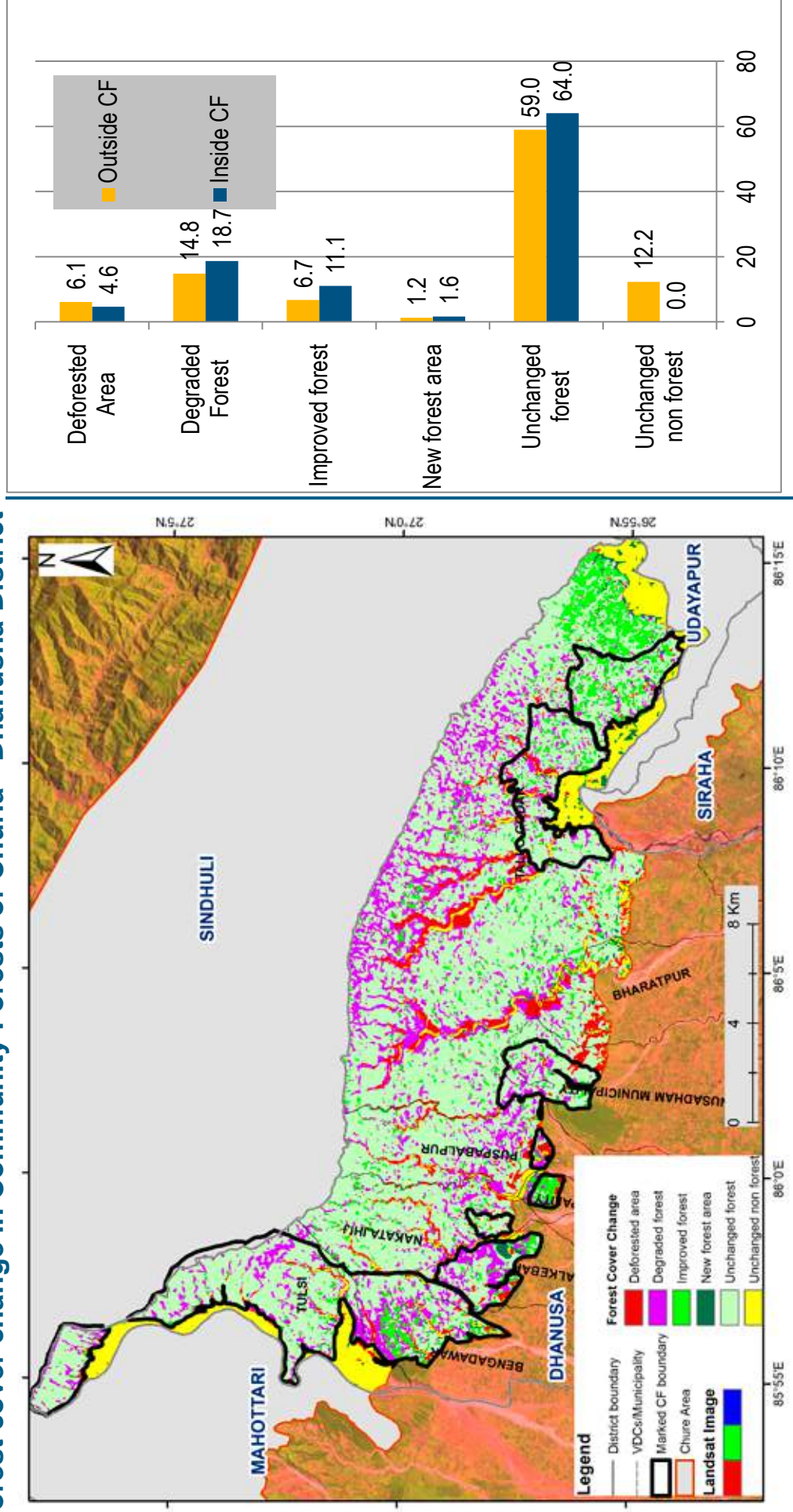
धनुषा जिल्लाको चुरेको स्थिति पनि दिनानुदिन खस्केको दे
खिन्छ । कारण घना वनको हैसियत घट्नु, बुट्यान क्षेत्र
बाँझो जग्गामा बदलिनु तथा बगर बढ्नु चिन्ताको विषय
हो ।

Forest cover change in Churia - Dhanusha District



करिब ६७०० हे. क्षेत्रको वनको हैसियत हास आउनु तर केवल २८०० हे. क्षेत्रको वन जंगलको हैसियतमा मात्र सुधार आउनुले समष्टीगत रुपमा धनुषा जिल्लाको चुरेको स्थिति खराब छ भन्ने देखाउँछ ।

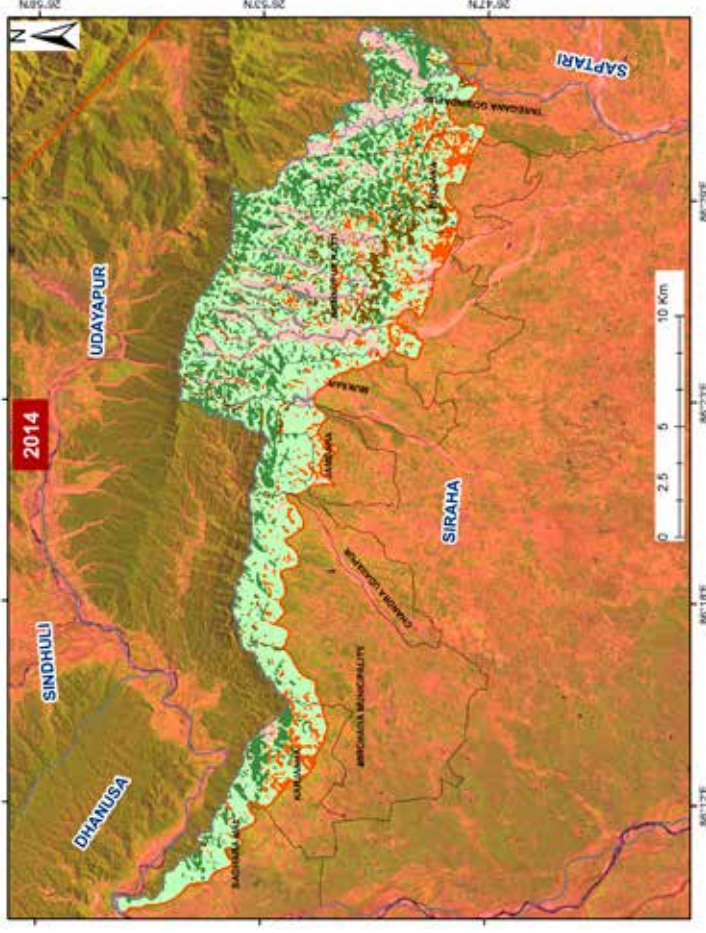
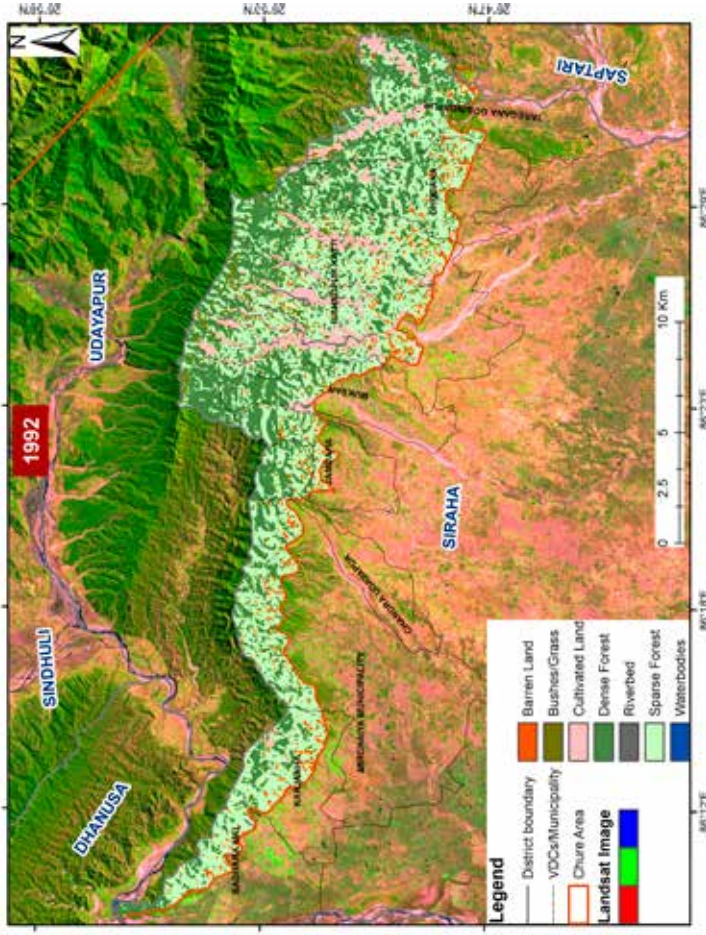
Forest cover change in Community Forests of Churia - Dhanusha District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	391.84	1586.48	939.84	138.96	5439.8	0
Outside CF (Area in ha)	1314.44	3216.08	1451.6	259.28	12783.76	2649.76

महोत्तरि जिल्लाको जस्तै धनुषा जिल्लाका चुरे क्षेत्रका सामुदायिक वनको हैसियत बाहिरका वन जस्तै सक्तीएको पाइयो भने केहि क्षेत्रका सामुदायिक वन राम्रा पनि देखिए ।

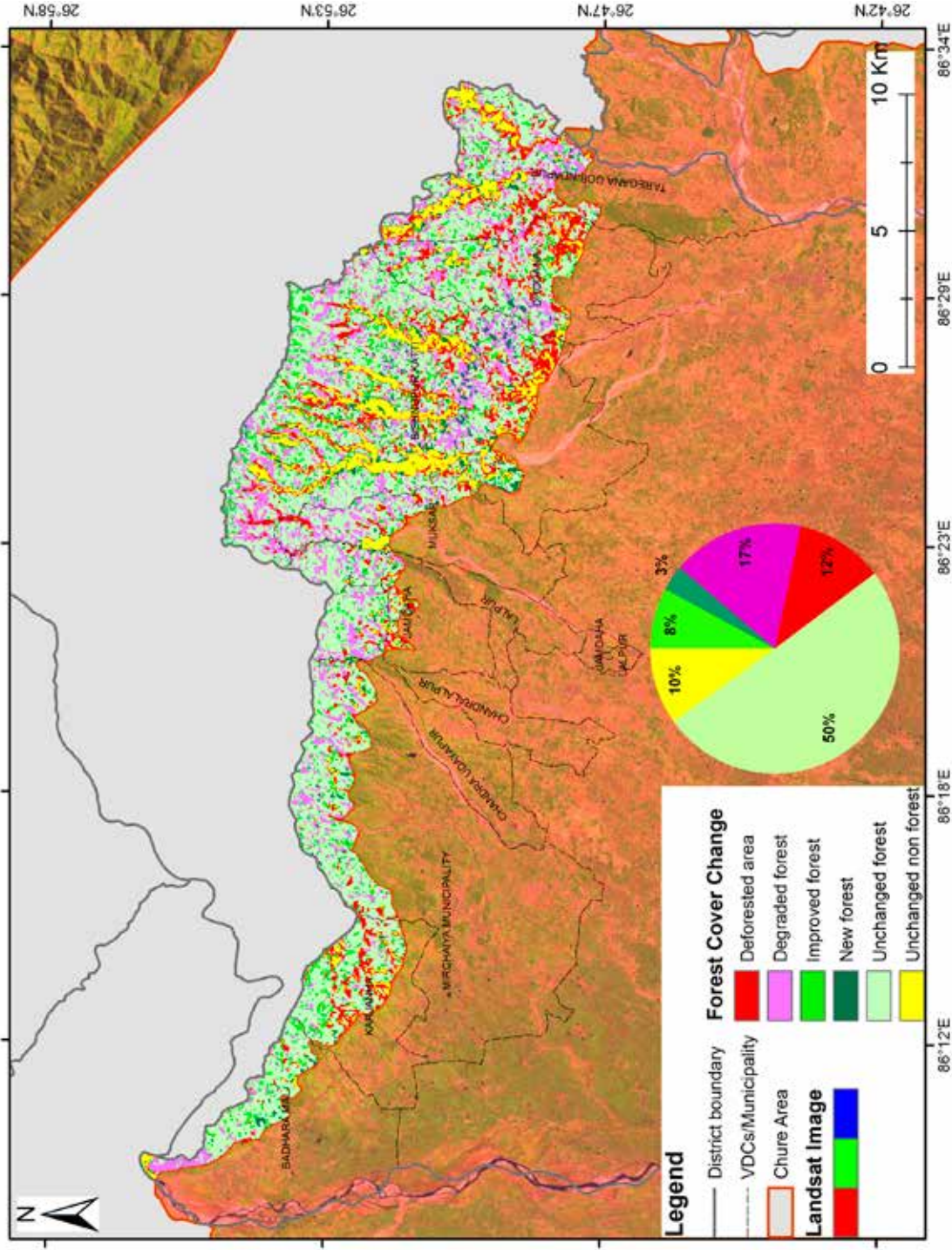
Land cover change in Churia - Siraha District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	5888.56	31.72	3718.80	20.05	-2.1
Sparse Forest	8963.52	48.29	10007.40	53.96	0.5
Bushes/Grass	1221.76	6.58	846.32	4.56	-1.7
Cultivated Land	1528.04	8.23	1440.20	7.77	-0.3
Barren Land	619.96	3.34	1755.04	9.46	4.8
Riverbed	336.40	1.81	772.96	4.17	3.9
Waterbodies	4.96	0.03	5.64	0.03	0.6

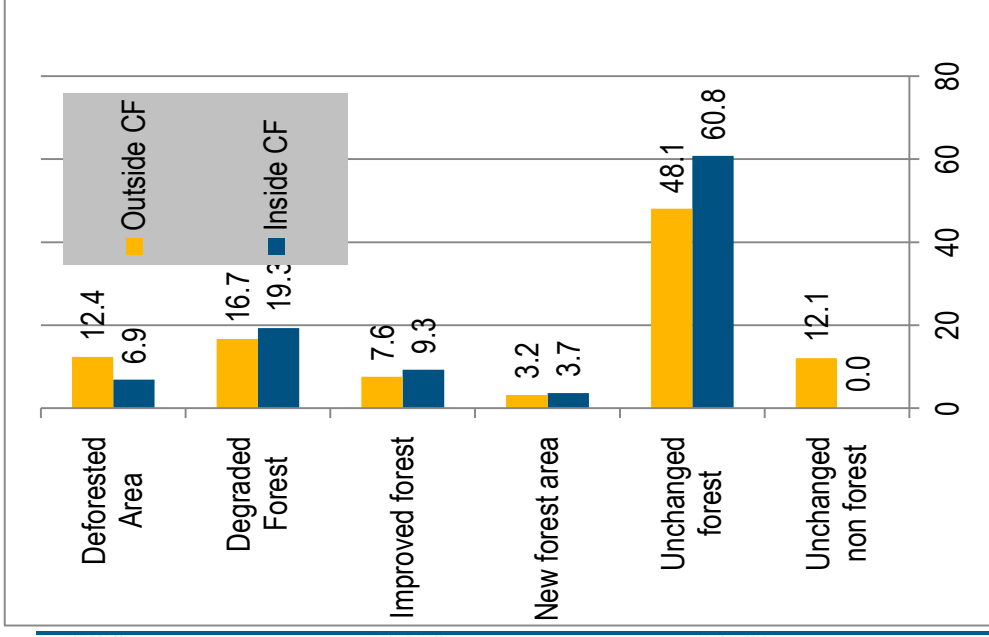
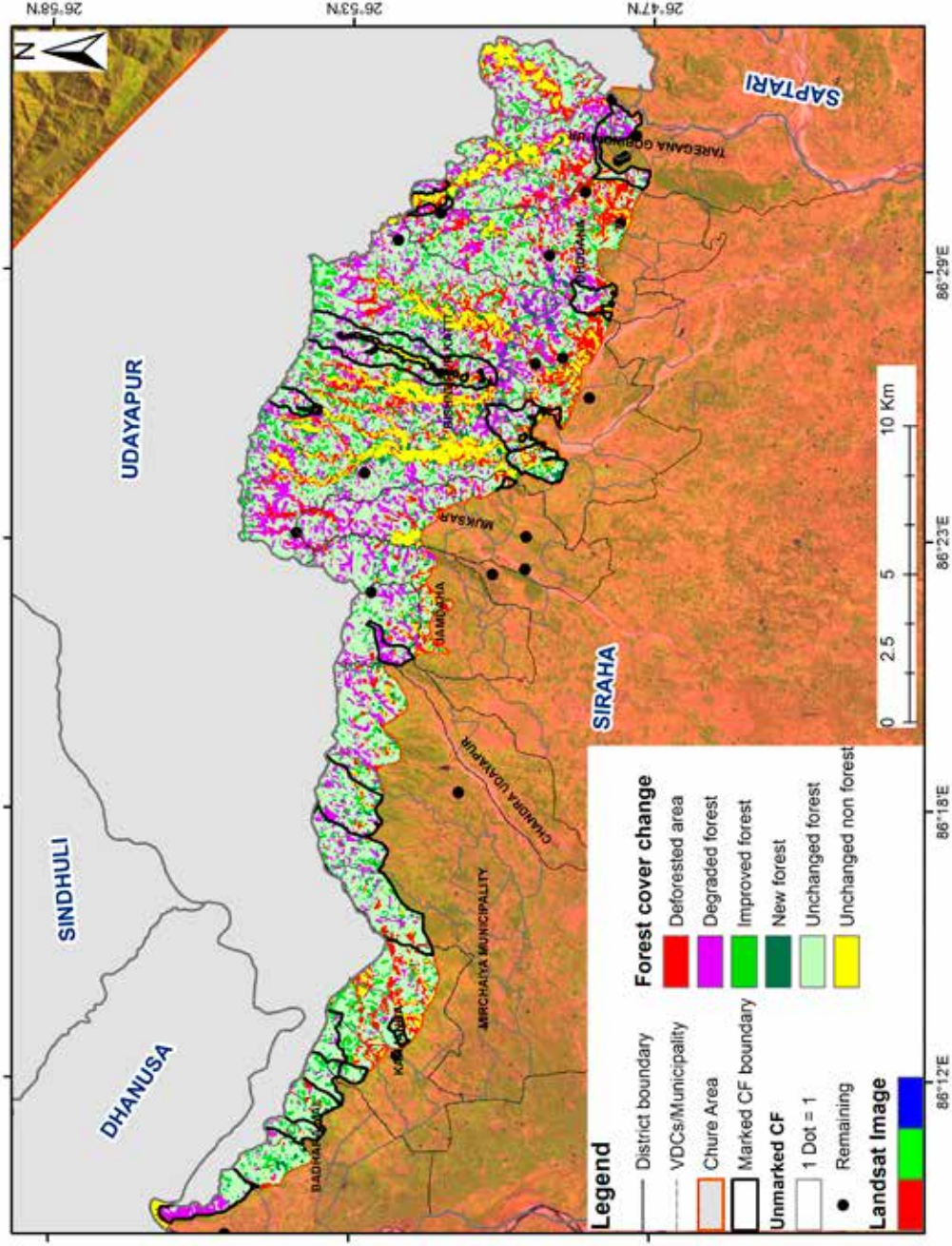
सिराहा जिल्लाको चुरे क्षेत्र पनि महोत्तरि र धनुषा जिल्ला भै खस्कीएको देखियो । घना जंगल फाटफुटे जंगलमा बदलिनु, बुट्यान भएका वन क्षेत्र बाँझो जग्गामा परिणत हुनु तथा बगरको क्षेत्रफल २२ वर्षमा झण्डै दोब्बर हुनु चिन्ताको विषय हो ।

Forest cover change in Churia - Siraha District



५२०० हे. क्षेत्रको वन जंगलको हैसियत खस्कनु तर केवल २००० हे. क्षेत्रमा मात्र सुधार देखिनुले जिल्लाको चुरे क्षेत्रको समष्टीगत चित्र खस्केकै देखिन्छ ।

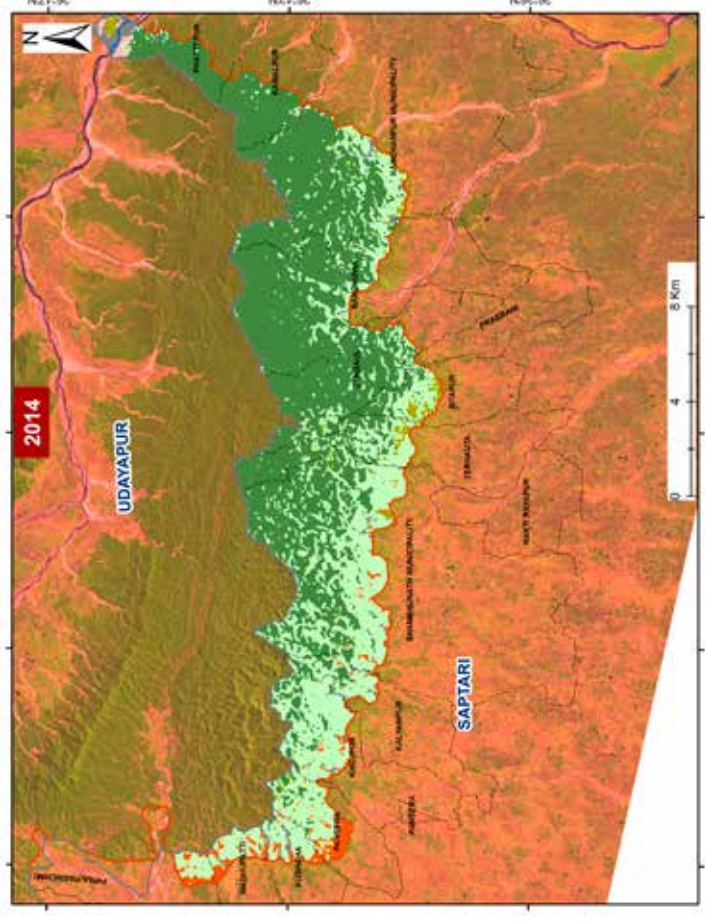
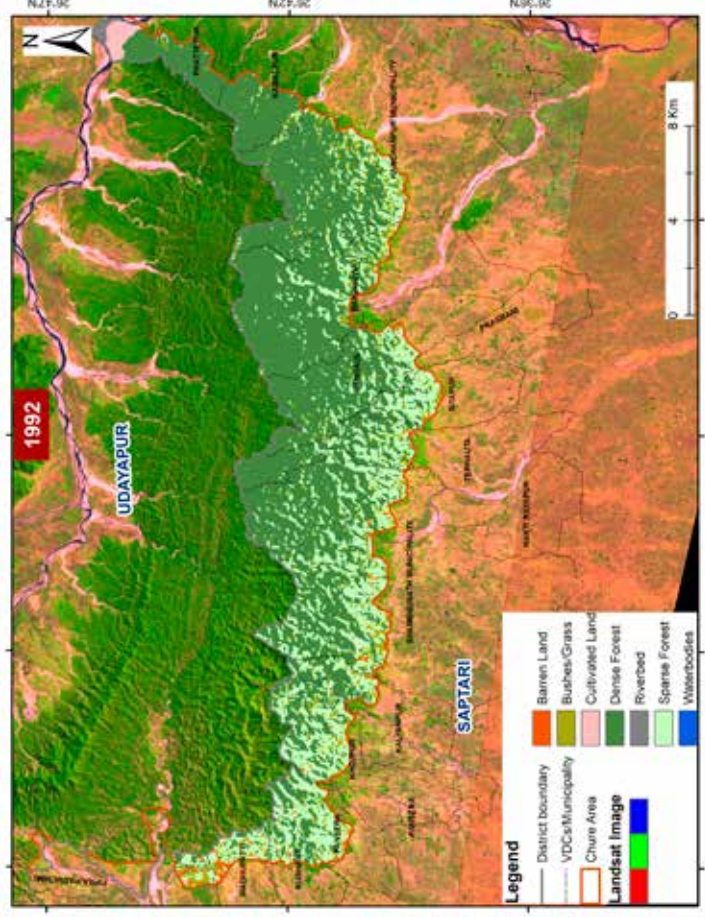
Forest cover change in Community Forest of Churia - Siraha District



अचम्म लाग्दो कुरा त्यतिका वर्ष जर्मन सहयोगमा संचालित कार्यक्रमको बाबजुत सिराहा जिल्लाका सामुदायिक वन भित्रको वनको हैसियत बाहिरको भन्दा नराम्रो हुनुलाई के भन्ने ? कमसेकम सामुदायिक वन भित्र वन फडानिको क्षेत्रफल चाँहि बाहिरको भन्दा कम भएकाले सन्तोष मान्न सकिने स्थिति छ ।

Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	228.84	643.92	310.8	123.24	2026.44	0
Outside CF (Area in ha)	1882.52	2528.76	1150.6	486.36	7291.12	1834.04

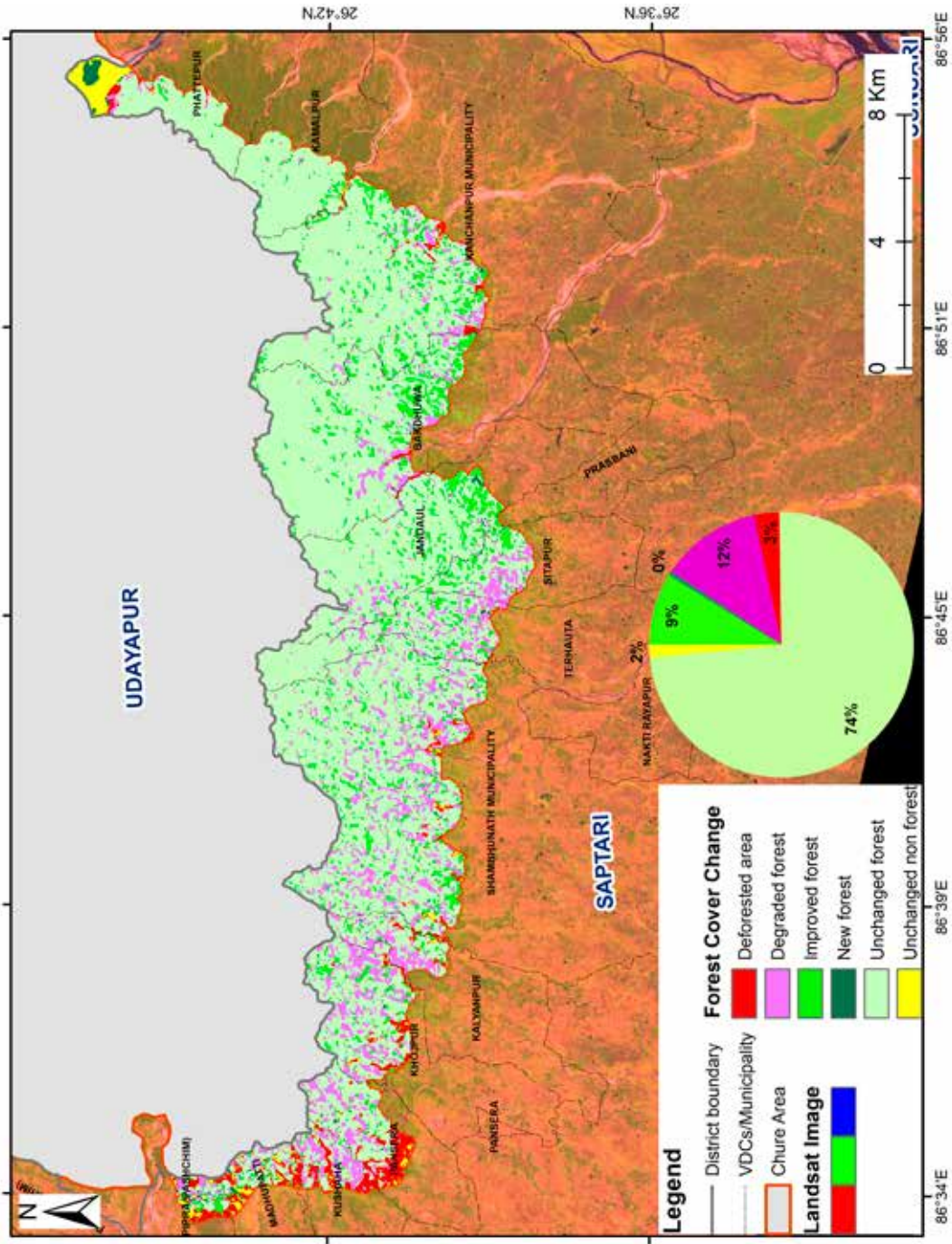
Land cover change in Churia - Saptari District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	11229.04	64.23	10145.60	58.05	-0.5
Sparse Forest	4910.92	28.09	6219.48	35.59	1.1
Bushes/Grass	967.48	5.53	300.96	1.72	-5.2
Cultivated Land	169.44	0.97	67.56	0.39	-4.1
Barren Land	128.84	0.74	425.88	2.44	5.6
Riverbed	65.04	0.37	304.24	1.74	7.3
Waterbodies	10.68	0.06	13.40	0.08	1.0

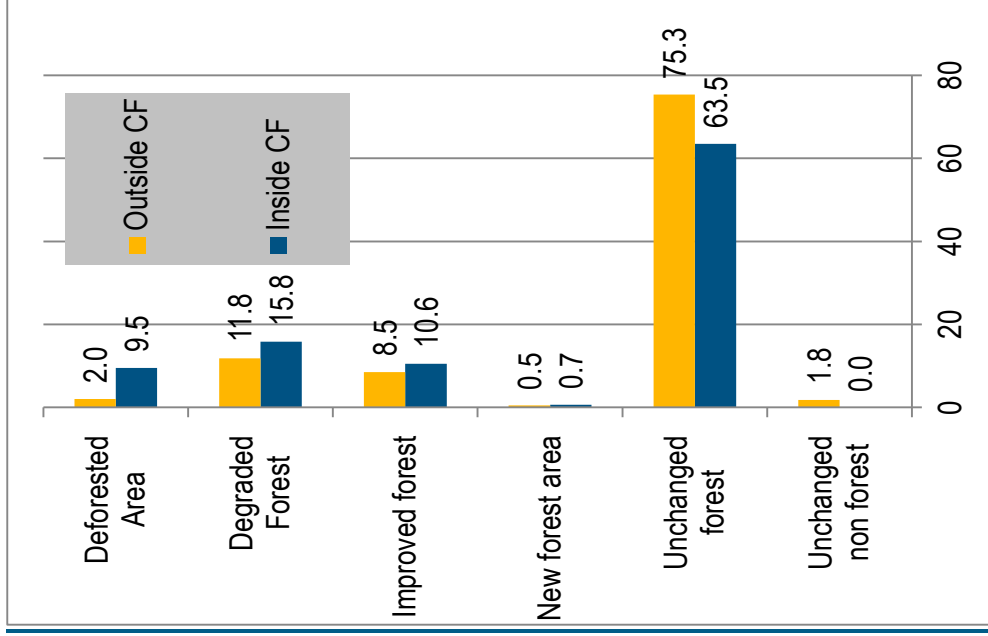
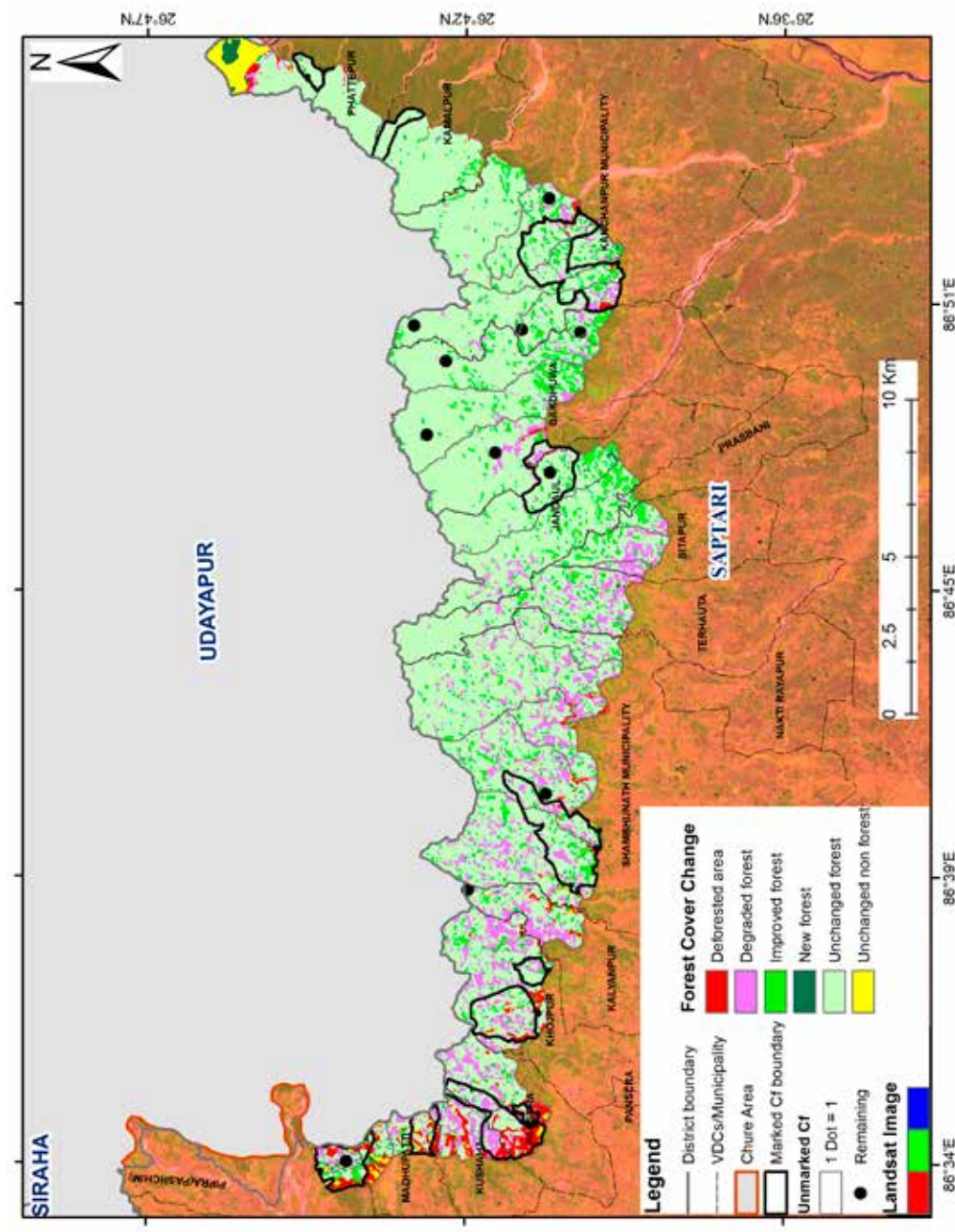
सप्तरी जिल्लाको चुरे पनि अत्यन्त समस्याग्रस्त देखिन्छ । प्रति वर्ष ५.२% ले भाडी वन बाँझो जगामा बदलिनु तथा बाँझो जग्गा क्रमसः बगरमा बदलिने क्रम जारी रहनु तथा प्रति वर्ष ७.३% ले बगर विस्तार हुनु र ४.९% का दरले खेत मासिनु अवश्य पनि चिन्ताको विषय हो ।

Forest cover change in Churia - Saptari District



सप्तरी जिल्लाको चुरे क्षेत्रमा करिब २७०० हे. वन क्षेत्रको हैसियतमा हास आएको छ । भने करिब १६०० हे. क्षेत्रमा मात्र वन जंगल सप्रिएको पाइएको छ ।

Forest cover change in Community Forests of Churia - Saptari District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	225.52	375.28	250.4	15.44	1506.68	0
Outside CF (Area in ha)	303.32	1786.08	1284.52	74.28	11354.68	271.52

सप्तरी जिल्लाका चुरे क्षेत्रमा रहेका सामुदायिक वनको हैसियत राम्रो देखिएको कारण पत्ता लगाउनु पर्ने भयो ।

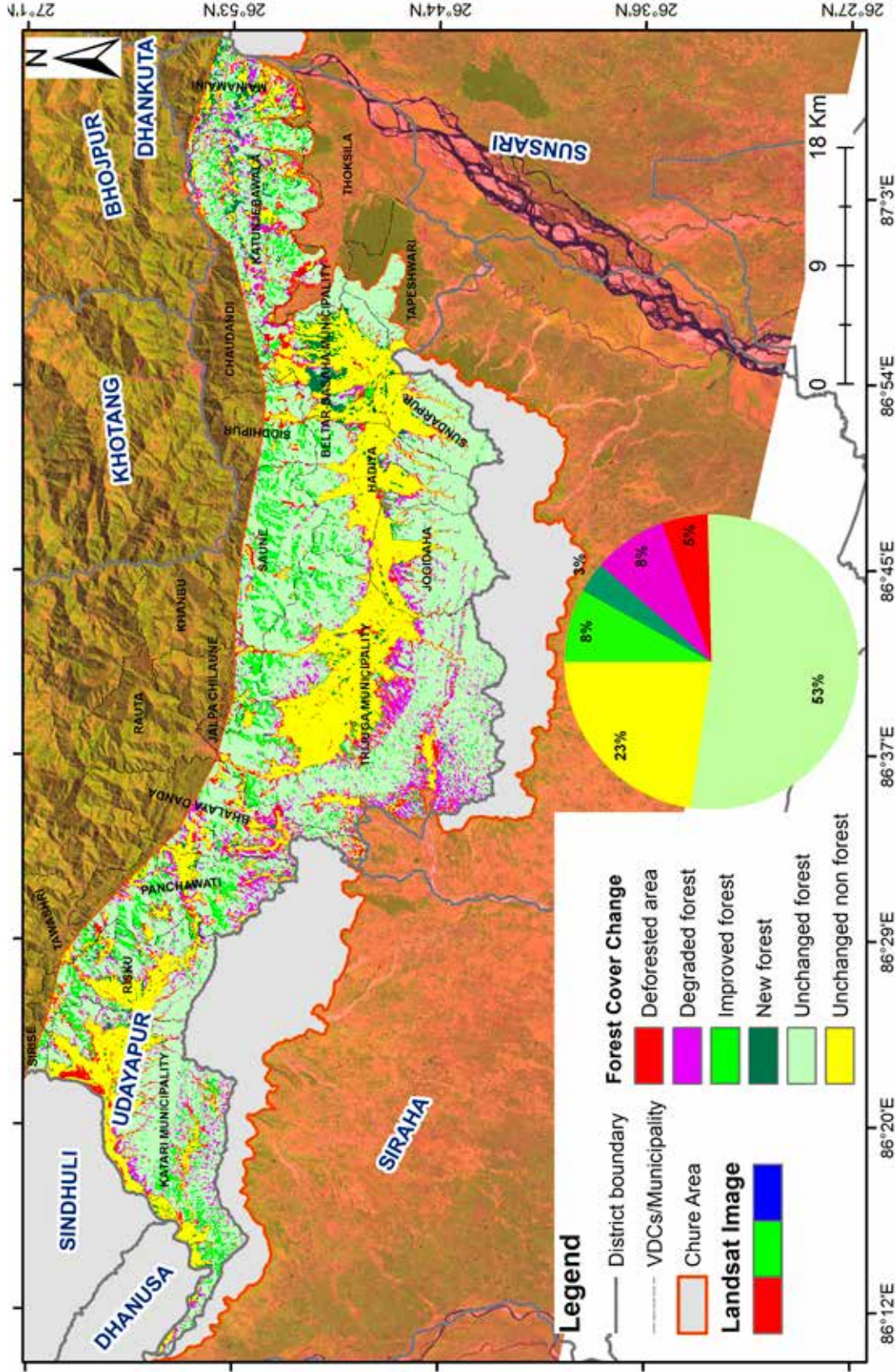
Land cover change in Churia - Udayapur District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	62971.64	53.53	61232.04	52.09	-0.1
Sparse Forest	20596.72	17.51	21270.20	18.10	0.1
Bushes/Grass	3342.32	2.84	2394.48	2.04	-1.5
Cultivated Land	24889.52	21.16	24603.68	20.93	-0.1
Barren Land	403.36	0.34	865.96	0.74	3.5
Riverbed	4868.80	4.14	6979.92	5.94	1.7
Waterbodies	555.76	0.47	195.20	0.17	-4.6

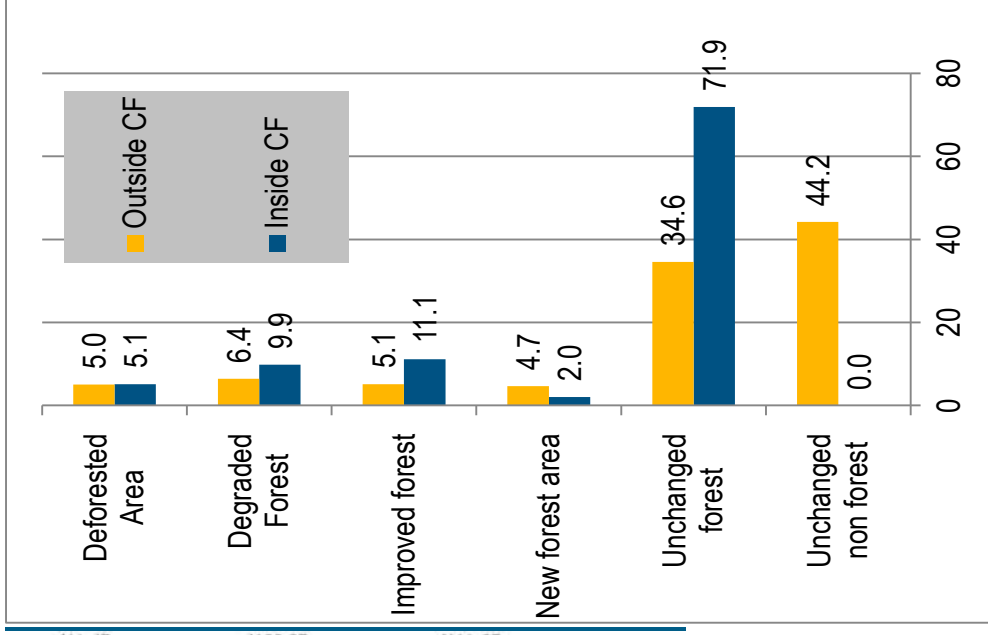
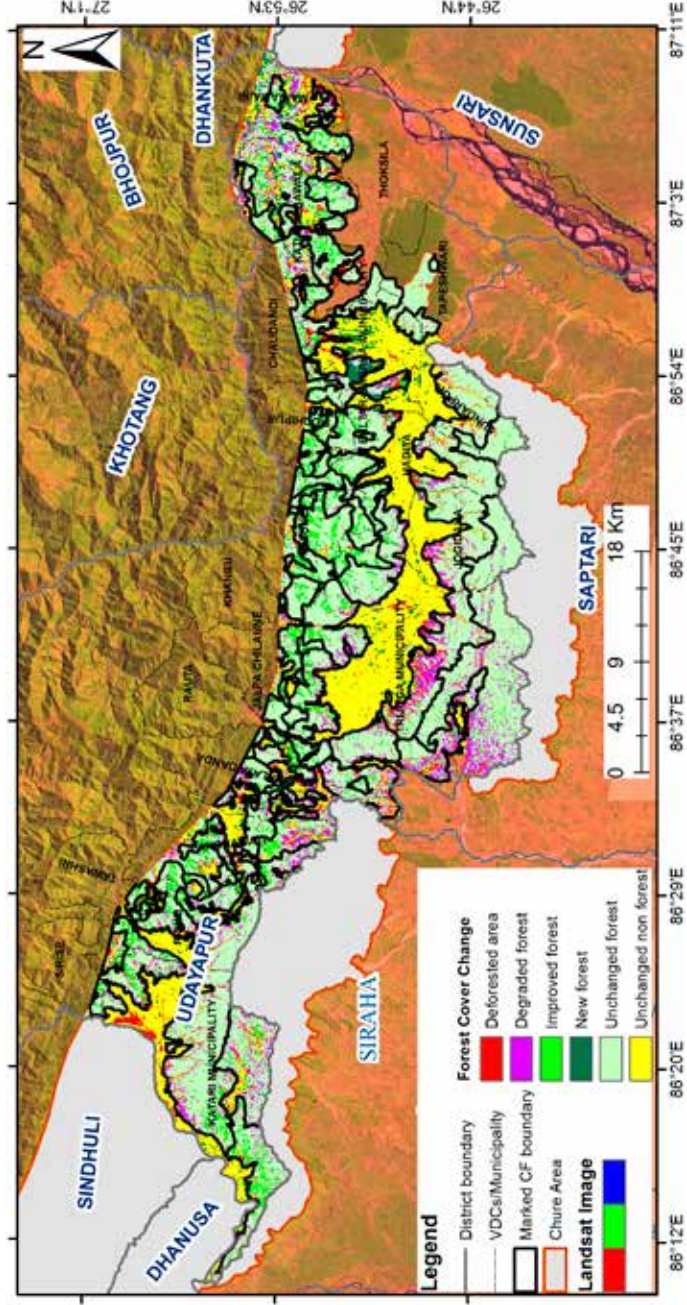
सिराहा, सप्तरी जस्तै उदयपुर जिल्लाको चुरे क्षेत्रको स्थिति पनि समष्टीगत रूपमा राम्रो देखिएन । प्रति वर्ष भाडी वन क्रमशः बाँझो जग्गा बढलिन र भएको खेत बगरमा बदलिन अवश्य पनि चिन्ताको विषय हो । २२ वर्ष अगाडि ४०३ हे. मात्र क्षेत्रमा रहेको बाँझो जग्गा हाल आएर ८६५ हे. हुनु तथा बगरले ढाकेको क्षेत्र ४८६८ हे. बाट बढेर झण्डै ७००० हे. सम्म पुग्न अवश्य पनि सुखद कुरा होइन ।

Forest cover change in Churia - Udayapur District



उदयपुर जिल्लाको चुरेमा करिब १५००० हे. क्षेत्रको वन जंगलको हैसियतमा हास देखियो भने केवल १२००० हे. जति क्षेत्रमा मात्र हैसियतमा सुधार देखियो ।

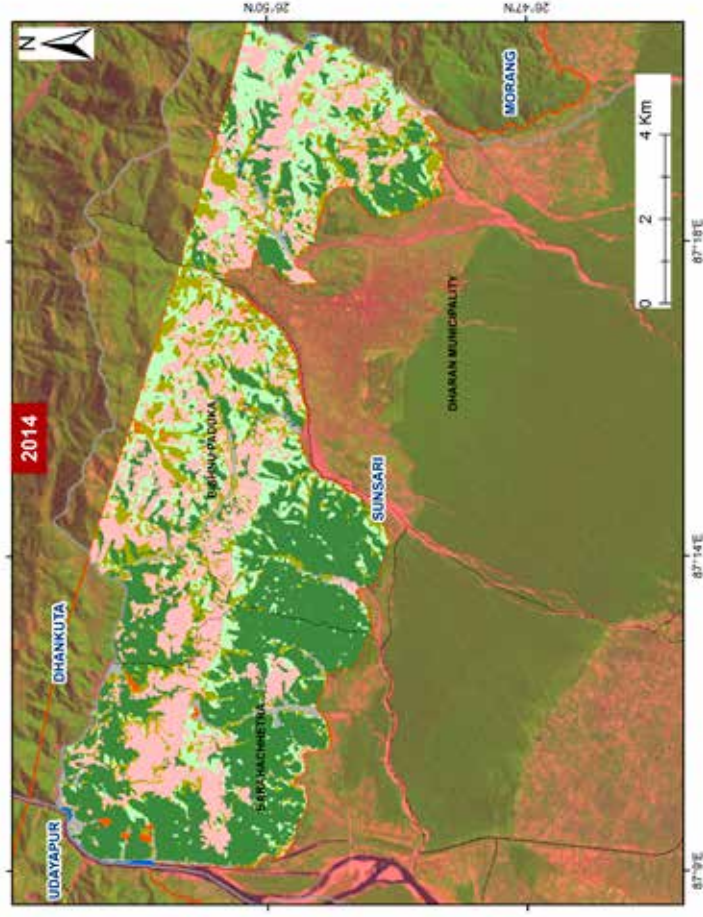
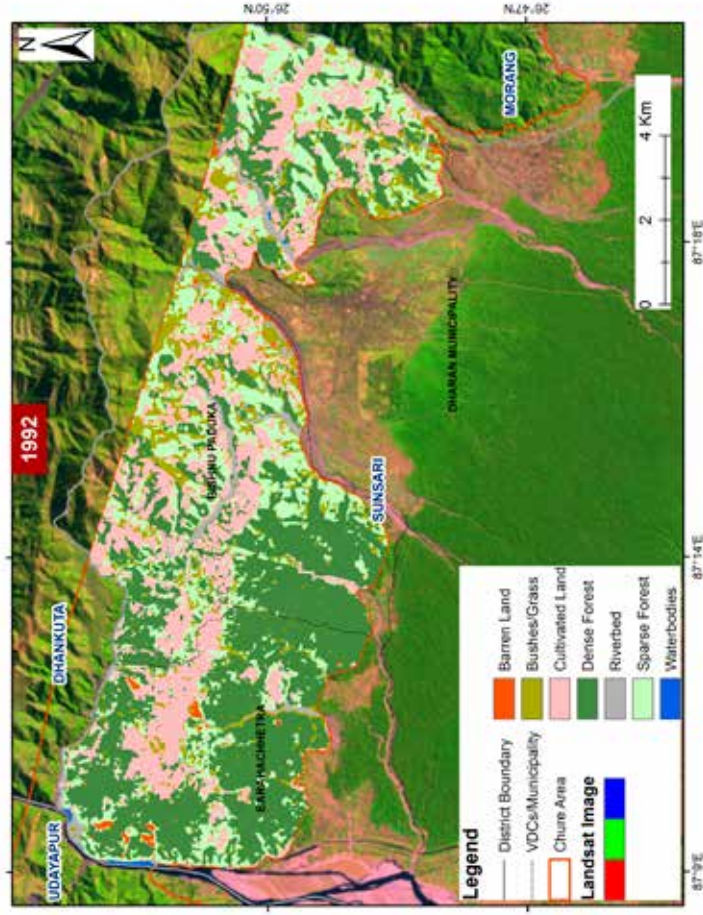
Forest cover change in Community Forest of Churia - Udayapur District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	2916.08	5635.48	6371.16	1159.64	41079.64	0
Outside CF (Area in ha)	3036.2	3880.16	3084.04	2835.92	20882.44	26683.88

उदयपुर जिल्लाको चुरे क्षेत्रका सामुदायिक वन बाहिरका वन भन्दा खासै फरक देखिएनन् । बरु केहि सामुदायिक वनको हैसियतमा बाहिरका वन जंगलको तलनामा बढी मात्रामा हास आएको पो पाइयो । सन्तोष मान्ने एक मात्र कुरा के पाइयो भने सामुदायिक वनको ११% क्षेत्रमा वनको हैसियतमा सुधार भएको देखियो भने सामुदायिक वन बाहिरका जंगलको यो क्षेत्रफल केबल ५% मात्र पाइयो । सामुदायिक वनको ७१% भागमा न सुधार न विगार केहि पनि देखिएन ।

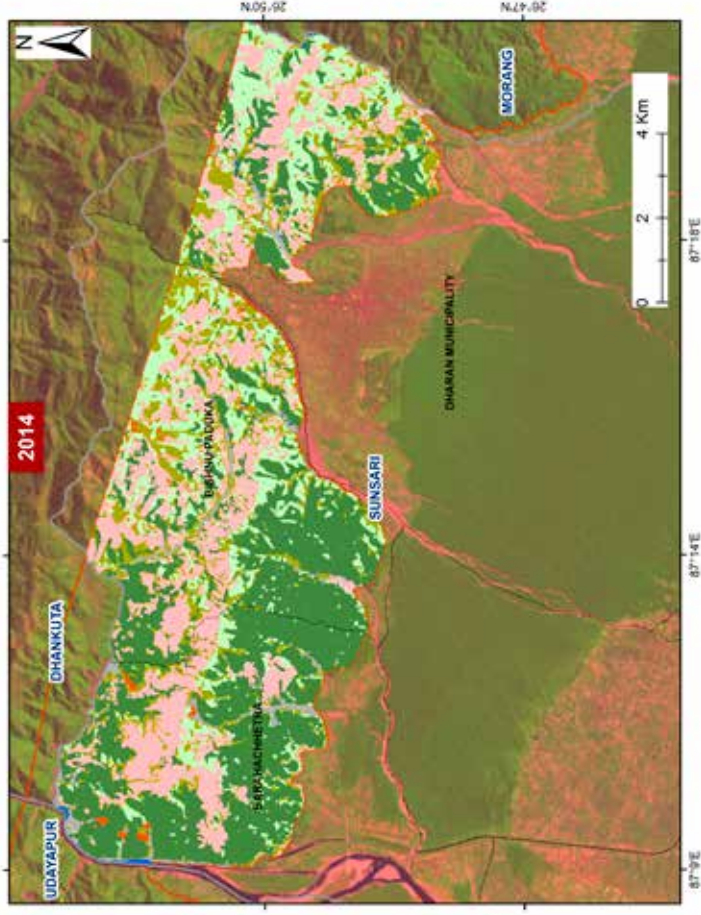
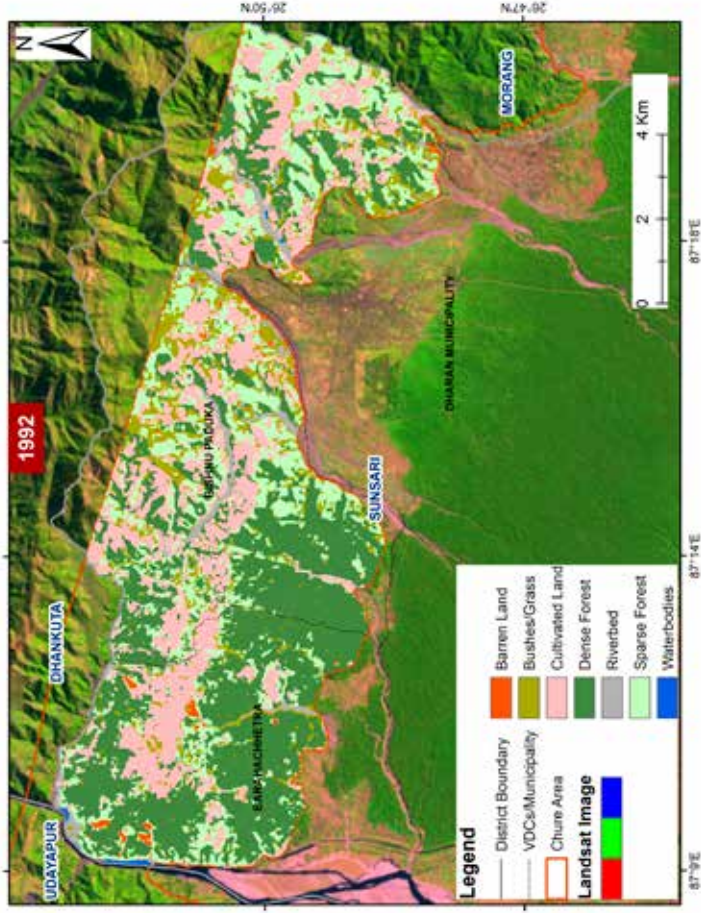
Land cover change in Churia - Sunsari District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	3777.72	41.11	3587.08	38.97	-0.2
Sparse Forest	2076.72	22.60	1802.72	19.58	-0.6
Bushes/Grass	887.96	9.66	1247.00	13.55	1.6
Cultivated Land	2080.76	22.64	2256.80	24.52	0.4
Barren Land	66.08	0.72	57.40	0.62	-0.6
Riverbed	283.12	3.08	230.24	2.50	-0.9
Waterbodies	17.40	0.19	23.52	0.26	1.4

अरु जिल्ला भन्दा फरक यस जिल्ला चुरेका बगर फैलिनको बदला खम्चीएको र खेति बढेको पाइयो । तराईका अरु जिल्लाको तुलनामा सुनसरी जिल्लाको चुरे क्षेत्रका केहि वन जंगलको हैसियतमा पनि सुधार आएको पाइयो । तर के हि घना र फाटफुटे जंगल घटने क्रम जारि भै यसको केहि मात्रा भाडी वन र केहि मात्रा खेतमा बदलिनु अवश्य पनि शुभ संकेत भने हैन (हेर्नुस् तथ्याक आँफै बोल्छ) ।

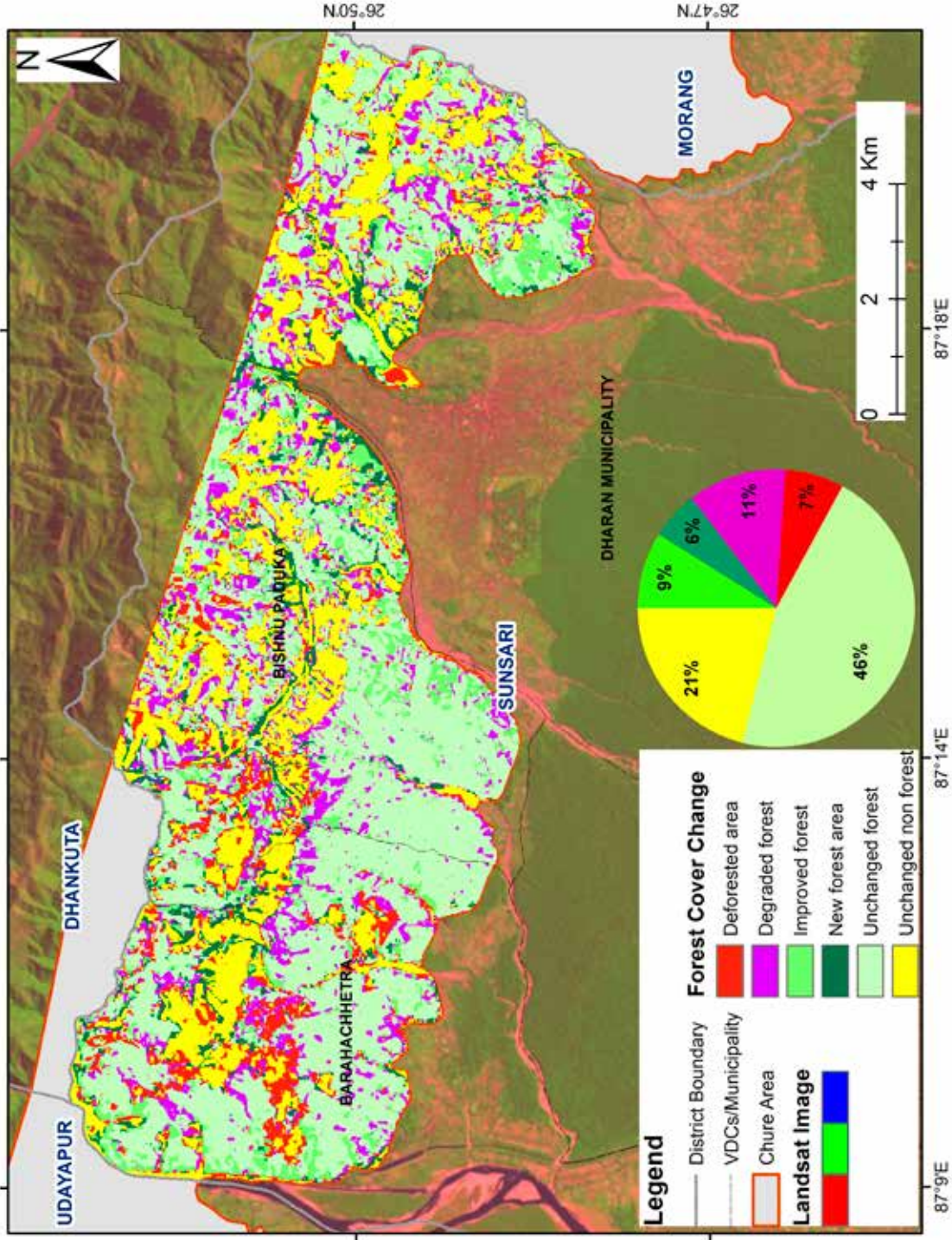
Land cover change in Churia - Sunsari District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	3777.72	41.11	3587.08	38.97	-0.2
Sparse Forest	2076.72	22.60	1802.72	19.58	-0.6
Bushes/Grass	887.96	9.66	1247.00	13.55	1.6
Cultivated Land	2080.76	22.64	2256.80	24.52	0.4
Barren Land	66.08	0.72	57.40	0.62	-0.6
Riverbed	283.12	3.08	230.24	2.50	-0.9
Waterbodies	17.40	0.19	23.52	0.26	1.4

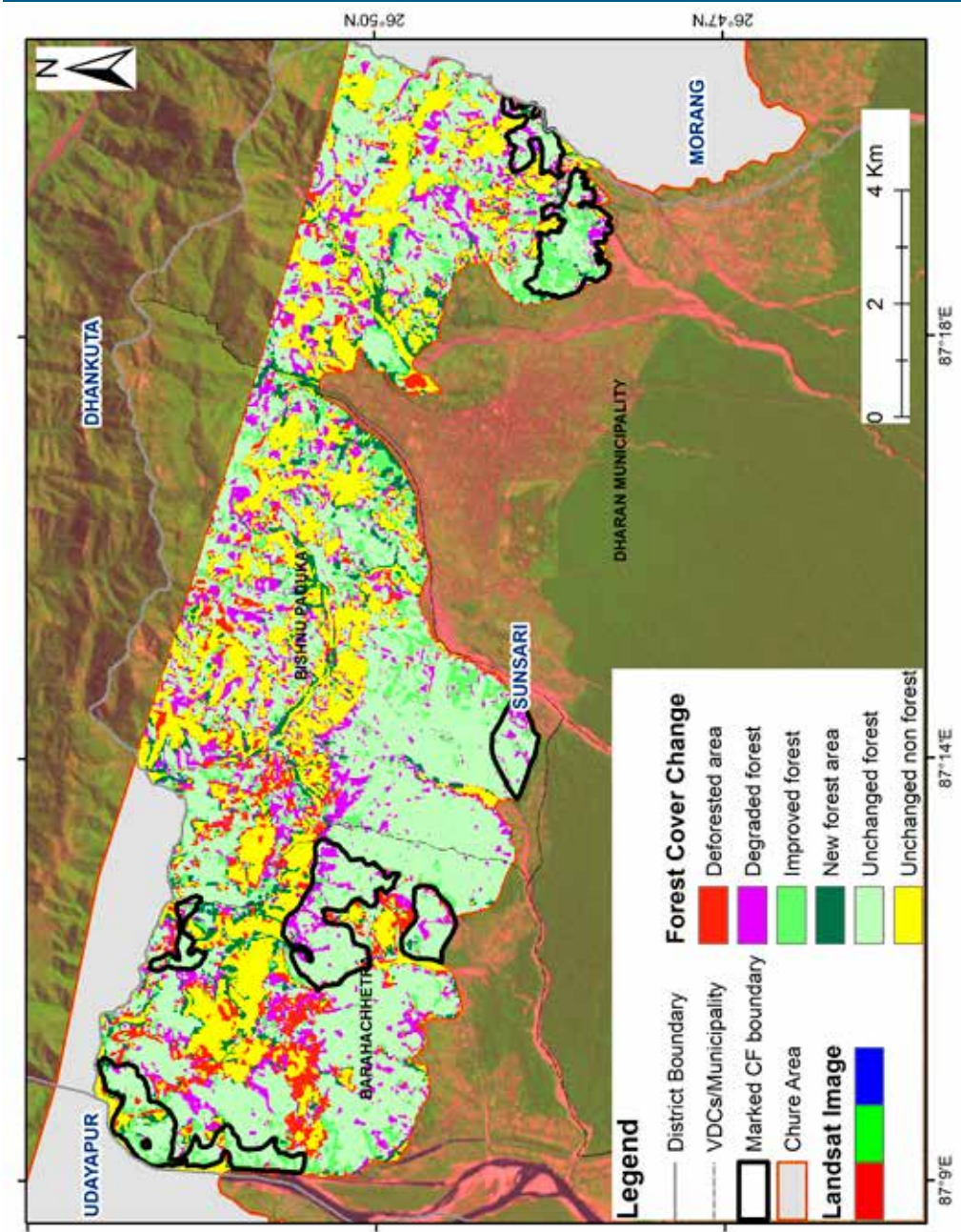
अरु जिल्ला भन्दा फरक यस जिल्ला चुरेका बगर फैलिनु को बदला खम्चीएको र खेति बढेको पाइयो । तराईका अरु जिल्लाको तुलनामा सुनसरी जिल्लाको चुरे क्षेत्रको केहि वन जंगलको हैसियतमा पनि सुधार आएको पाइयो । तर के हि घना र फाटफुटे जंगल घटने क्रम जारी भै यसको केहि मात्रा भाडी वन र केहि मात्रा खेतमा बदलिनु अवश्य पनि शुभ संकेत भने हैन (हेर्नस् तथ्याक आँफै बोल्छ) ।

Forest cover change in Churia - Sunsari District



२२ वर्षमा सुनसरी जिल्लाको चुरेमा आएको परिवर्तन यस प्रकार छ । वन फडानि क्षेत्र ६३३ हे. हैसियतमा ह्रास आएको क्षेत्र १०५३ हे. हैसियतमा बढेको क्षेत्र ८१७ हे. तथा नयाँ वन बढेको क्षेत्रफल ५१७ हे. ।

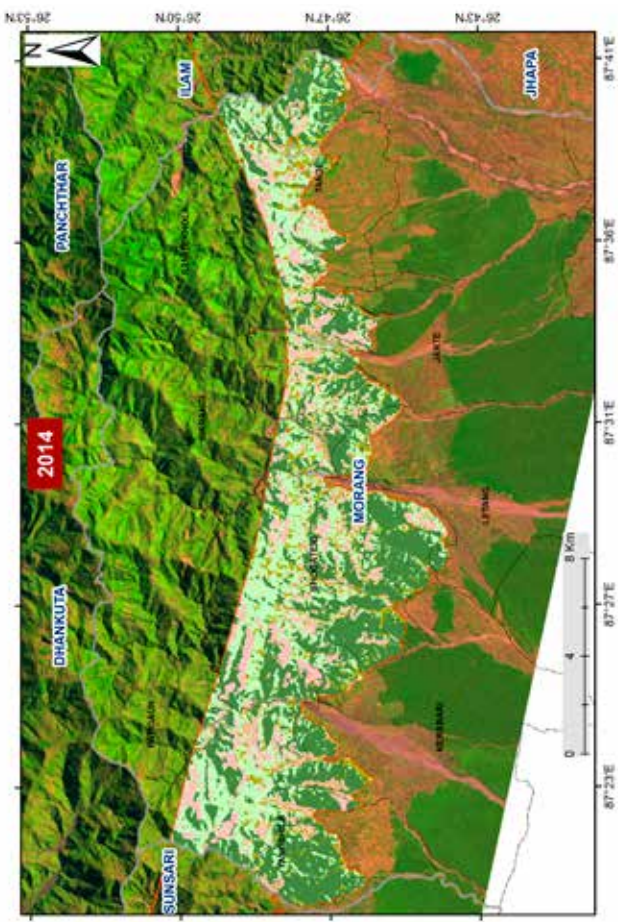
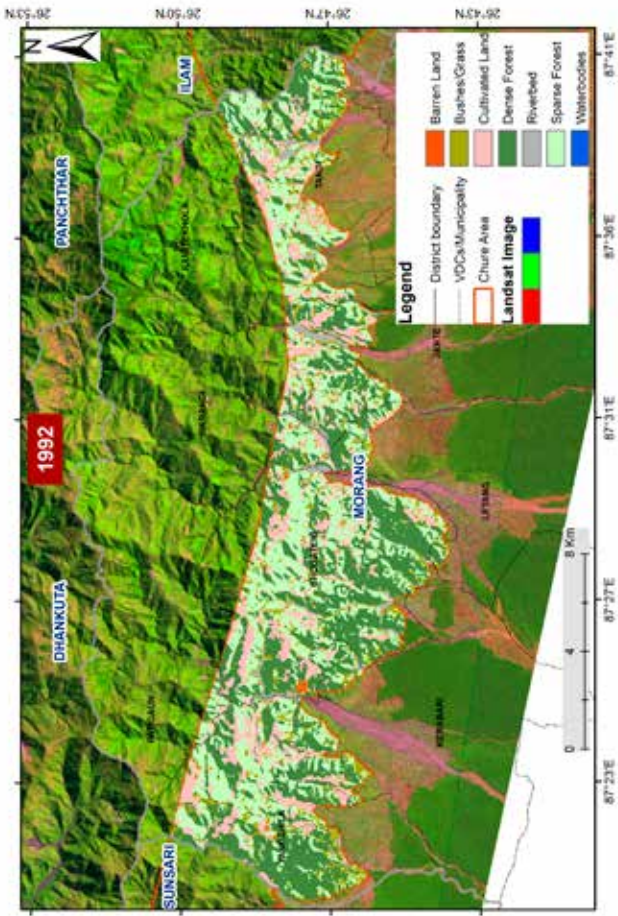
Forest cover change in Community Forest of Churia - Sunsari District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	29.08	121.56	162.2	27.08	586.04	0
Outside CF (Area in ha)	604.28	931.56	654.8	490.28	3637.8	1928.28

सुनसरी जिल्लाका चुरे क्षेत्रका सामुदायिक वनको ह्रासित बाहिरका वनको ह्रासित भन्दा धेरै राम्रो देखिएको छ ।

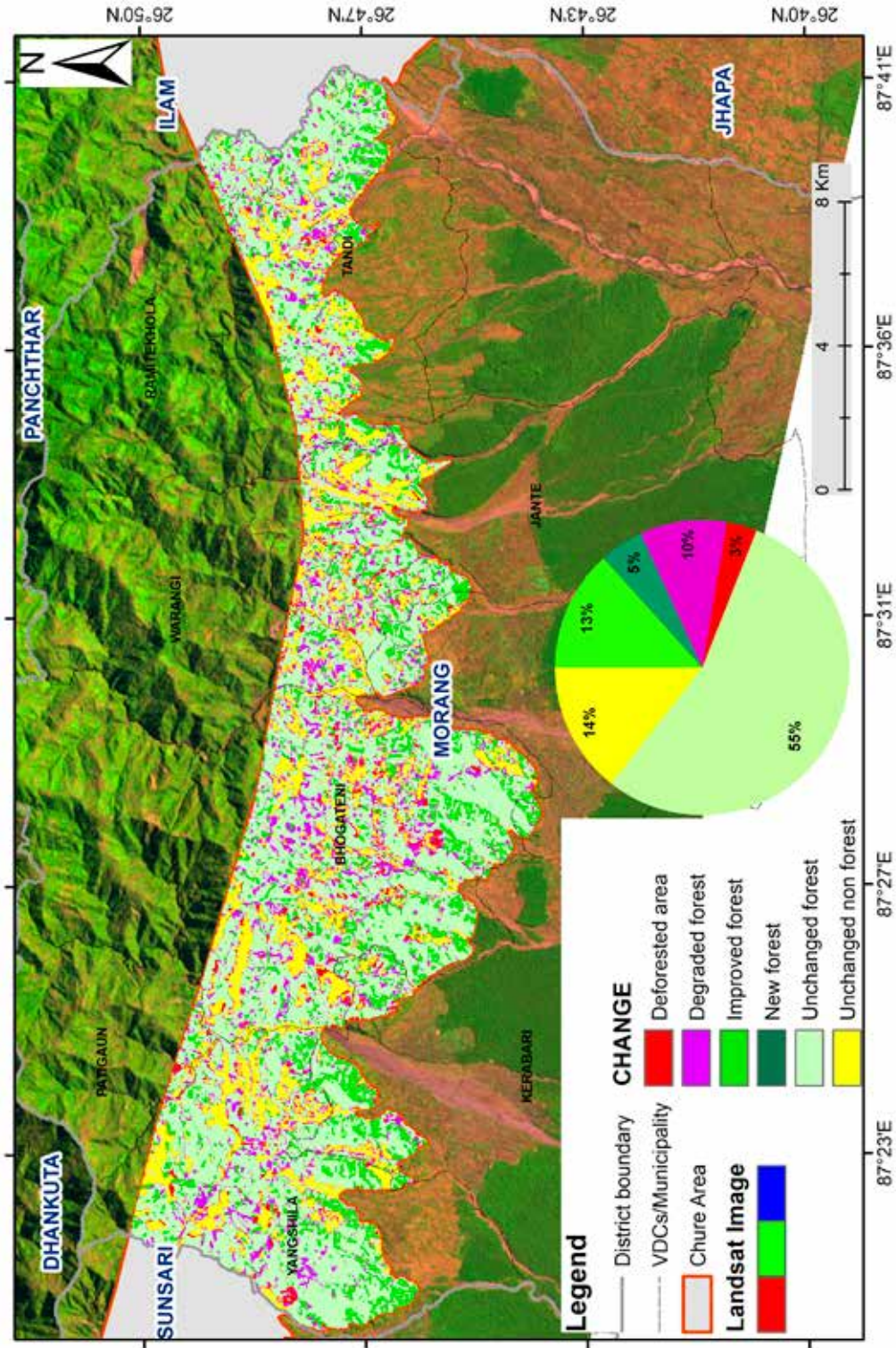
Land cover change in Churia - Morang District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	6189.92	38.01	6552.00	40.18	0.3
Sparse Forest	5617.52	34.49	5051.72	30.98	-0.5
Bushes/Grass	1354.40	8.32	1617.60	9.92	0.8
Cultivated Land	2490.48	15.29	2562.20	15.71	0.1
Barren Land	80.84	0.50	83.96	0.51	0.2
Riverbed	550.68	3.38	435.00	2.67	-1.1
Waterbodies	3.00	0.02	4.96	0.03	2.3

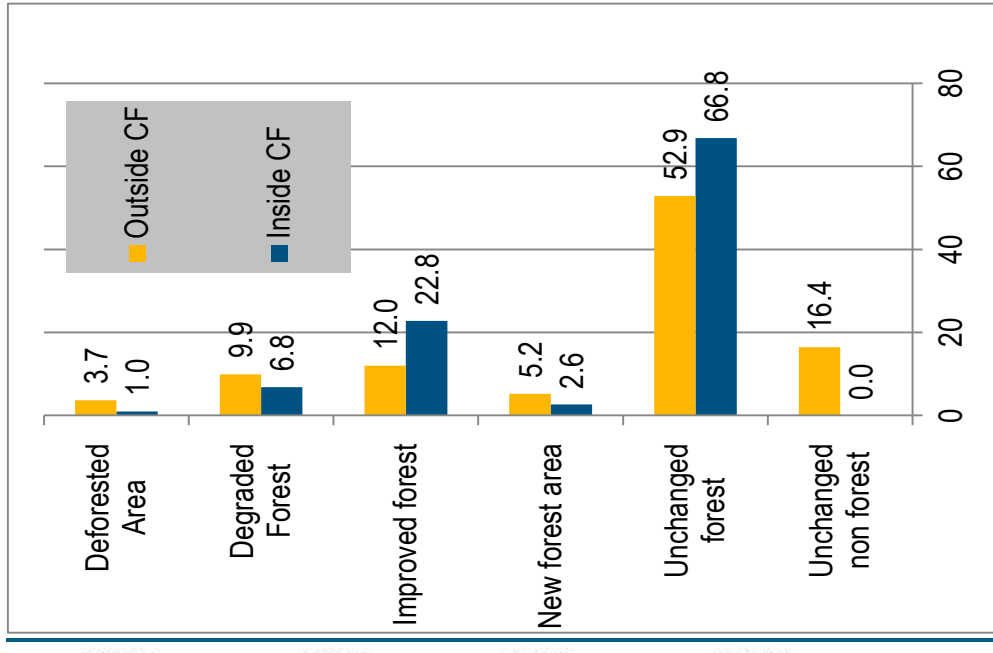
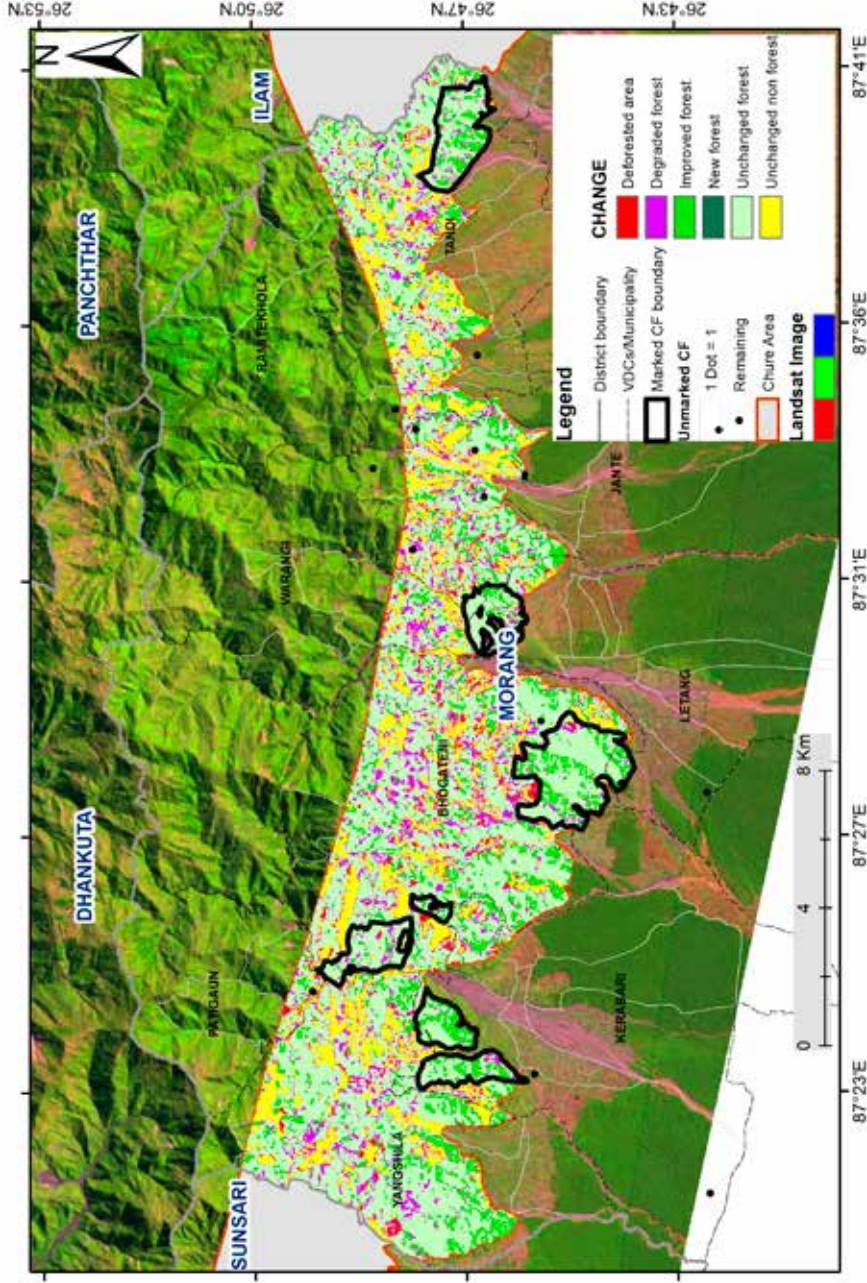
अचम्मको कुरा सुनसरि जिल्ला जस्तै मोरङ्ग जिल्लाको बगर क्षेत्र पनि वर्षेनि खुम्चीएको छ, भने खेतिपाति योग्य जमिन बढेको पाइएको छ ।

Forest cover change in Churia - Morang District



मोरङ जिल्लाको चुरे क्षेत्रमा रहेको वन जंगल मध्ये करिब २१०० हे. क्षेत्रमा हैसियत खस्कीएको पाइएता पनि करिब ३००० हे. क्षेत्रफल जंगलमा राम्रो सुधार भएको पाइयो । समष्टीगत रुपमा हेर्दा यसलाई राम्रो मान्नु पर्दछ ।

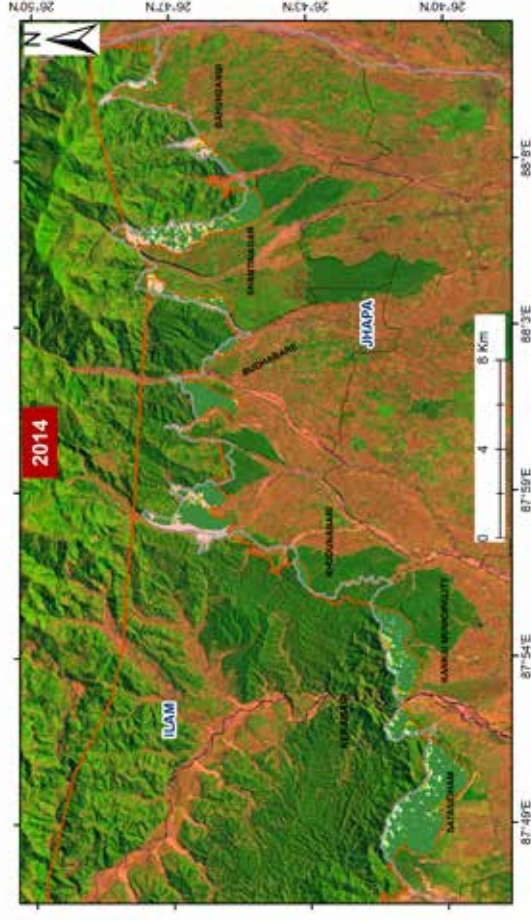
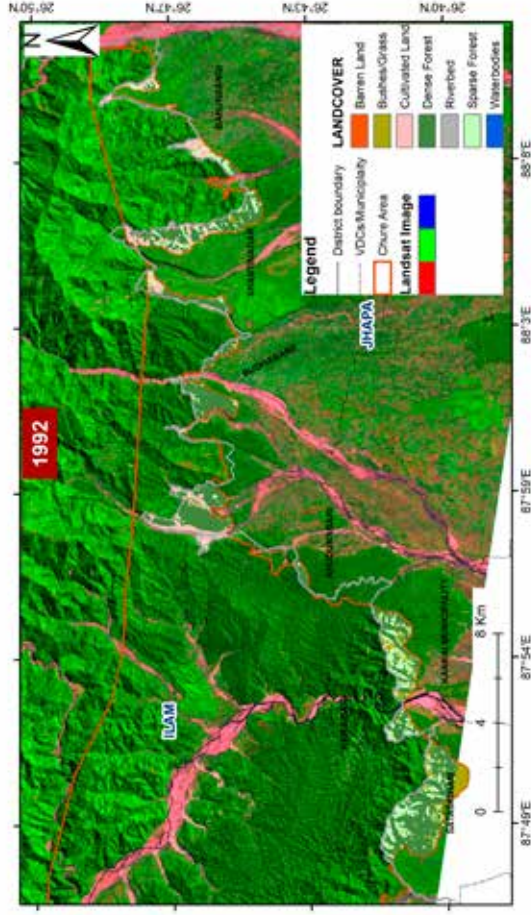
Forest cover change in Community Forests of Churia - Morang District



Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	20.12	138.6	463.6	53.32	1359.28	0
Outside CF (Area in ha)	522.52	1409.32	1699.92	734.56	7518.84	2335.68

तुलनात्मक रूपमा सामुदायिक वन भित्रका वन जंगल बाहिरका वन जंगल भन्दा राम्रो है सियतमा बदलिएको पाइएको छ ।

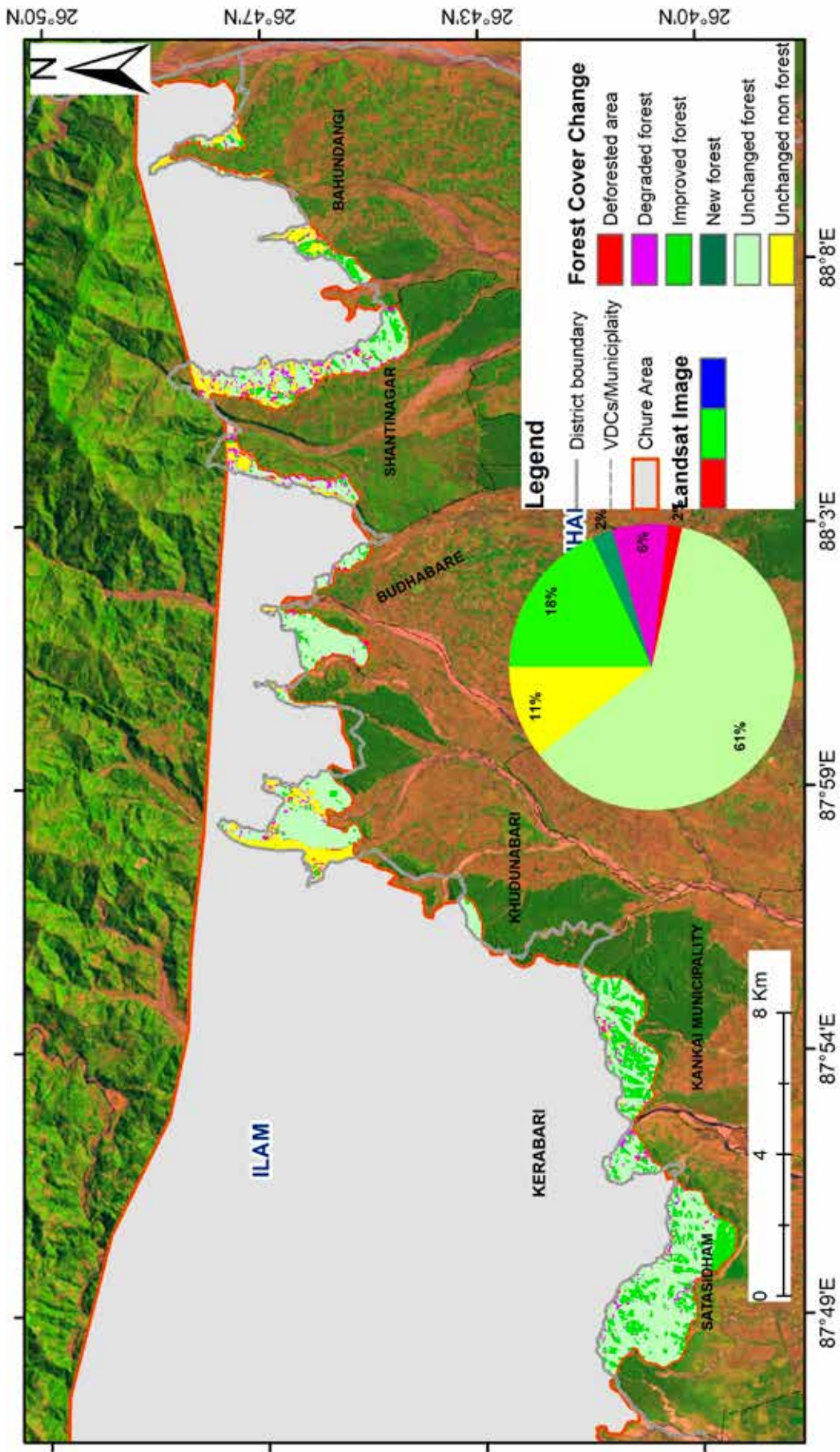
Land cover change in Churia - Jhapa District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	2051.32	59.24	2504.52	72.07	0.9
Sparse Forest	710.44	20.52	238.00	6.85	-4.8
Bushes/Grass	255.60	7.38	312.24	8.99	0.9
Cultivated Land	362.12	10.46	360.12	10.36	0.0
Barren Land	9.04	0.26	14.72	0.42	2.2
Riverbed	73.72	2.13	42.28	1.22	-2.5
Waterbodies	0.64	0.02	3.04	0.09	7.3

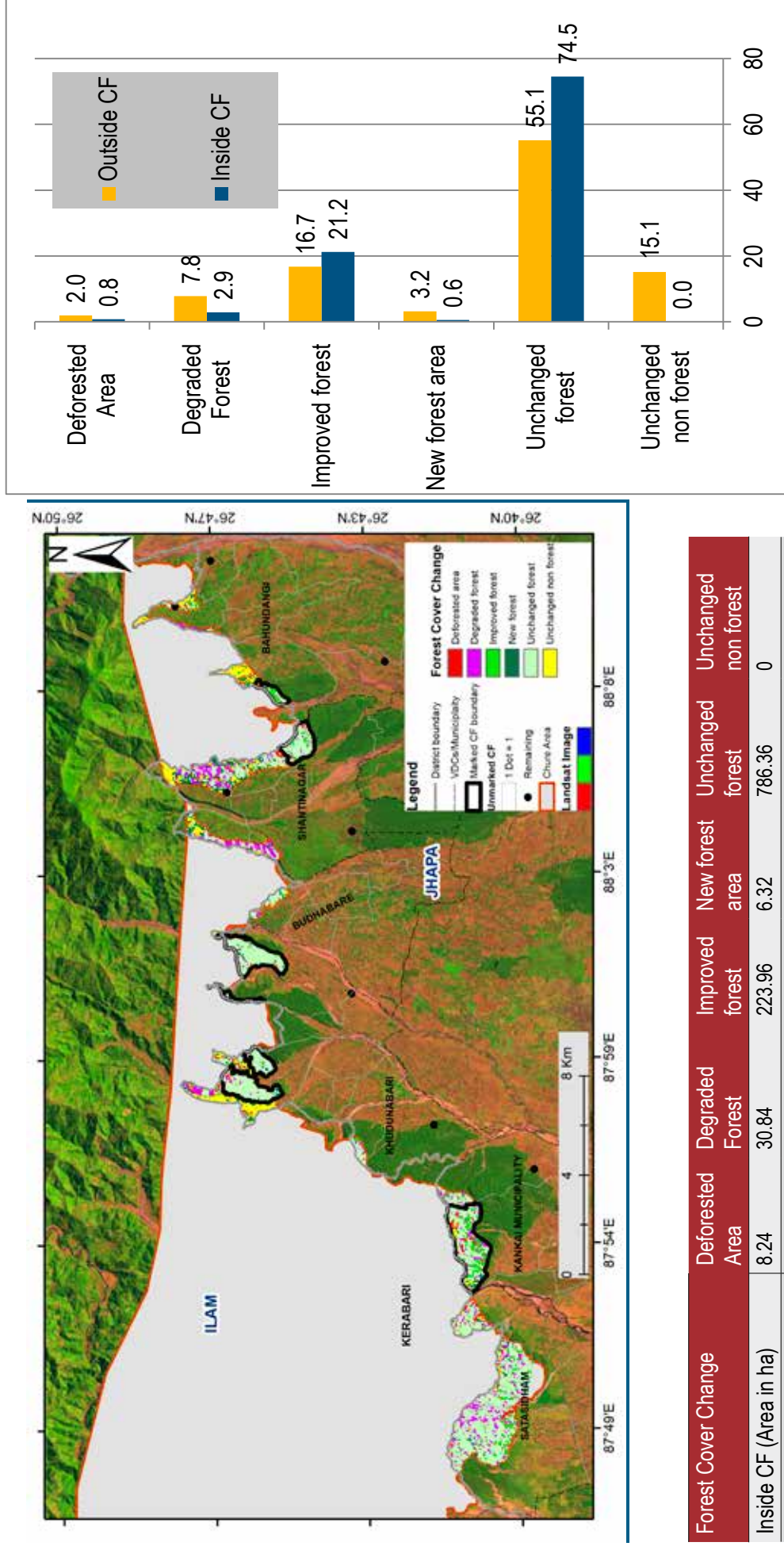
भापा जिल्लाको चुरे क्षेत्रमा रहेको वगरको क्षेत्रफल प्रति वर्ष २.५% का दरले घटेको पाइयो भने फाटफुटे वन जंगलको केहि भाग घना जंगलमा तथा केहि भाग झाडि वनमा बदलिएको पाइयो । थोरै क्षेत्रफल भएपनि नदिमा पानिले ओगटेको मात्राको क्षेत्रफल पनि बढेको पाइएकोले यसको कारण के होला भनि थप अनुसन्धान गर्न पर्ने देखिएको छ ।

Forest cover change in Churia - Jhapa District



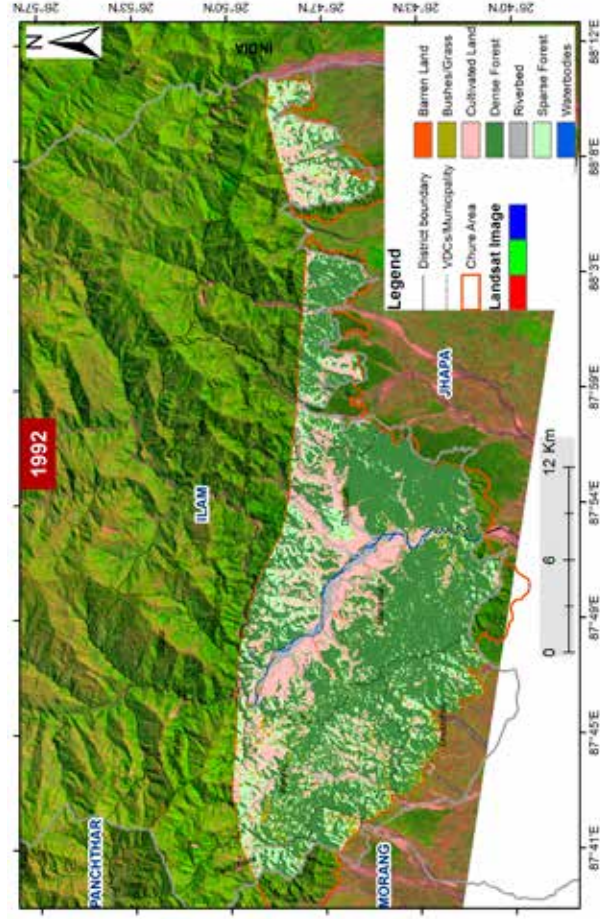
भापाको चुरे क्षेत्रको जंगलको क्षेत्रफल सानो भएकाले यसमा आएको परिवर्तनको आंकडाको विस्तृत विवरण यहाँ विश्लेषण गरिएको छैन ।

Forest cover change in Community Forest of Churia - Jhapa District



थोरै क्षेत्रभएपनि भापा जिल्लाका चुरे क्षेत्रमा भएका सामुदायिक वनको हैसियत बाहिर रहेको अझ वन जंगलको हैसियत भन्दा राम्रो पाइयो ।

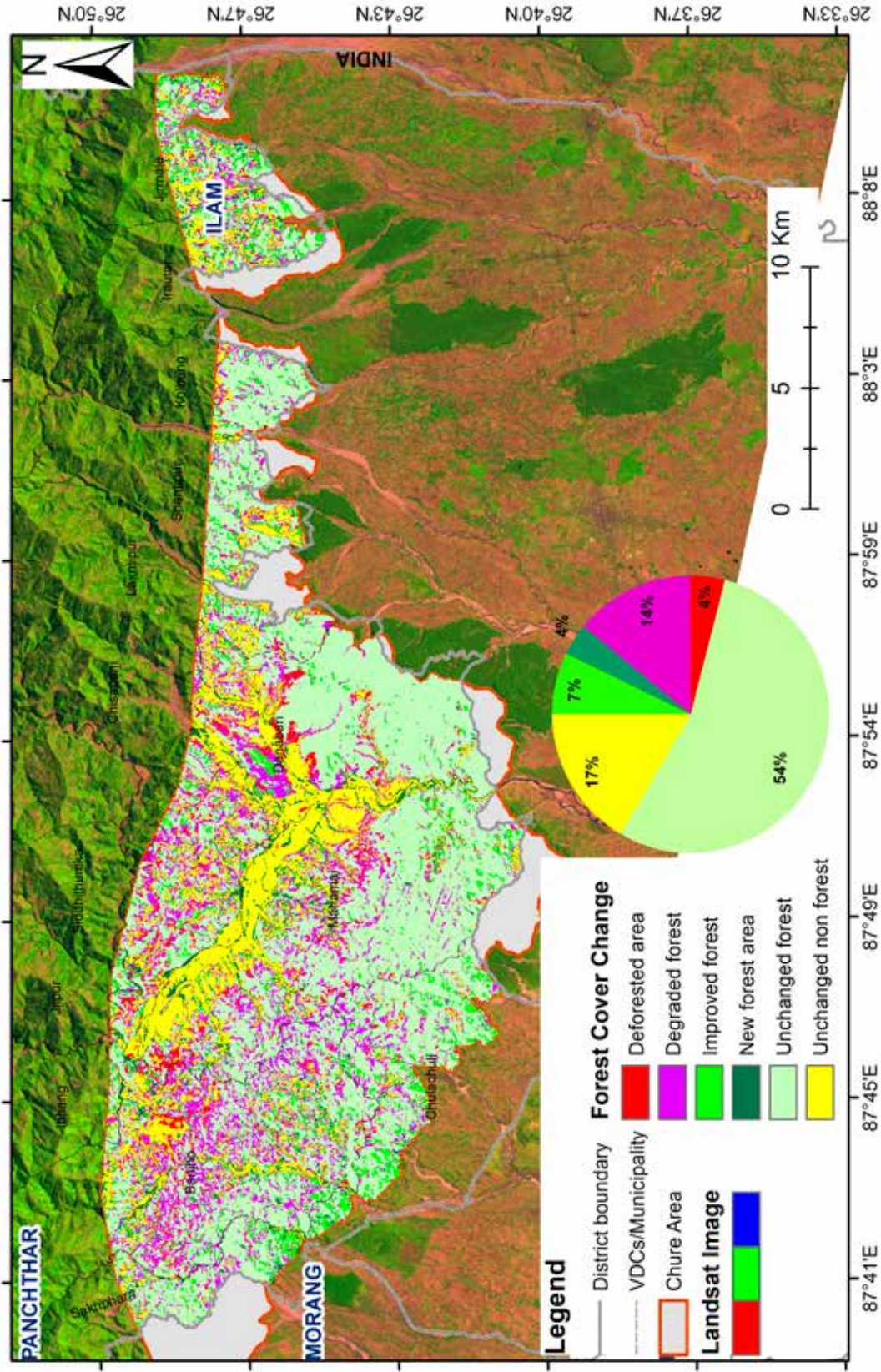
Land cover change in Churia - Ilam District



Land cover	1992 (area in ha)	% Area	2014 (area in ha)	% Area	Rate of Change per year
Dense Forest	23155.32	56.82	20919.52	51.29	-0.5
Sparse Forest	7509.48	18.43	5824.08	14.28	-1.1
Bushes/Grass	1859.20	4.56	5649.20	13.85	5.2
Cultivated Land	6106.64	14.98	6760.84	16.58	0.5
Barren Land	146.60	0.36	319.32	0.78	3.6
Riverbed	1769.32	4.34	1072.60	2.63	-2.2
Waterbodies	207.12	0.51	238.04	0.58	0.6

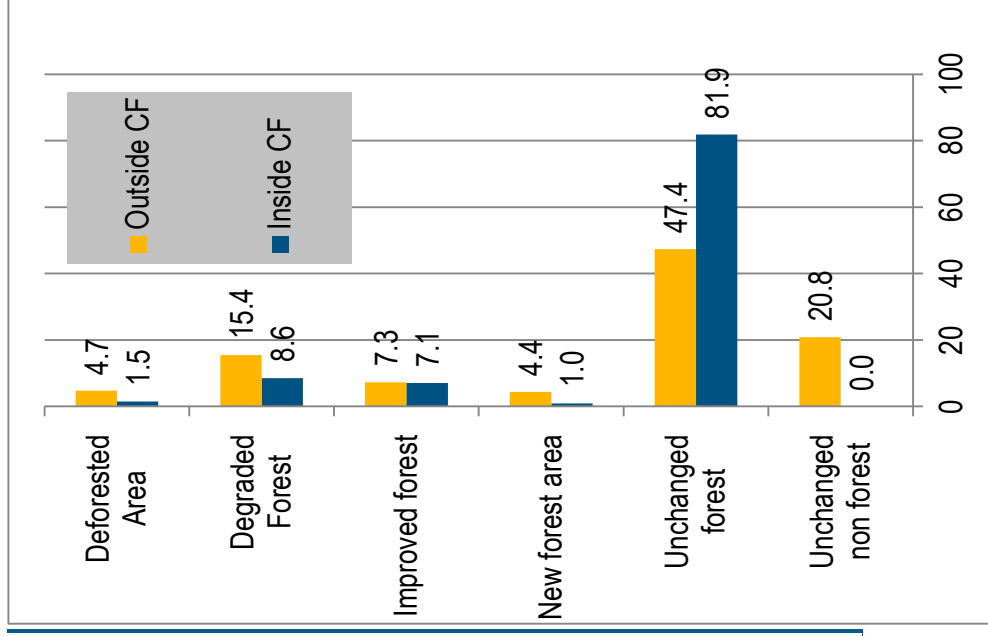
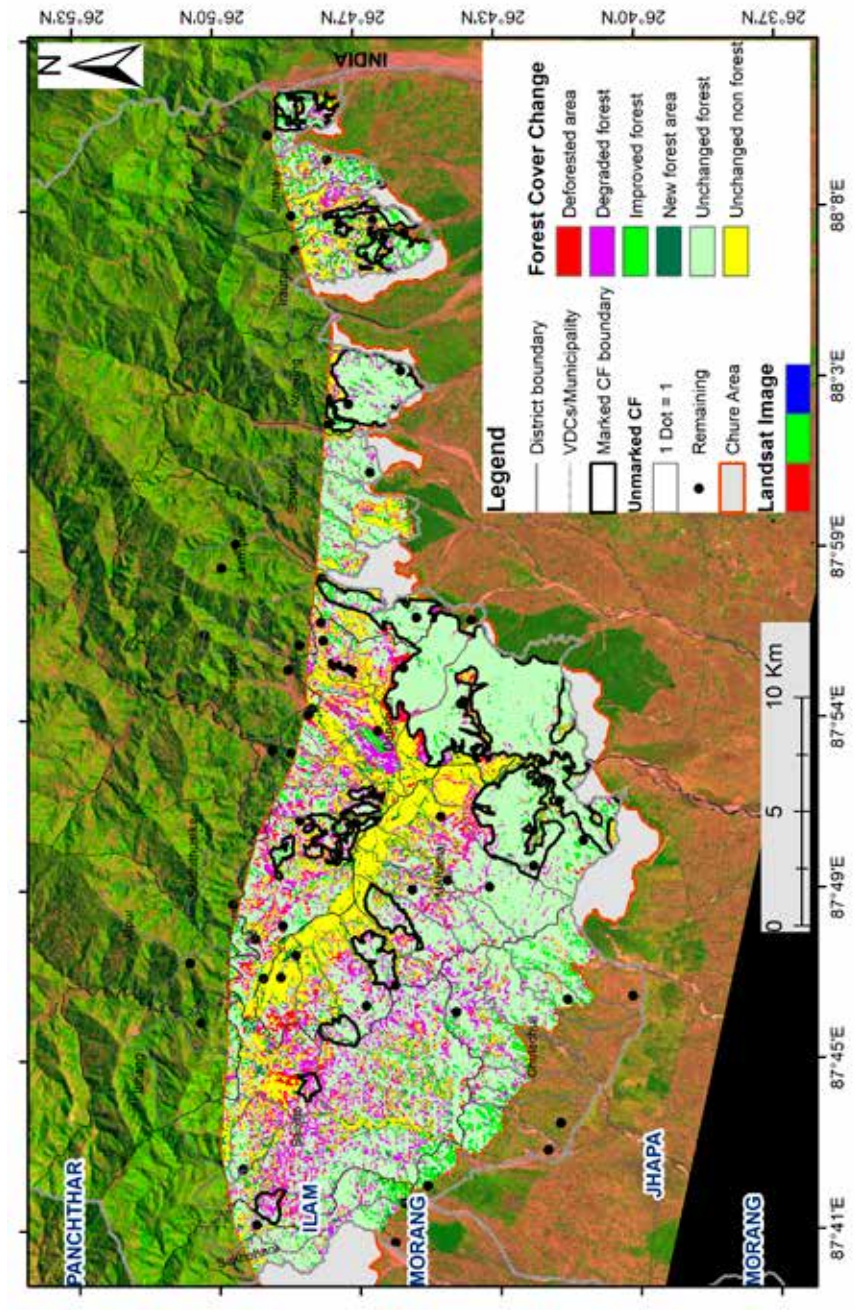
सिराहा, सप्तरी, उदयपुर, धनुषा जस्तै ईलाम जिल्लाको चुरे क्षेत्रको स्थिति पनि राम्रो देखिएन। घना वन र फाटफुटे रूख भएको वन भाडीमा बदलिने र सो भाडी खेतिमा बदलिने क्रम आंकडाले देखाउँछ। तर बगरको क्षेत्रफल चाँहि १७६९ हे. वाट घटेर १०७२ हे. मा खुम्चीएको पाइएको छ।

Forest cover change in Churia - Ilam District



ईलाम जिल्लाको चुरे क्षेत्रमा रहेको करिब ७४०० हे.को हैसियत खस्कीएको पाइएको छ भने केवल ४५०० हे. जति क्षेत्रफलमा मात्र वन जंगलको हैसियतमा सुधार आएको छ। २२१८२ हे. जस्ताको तस्तै छ।

Forest cover change in Community Forests of Churia - Ilam District



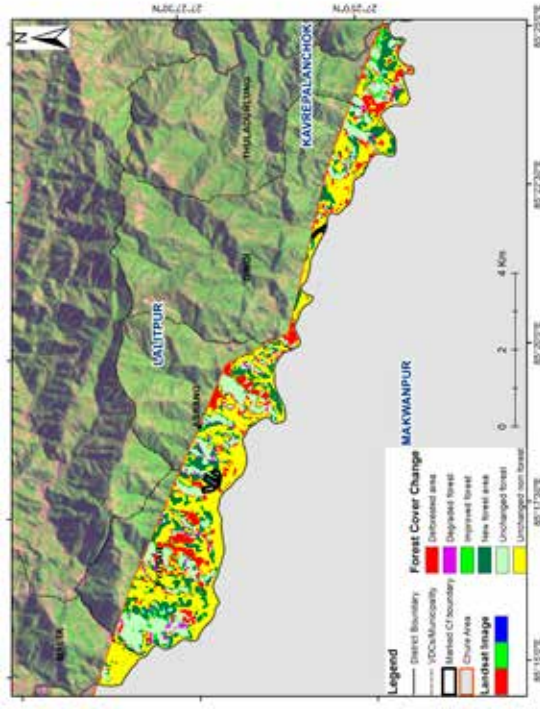
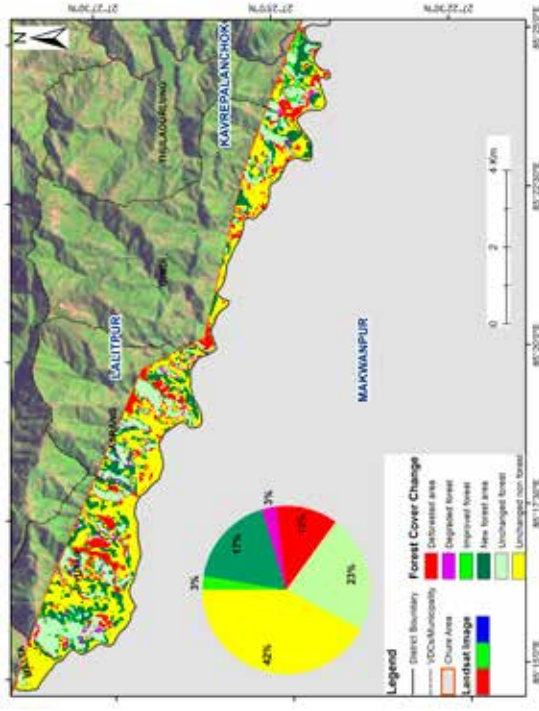
Forest Cover Change	Deforested Area	Degraded Forest	Improved forest	New forest area	Unchanged forest	Unchanged non forest
Inside CF (Area in ha)	123.12	714.36	594.8	80.24	6842.56	0
Outside CF (Area in ha)	1533.64	4995.48	2348	1421.52	15339.84	6741.88

ईलामको सामुदायिक वनको हैसियत अरु वनको तुलनामा उस्तै रहेपनि वन विनास हुने क्रम चाँहि सामुदायिक वन भित्र ठ्याक्कै रोकिएको पाइएको छ ।

Land cover change in Churia - Lalitpur District

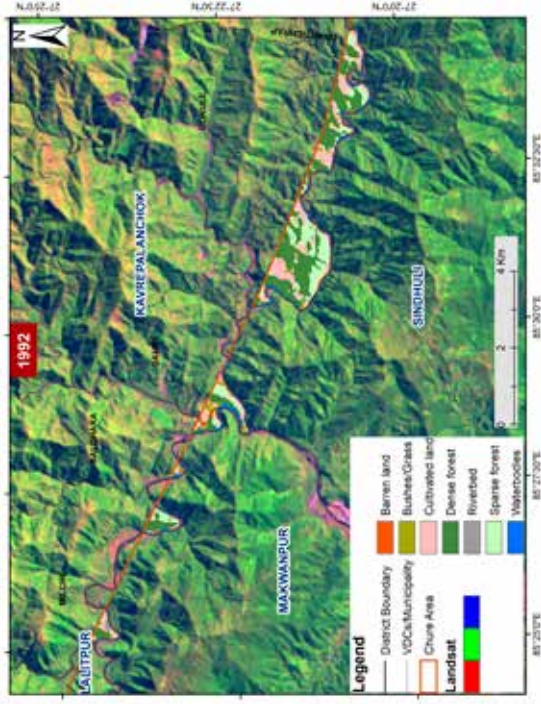


Forest cover Change in Churia - Lalitpur District

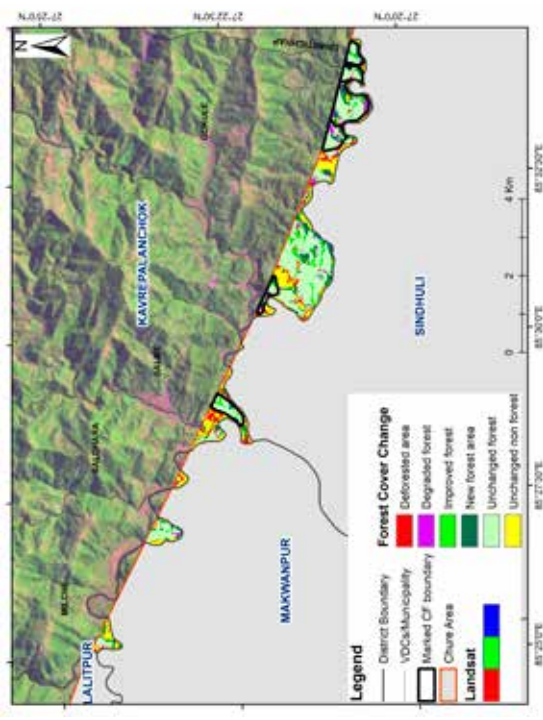
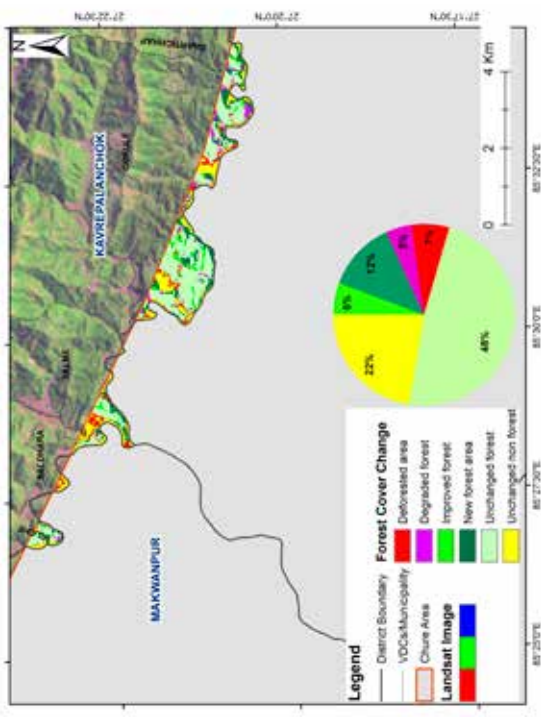


ललितपुर जिल्लामा चुरे क्षेत्र अत्यन्तै सानो क्षेत्रफल भएकोले यस्को विश्लेषण विस्तृत रूपमा यहाँ गरिएन (थप जानकारीको लागि अनुसुचि हेर्नेहोस्) ।

Land cover change in Churia - Kavrepalanchok



Forest cover change in Churia - Kavrepalanchok

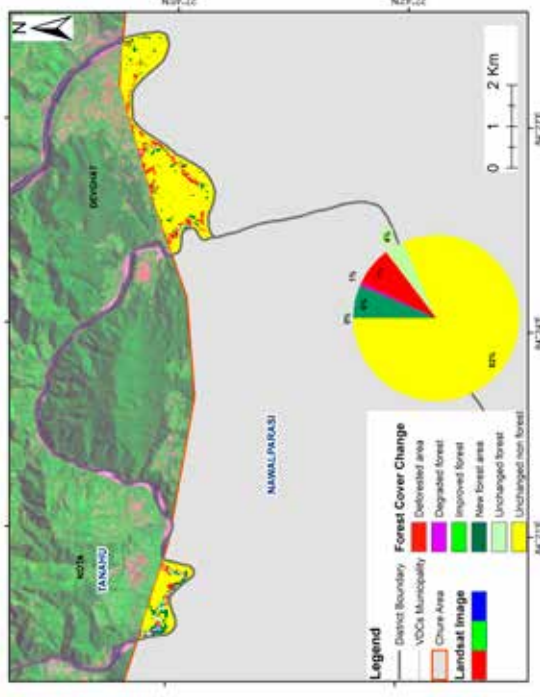


यो नक्साको विस्तृत जानकारीको लागि अनुसूचि हेर्नुहोस् ।

Land cover change in Churia - Tanahun District



Forest cover change in Churia - Tanahun District

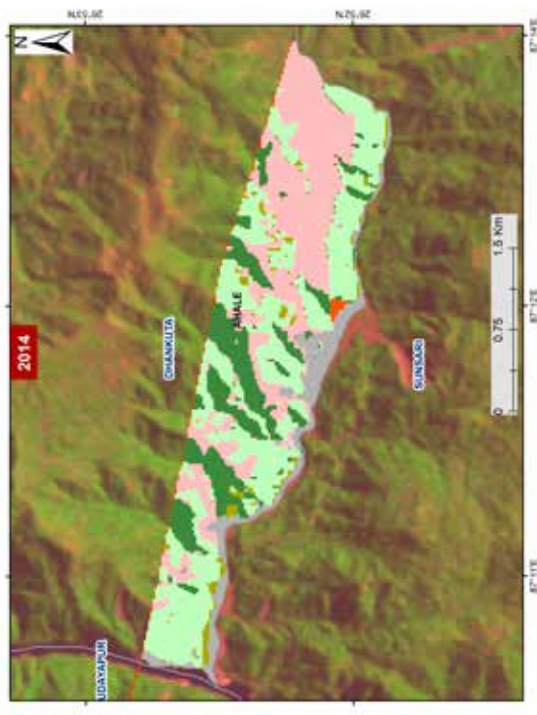
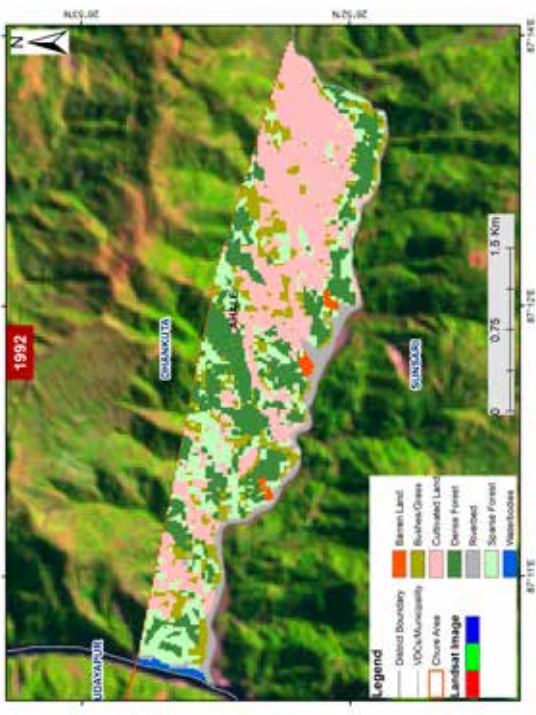


यो नक्साको विस्तृत जानकारीको लागि अनुसुचि हेर्नुहोस् ।

Land cover change in Churia - Bhojpur District



Land cover change in Churia - Dhankuta District



यो नक्साको विस्तृत जानकारीको लागि अनुसुचि हेर्नुहोस् ।



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