STATE-WISE FOREST COVER IN INDIA

“We don’t inherit the Earth from our ancestors - we borrow it from our children.”

Native American Proverb

DATA COLLECTION

- How is forest cover defined in this dataset?

- Forest cover data is collected through satellite imagery by Forest Survey of India (FSI)

- Algorithms are used to classify captured images (and therefore forests) in appropriate categories

The data refers to State/Union Territory-wise forest cover. Forest Cover refers to all lands more than one hectare in area, with a tree canopy density of more than 10 percent irrespective of ownership and legal status. Such lands may not necessarily be a recorded forest area. It also includes orchards, bamboo and palm.

UNDERSTANDING THE VARIABLES

Forest Cover refers to all lands more than one hectare in area, with a tree canopy density of more than 10 percent irrespective of ownership and legal status. Such lands may not necessarily be a recorded *forest* area

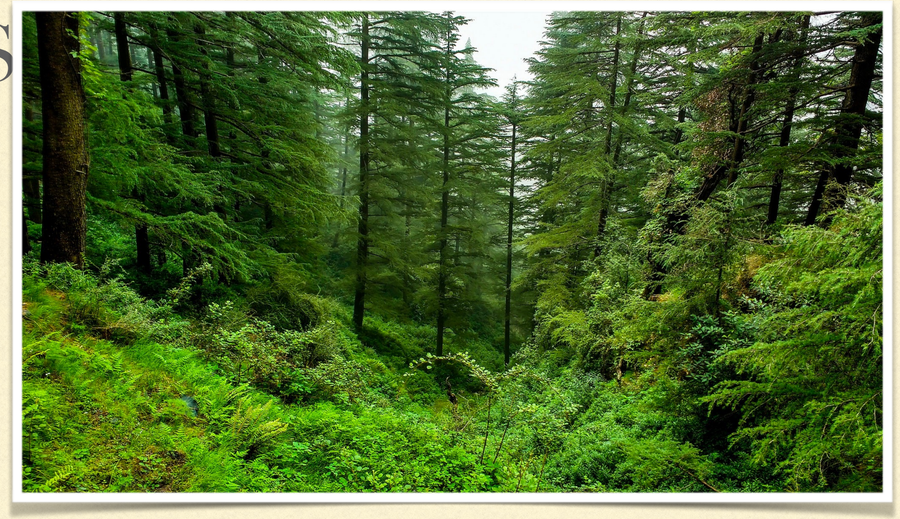
VERY DENSE: All Lands with tree cover of canopy density of 70% and above (in sq. km)

MODERATELY DENSE: All lands with tree cover of canopy density between 40% and 70% above (in sq. km)

OPEN FOREST: All lands with tree cover of canopy density between 10% and 40% (in sq. km)

REAL CHANGE: Change in tree cover between 2009 and 2011

GEOGRAPHICAL AREA: Total geographical area of state

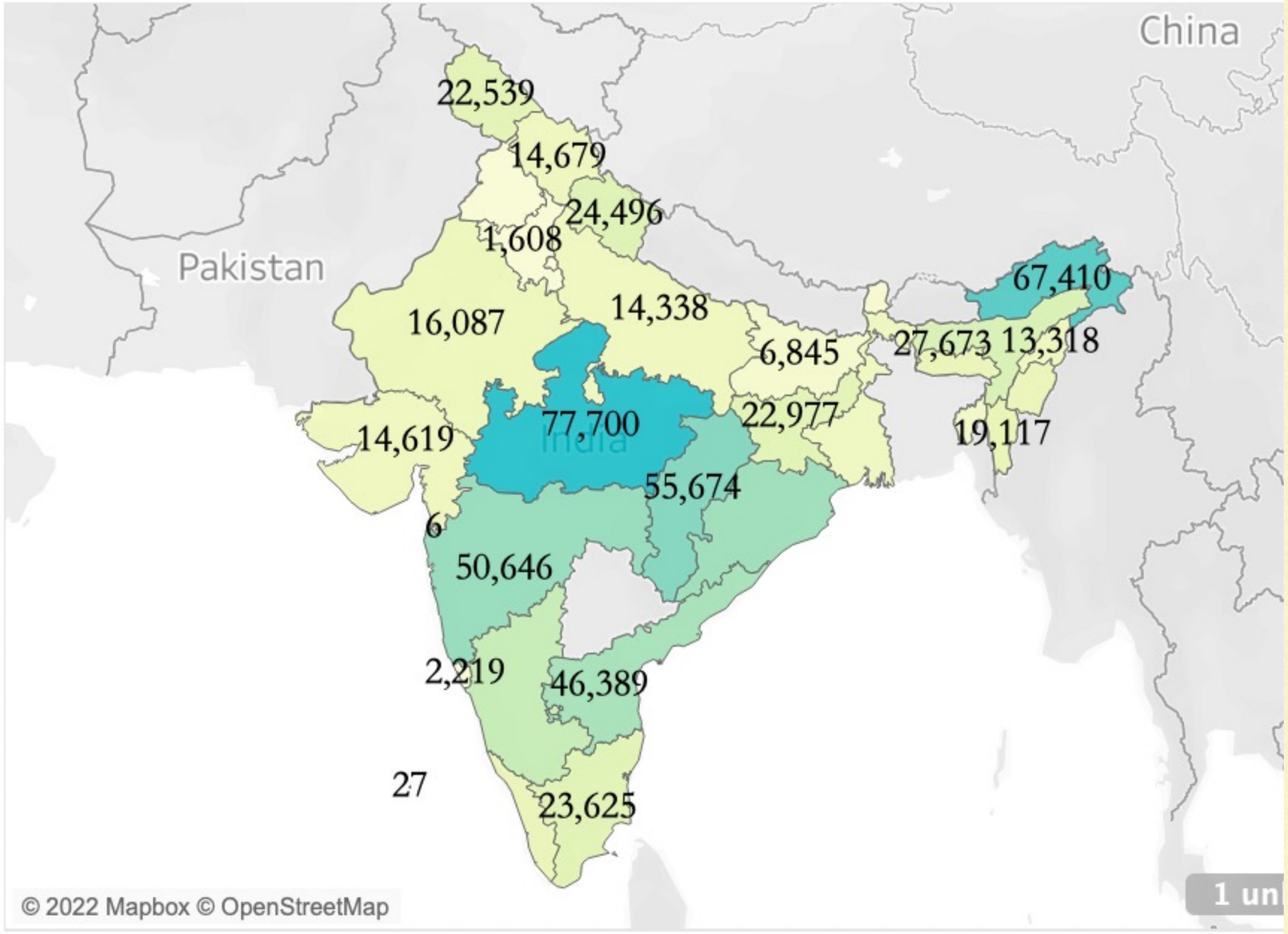


Very Dense Forest Cover

Moderately Dense Cover

Source: https://fsi.nic.in/scheme-of-classification

Total Forest Cover (in sq km)

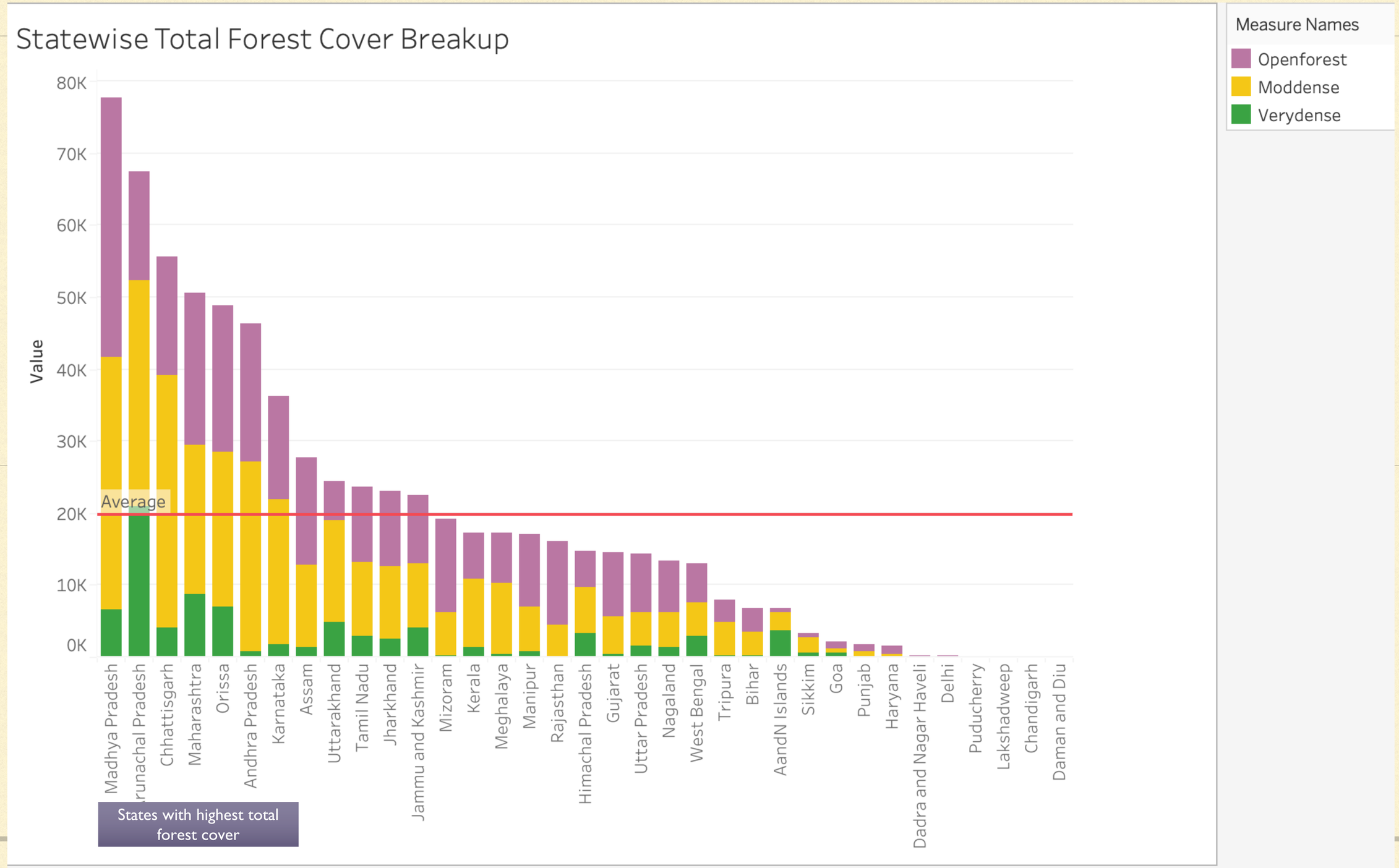


Questions:

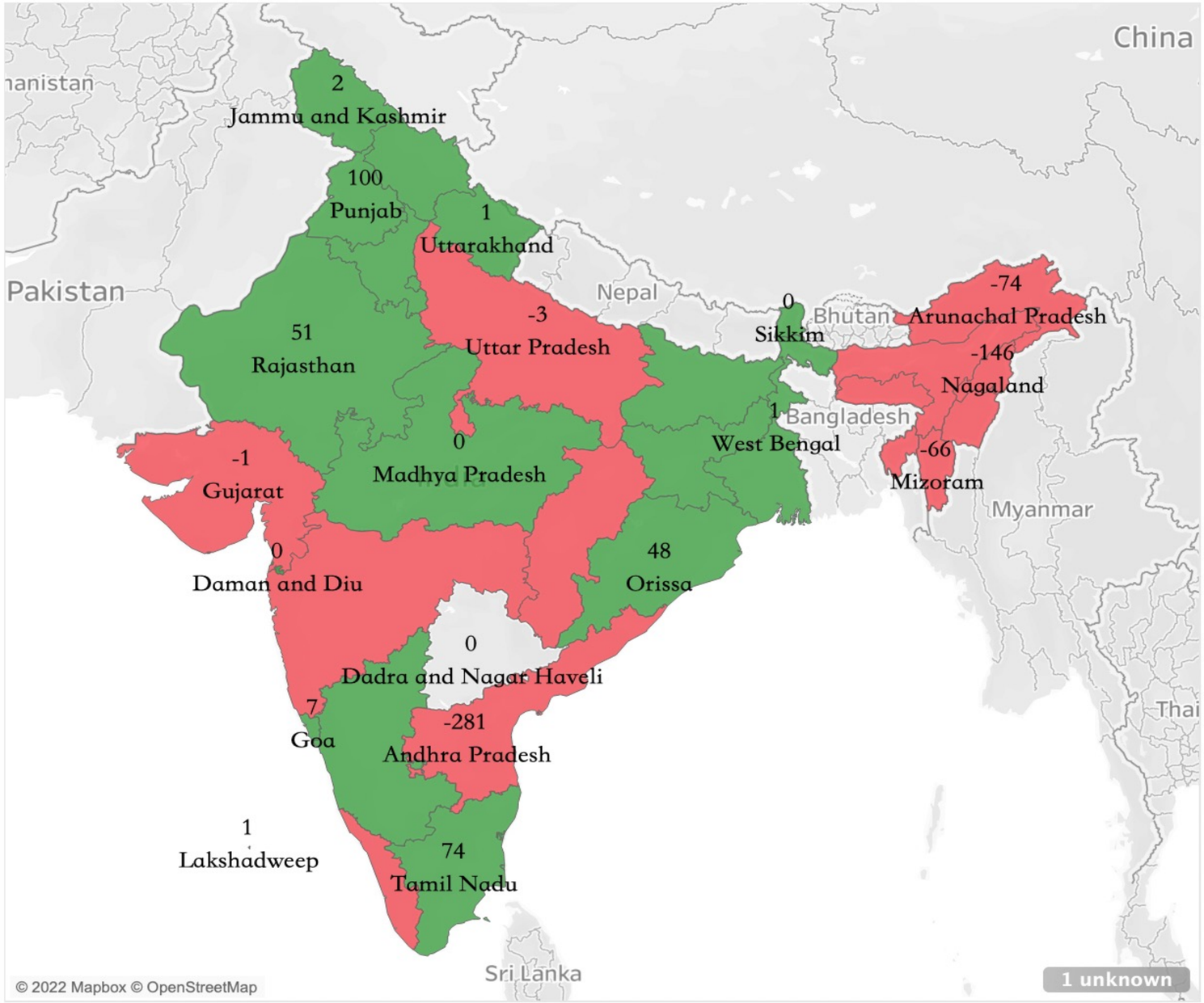
1. Which states have the highest/lowest total forest cover? Deviation?

2. What is the state-wise breakup of forest cover?

3. In which states have the forest cover increased/decreased the most compared to 2009?

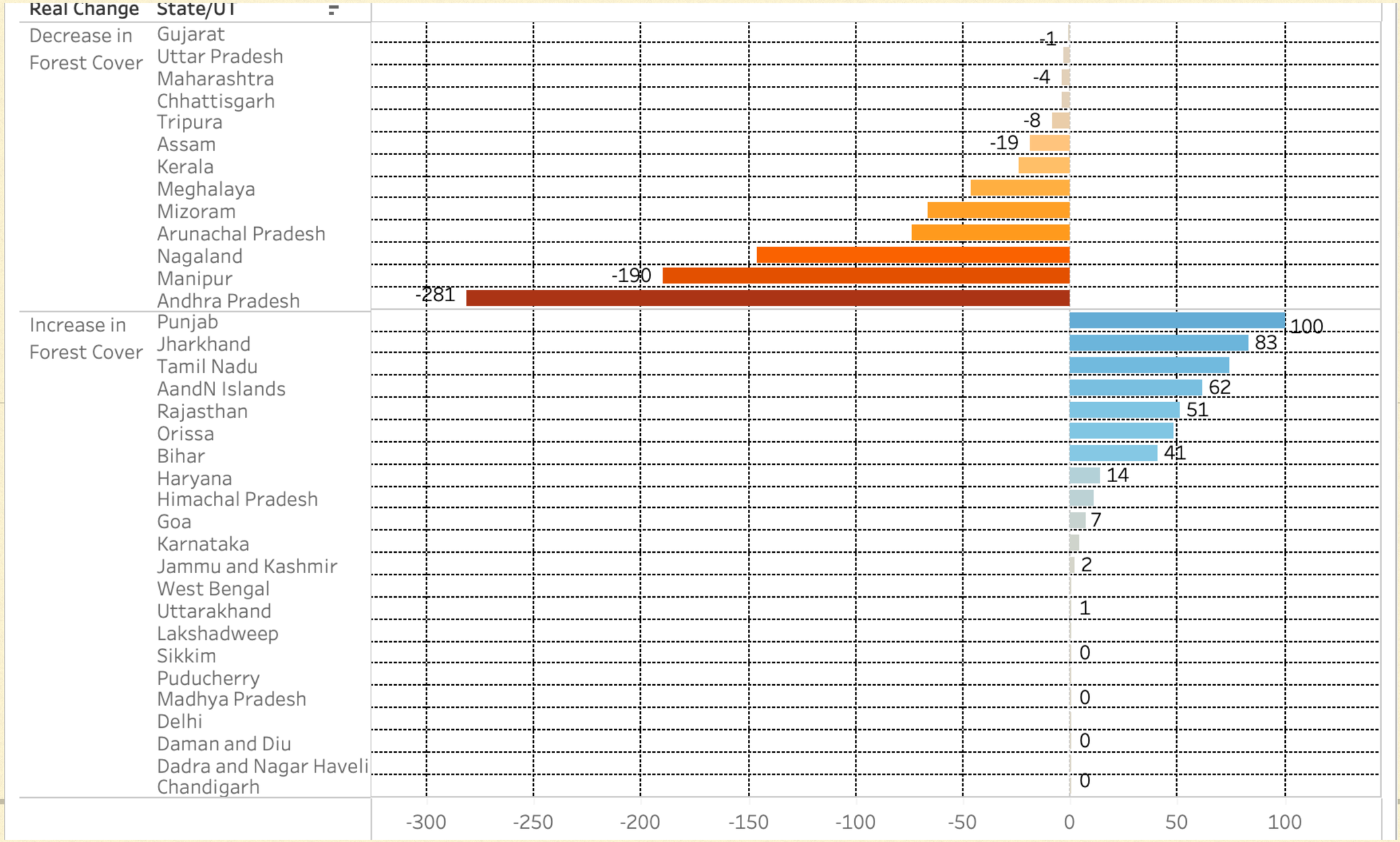

Statewise Total Forest Cover Breakup
Measure Names
Openforest
Moddense
Verydense
Value
80K
70K
60K
50K
40K
30K
20K
10K
0K
Average
Madhya Pradesh
Arunachal Pradesh
Chhattisgarh
Maharashtra
Orissa
Andhra Pradesh
Karnataka
Assam
Uttarakhand
Tamil Nadu
Jharkhand
Jammu and Kashmir
Mizoram
Kerala
Meghalaya
Manipur
Rajasthan
Himachal Pradesh
Gujarat
Uttar Pradesh
Nagaland
West Bengal
Tripura
Bihar
AandN Islands
Sikkim
Goa
Punjab
Haryana
Dadra and Nagar Haveli
Delhi
Puducherry
Lakshadweep
Chandigarh
Daman and Diu
States with highest total forest cover

Real Change in Forest Cover (in sq km)



https://public.tableau.com/app/profile/arav.sood/viz/ForestCover2011/Dashboard1?publish=yes

Ordered State-Wise Real Change



HYPOTHESIS TESTING

Gov of India claims that the total forest cover (TFC) of India has increased. However, experts claim that the data has been masked for the purpose of meeting international CO2 benchmarks and to portray the government initiatives in good light. Let's test the hypothesis that the (real) change in forest cover is less than/equal to zero:

Null: Ho: mu<=0; Alternate: H1: mu> 0 (Right Tailed Test)
Sample average (of change in TFC) = -10.45
Sample s=72.50
n=35
alpha=0.05

Since population SD is unknown, we can use t-distribution. However, n is more than 35, so z-distribution can be approximated.

Z-critical value=1.645 (95% CI)
Z statistic=-10.45/(72.50/sqrt(35))=-0.852
Since Z statistic is < Z critical value, we do not reject the null hypothesis.

P-value=0.803 is greater than 0.05, therefore, we do not reject the null hypothesis.

Conclusion: Government of India's claim is questionable.

CONCLUSION

Our Learnings

- More than half of the states have a total forest cover less than the average forest cover

- According to research, FSI has been criticized about the approach with which it measures forest cover, i.e., its decision to include wooded parks, private timber forests, etc.

-Experts claim that India is actually losing its forest cover , disproportionately so in certain states, where there is a policy emphasis on “development”

-Data analysis also involves questioning the source of the data and the legitimacy of the data involved