

# **Visualizing Desertification**

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# Objective

## Goal

To understand and compare different aspects of climate change using visualization

## Research

Secondary reading of research and news publications

## Initial focus

To study climate change factors in Tamil Nadu

## Refined Scope

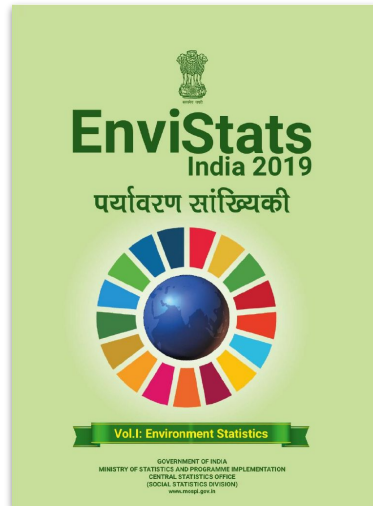
To focus on existing research/work and do a interactive visualization

# Ideas

## Initial focus



## Research



## Change of Goal

To visualize  
country wide  
visualization and  
aid in comparison  
between states

# Secondary Research

States such as karnataka, Odisha have higher rainfall than Tamil Nadu but considerably more degraded than Tamil Nadu.

Maybe it is not just about rainfall.

**Growing dry** | Of the 78 drought-prone districts, 21 have more than half of their areas under desertification. Nine have also witnessed over 2 per cent increase in the area under desertification between 2003-05 and 2011-13

■ Area under desertification

**India average**  
Area under desertification: **29.32%**  
% change\*: **0.56**

\* % change is calculated for the periods 2003-05 and 2011-2013  
Source: Desertification and Land Degradation Atlas of Selected Districts of India: Volume - 2, 2018  
Desertification and Land Degradation Atlas of India 2018 by ISRO

**GUJARAT**  
Area under desertification: **52.29%**  
% change: **0.94**  
Drought-prone districts: 4

**MAHARASHTRA**  
Area under desertification: **44.93%**  
% change: **1.55**  
Drought-prone districts: 3

**TAMIL NADU**  
Area under desertification: **11.87%**  
% change: **0.21**  
Drought-prone districts: 5

● Districts with more than 50% area undergoing land degradation

● Districts with more than 2% increase in desertification between 2011-13 and 2003-05

**PUNJAB**  
Area under desertification: **2.87%**  
% change: **1.02**  
No. of drought-prone districts: 2

**HARYANA**  
Area under desertification: **7.67%**  
% change: **0.55**  
No. of drought-prone districts: 2

**RAJASTHAN**  
Area under desertification: **62.9%**  
% change: **-0.29**  
No. of drought-prone districts: 4

**SUREDRANAGAR**  
Area %: 51.41

**MADHYA PRADESH**  
Area under desertification: **12.34%**  
% change: **0.1**  
Drought-prone districts: 4

**GOA**  
Area under desertification: **52.13%**  
% change: **1.76**  
Drought-prone districts: 1

**KARNATAKA**  
Area under desertification: **36.24%**  
% change: **0.05**  
Drought-prone districts: 2

**KERALA**  
Area under desertification: **9.77%**  
% change: **0.63**  
Drought-prone districts: 2

**SHYOK**  
Area %: 73.89

**KARGIL**  
Area %: 80.54

**LAHUL AND SPITI**  
Change %: 3.46

**KINNAUR**  
Area %: 13.35

**BHIWANI**  
Change %: 2.94

**JAISALMER**  
Area %: 92.96

**JAMMU & KASHMIR**  
Area under desertification: **35.86%**  
% change: **1.94**  
Drought-prone districts: 5

**HIMACHAL PRADESH**  
Area under desertification: **43.01%**  
% change: **4.55**  
Drought-prone districts: 3

**UTTARAKHAND**  
Area under desertification: **12.1%**  
% change: **1.25**  
Drought-prone districts: 2

**UTTAR PRADESH**  
Area under desertification: **6.35%**  
% change: **-1.27**  
Drought-prone districts: 3

**SIKKIM**  
Area under desertification: **11.1%**  
% change: **0.04**  
Drought-prone districts: 4

**TIRAP**  
Change %: 2.05

**KOKRAJHAR**  
Change %: 2.70

**WEST KHASI HILLS**  
Area %: 53.01

**KOHIMA**  
Area %: 62.43

**AIZAWL**  
Area %: 52.83  
Change %: 2.81

**LUNGLEI**  
Change %: 5.81

**SOUTH TRIPURA**  
Change %: 3.90

**BIHAR**  
Desertification: **7.38%**  
% change: **0.38**  
Drought-prone districts: 3

**JHARKHAND**  
Desertification: **68.98%**  
% change: **1.01**  
Drought-prone districts: 3

**WEST BENGAL**  
Desertification: **19.54%**  
% change: **0.59**  
Drought-prone districts: 2

**ODISHA**  
Desertification: **34.06%**  
% change: **-0.12**  
Drought-prone districts: 4

**GIRIDIH**  
Area %: 73.79

**BOKARO**  
Area %: 67.25

**PURULIA**  
Area %: 57.09

**HAILAKANDI**  
Change %: 2.13

**KENDUJHAR**  
Area %: 52.97

**BARGARH**  
Area %: 61.36

**KORAPUT**  
Area %: 55.95

**CHHATTISGARH**  
Area under desertification: **16.36%**  
% change: **0.26**  
Drought-prone districts: 3

**TELANGANA**  
Area under desertification: **31.34%**  
% change: **-0.52**  
Drought-prone districts: 1

**ANDHRA PRADESH**  
Area under desertification: **14.35%**  
% change: **0.19**  
Drought-prone districts: 1

**DMHULE**  
Area %: 64.20

**AHMADNAGAR**  
Area %: 56.50

**MAHBUBNAGAR**  
Change %: 2.10

**NORTH GOA**  
Area %: 50.25

**ANANTAPUR**  
Area %: 64.41

**THENI**  
Area %: 51.15

# Tool Used

## D3.js



- Gives complete control
- Steep Learning Curve
- Has Bugs
- Poor Documentation



## AMCHARTS



- Libraries for most chart
- High Level of Control
- Moderate Learning Curve
- Awesome Documentation



# Processing Data

## CSV Data

Statement 1.20 : State-wise district-wise degradation विवरण 1.20 : राज्या वार और जिला वार वन क्षति (Upto March/ मार्च, 2018 तक)				
Sl. No. क्र.सं.	State/UT	District	Total Area का सकूट क्षेत्रफल	Total Degraded Land area का कुल क्षति क्षेत्रफल
1	Andhra Pradesh	1 Chittor	1492644	127725
		2 Kurnool	1761393	309412
		3 Nellore	1307600	169808
		Total of affected districts	4561637	606945
	State Total		16296800	606945
2	Bihar	1 Banka	278768	29294
		2 Bhagalpur	255822	32589
		3 Gaya	473659	7727
		4 Munger	634594	144617
		5 Siwan	221900	22611
	Total of affected districts	1864743	236838	
State Total		9416300	236838	

## Open Refine



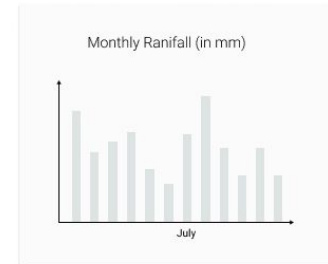
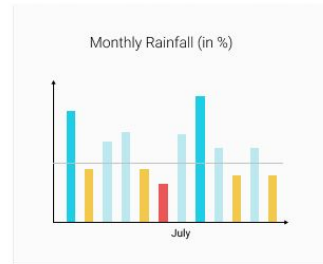
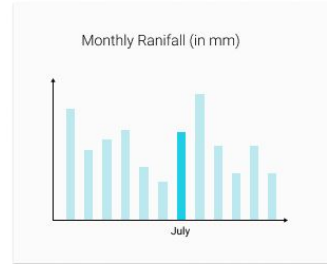
## Json

```
[{"State": "Andhra Pradesh", "Data": [{"State": "Degraded", "Data": [{"State": "Vegetation Degradation", "area": 1164257}, {"State": "Water Erosion", "area": 789433}, {"State": "Wind Erosion", "area": 3986}, {"State": "Salinity", "area": 117952}, {"State": "Water Logging", "area": 132334}, {"State": "Frost Shattering", "area": 0}]}]}
```

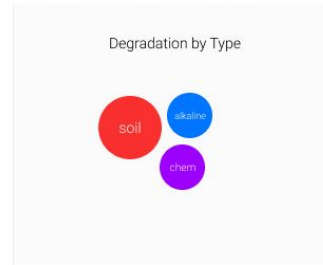
# Initial Wireframe

## Madhya Pradesh

### Rainfall



### Land Degradation



India ☐ States ☒

2018 2019

Rainfall

Temperature

Watersheds

Land Degradation

# Link to prototype

<https://arunjrk.github.io/envistatsviz/>



Thank  You