



2023

**FEMALE TOILETS  
CONSTRUCTED  
VS  
FUNCTIONAL  
TOILETS**

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## Why are toilets so important ?

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Because a girl misses school when they don't have adequate facilities

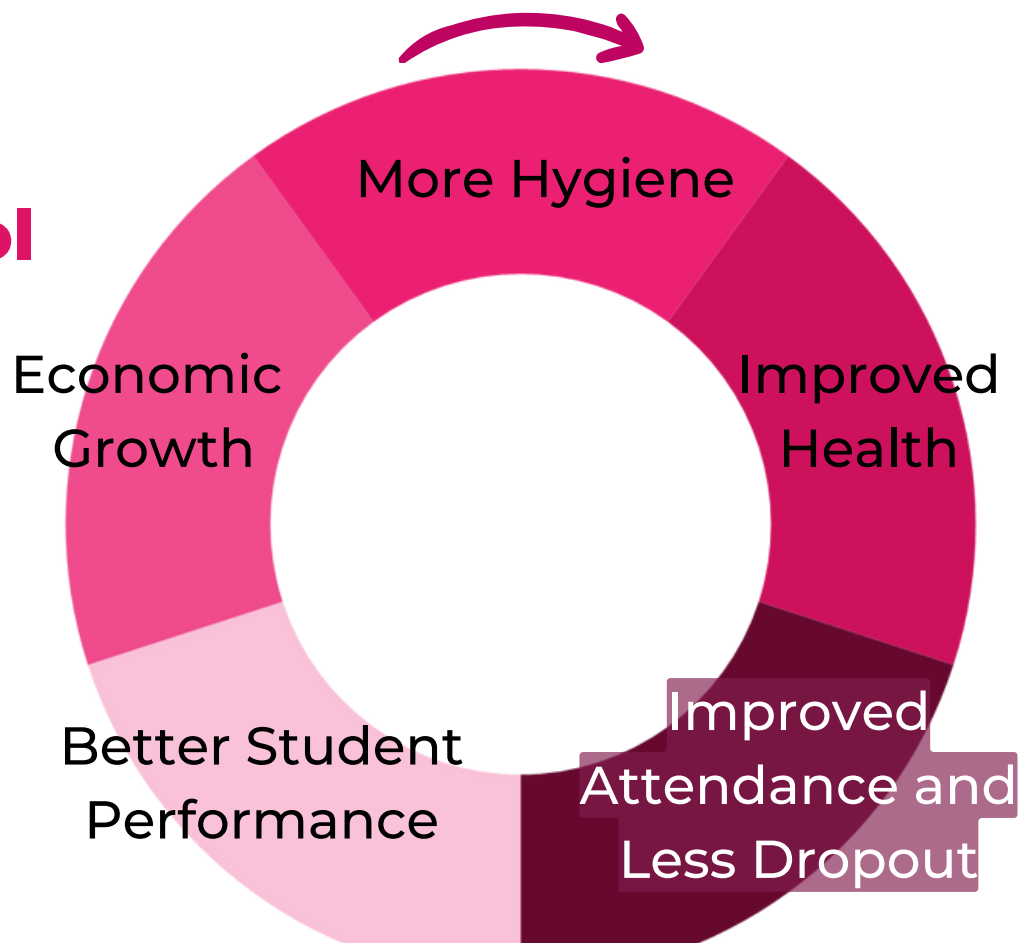
## What is a GIRL-FRIENDLY TOILET?

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It is a toilet that ensures a girl's right to **SAFETY, HYGIENE and PRIVACY**

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**Clean** and **Healthy school**  
creates a cycle of **opportunities**



# About the Dataset

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## Dataset

Sl.	States/UTs	Schools with Girls' Toilet	Schools with functional Girls' Toilet
1	Andaman & Nicobar Islands	100	100
2	Andhra Pradesh	99.72	89.38
3	Arunachal Pradesh	95.6	94.62
4	Assam	97.24	94.72
5	Bihar	89.41	92.24
6	Chandigarh	100	100
7	Chhattisgarh	99.38	96.09
8	Dadra & Nagar Haveli	100	100
9	Daman & Diu	100	100

Dataset contains information about Girls Toilet and Functional Girls Toilet in different States/UTs in the year 2016-17.

### States/UTs

Schools with Girls' Toilet - Percentage of Schools that have girls toilet in them.

Schools with Functional Girls' Toilet - Percentage of Schools that have functional toilets among those that have toilets.

```
Structure of Dataset in Consideration:
'data.frame':  37 obs. of  3 variables:
 $ states.UTs      : chr  "Andaman & Nicobar Islands" ...
 $ schools.with.Girls..Toilet : num  100 ...
 $ schools.with.functional.Girls..Toilet: num  100 ...

Column names:-
[1] "states.UTs"                  "schools.with.Girls..Toilet"
[3] "schools.with.functional.Girls..Toilet"
```

# Initial Steps

```
1 df <- read.csv("C:\\Users\\DELL\\Desktop\\DU MSC\\Maths\\Presentation\\RS_Session_248_AS_9.csv", header=TRUE, stringsAsFactors = FALSE, fill = TRUE)
2 str(df, vec.len = 1)
3 head(df)
4
5
6 library(ggplot2)
7
8 d1 <- data.frame(GirlsToilet <- df$Schools.with.Girls..Toilet, Locations <- df$States.UTs)
9
10 #barplot(data$Schools.with.Girls..Toilet, names.arg = data$X.1 )
11
12 d1
```

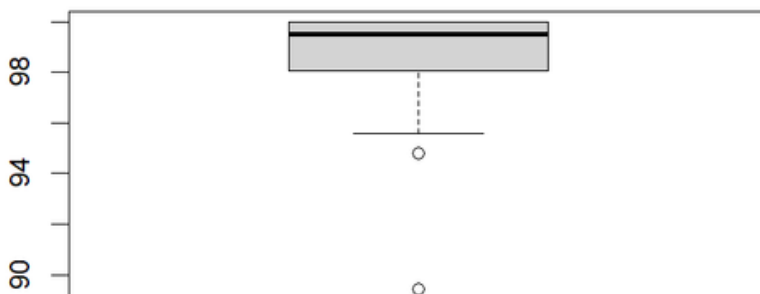
Reading the Dataframe, checking the values. Loading librray ggplot2 for plotting the graphs.

Using Box plot for checking the range of values for Constructed Girls Toilets and Functional Girls Toilets in Schools.

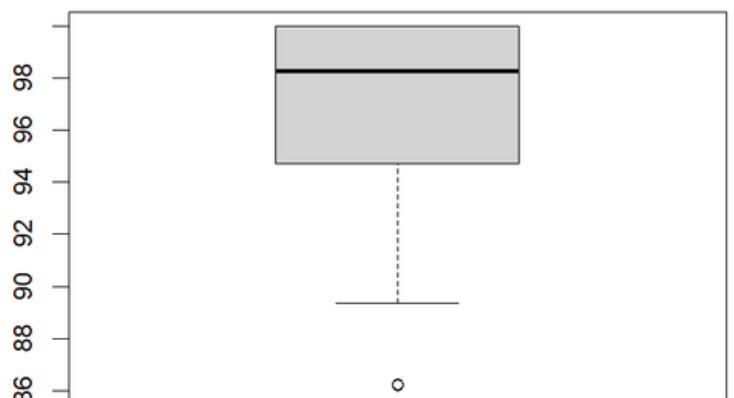
```
boxplot(df$Schools.with.Girls..Toilet, data = df)+
  title("Girls Toilets")

boxplot(df$Schools.with.functional.Girls..Toilet, data = df)+
  title("Functional Girls Toilets")
```

**Girls Toilets**

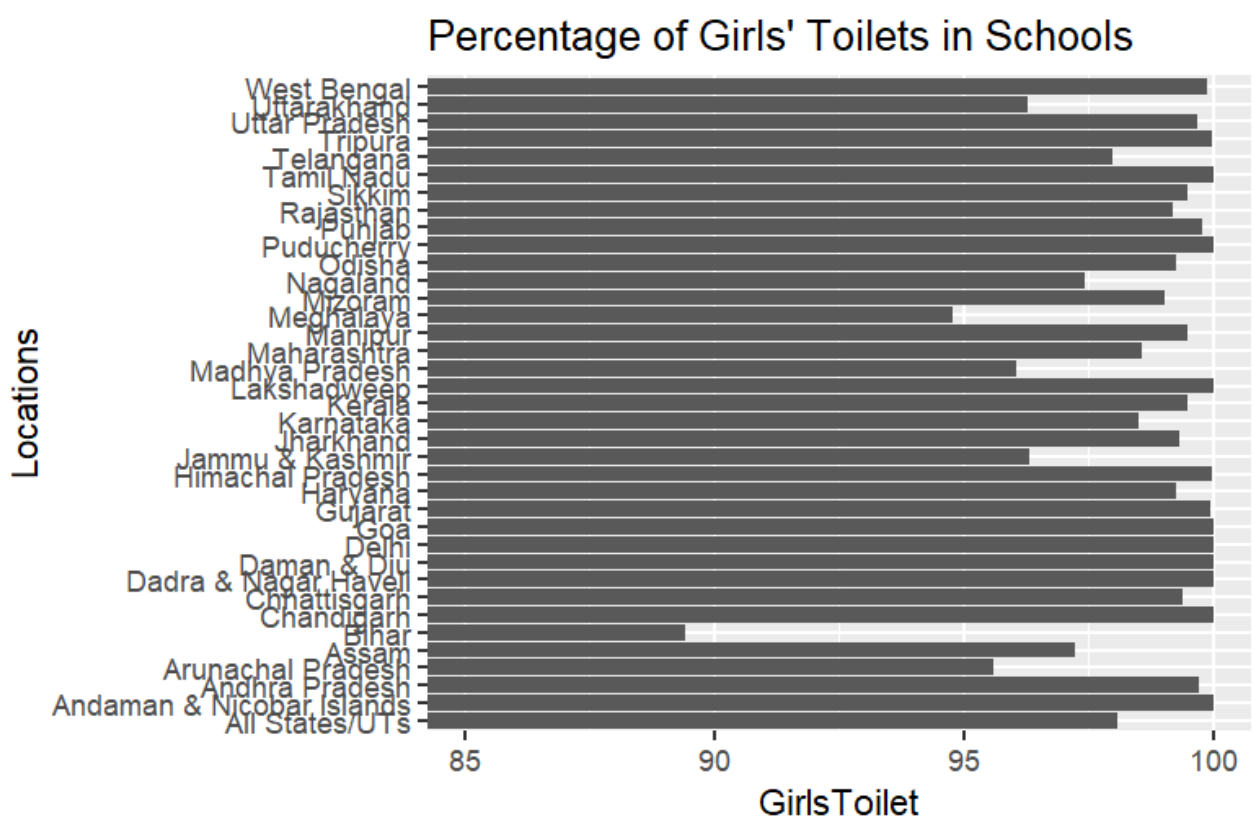


**Functional Girls Toilets**



The construction of toilets in schools have been more than 98% all across India, with functional ones being from 94% to 100%.

Summary of the Dataset:		
States.UTs	Schools.with.Girls..Toilet	Schools.with.functional.Girls..Toilet
Length:37	Min. : 89.41	Min. : 86.19
Class :character	1st Qu.: 98.07	1st Qu.: 94.72
Mode :character	Median : 99.48	Median : 98.23
	Mean : 98.63	Mean : 96.75
	3rd Qu.: 99.98	3rd Qu.: 99.98
	Max. :100.00	Max. :100.00



The graph shows us the number of girls toilet created across various states and union territories in already existing government schools.

Meghalaya, Bihar, Arunachal Pradesh, Uttarakhand etc. are among those states which have less number of constructed girl toilets in schools.



The graph shows us the number of "functional" girls toilet created across various states and union territories amongst the already existing girls toilets i.e. a toilet that has SAFETY, HYGIENCE and PRIVACY.

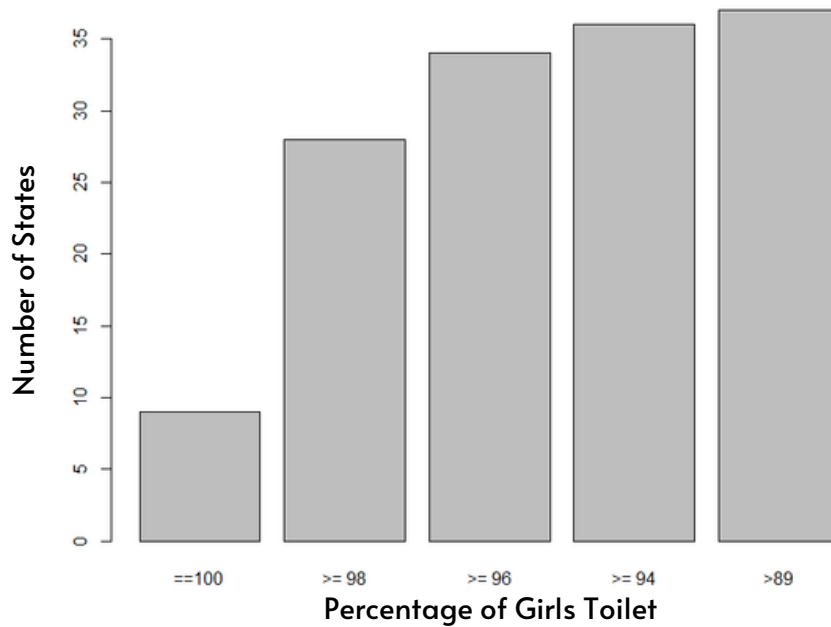
Among already identified States and Union Territories with lesser access to toilet facilities, Bihar and North Eastern States have lesser number of functional female toilets in schools.

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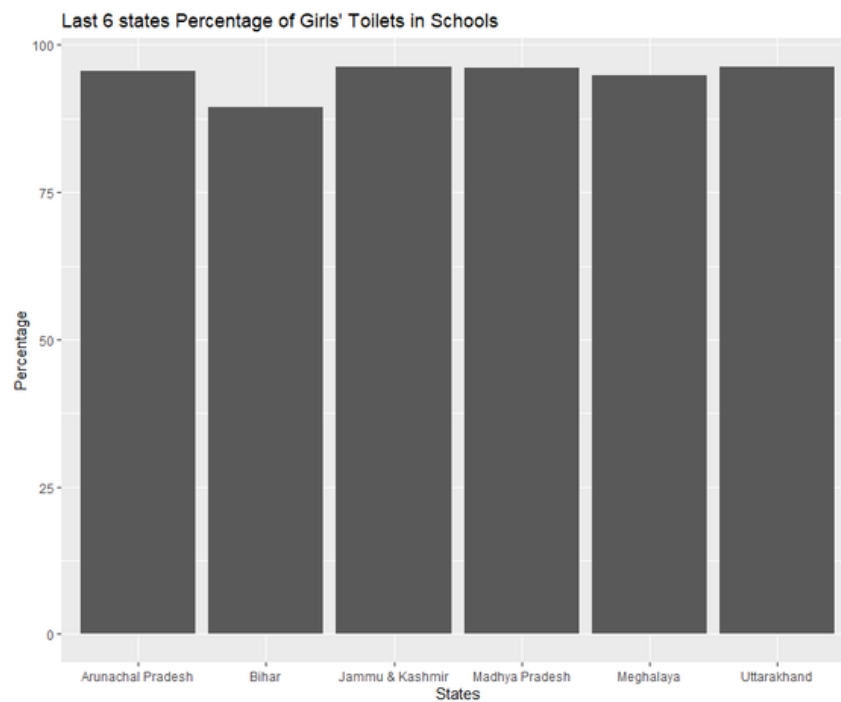
# Visualizations

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The bar chart below shows the number of states and their corresponding percentage of having functional toilets.

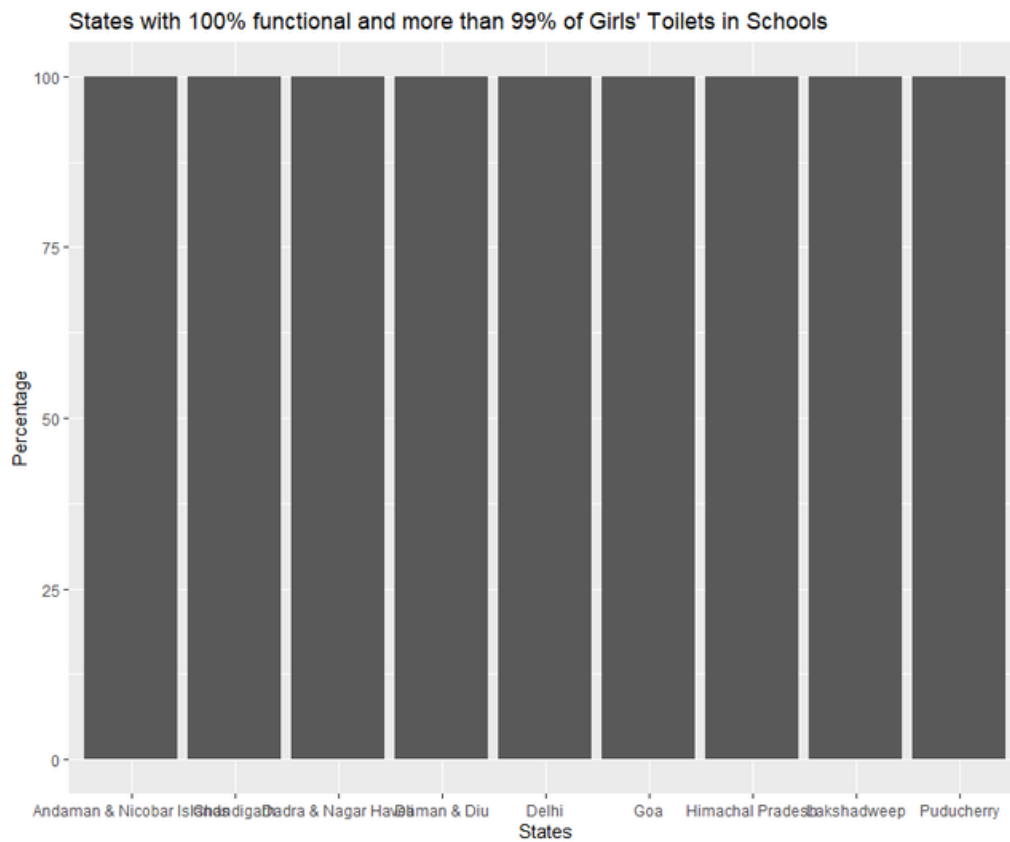


This graph shows the states with least number of toilets.

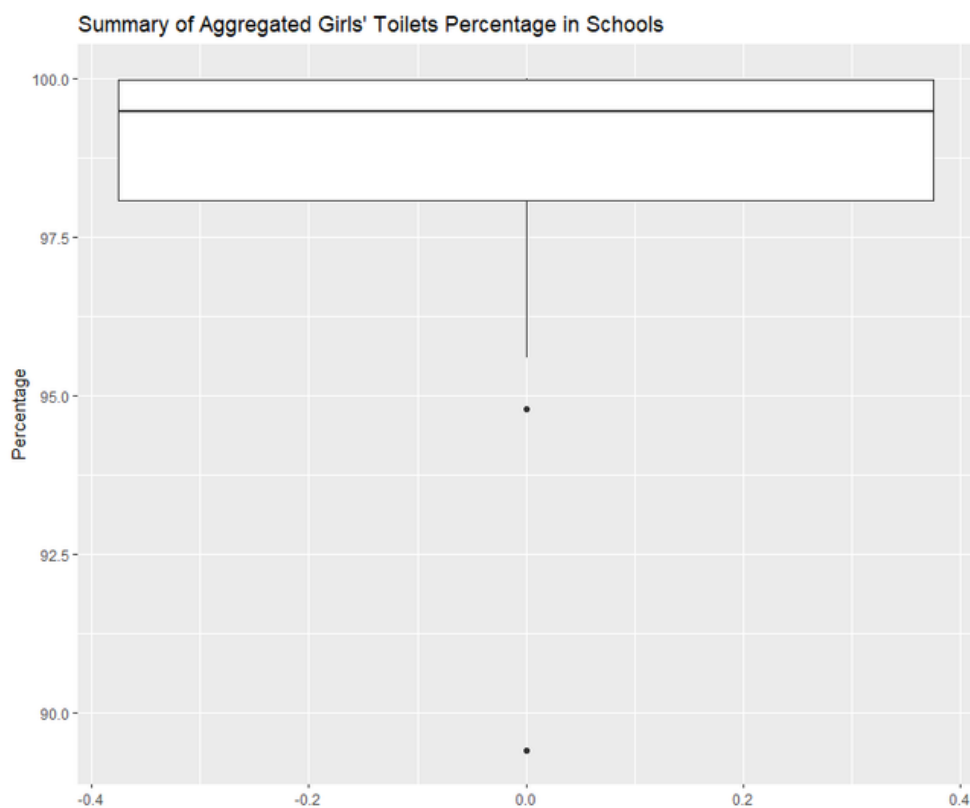




The graph below shows the states that have more than 99% of toilets with 100% functionality



The graph below shows aggregated percentage of fully functional girls' toilets in schools calculated by  $\text{Functional Toilets \%} \times \text{Number of Toilets \%}$

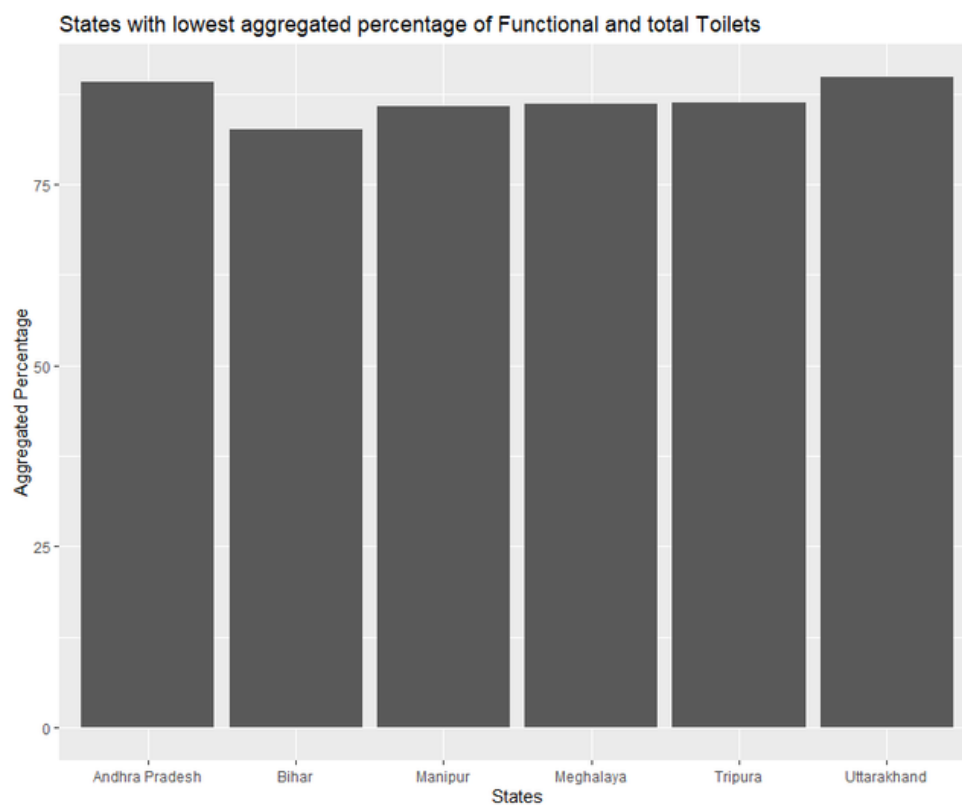


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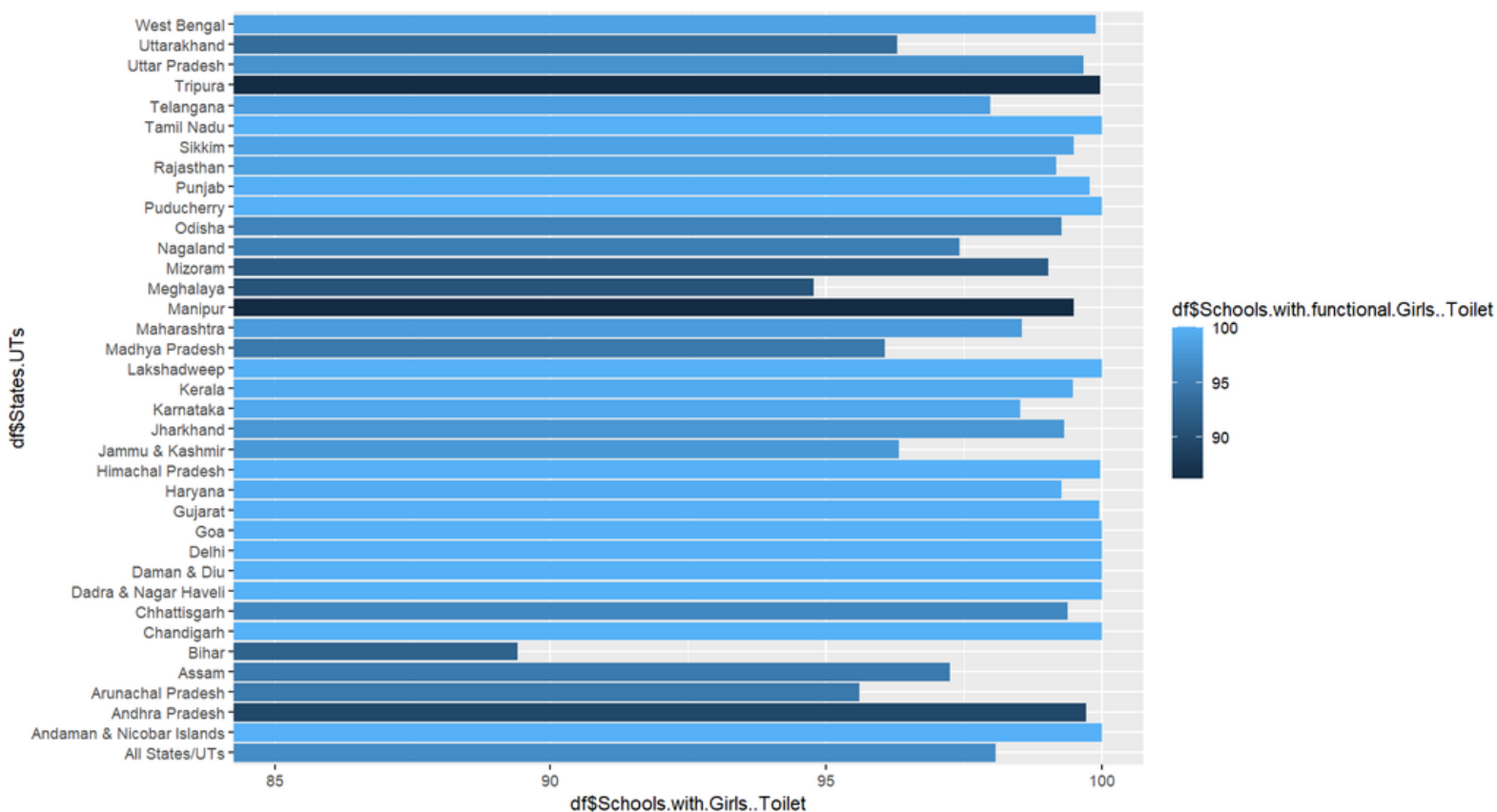
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
82.47	92.11	96.88	95.45	99.98	100.00

The graph below shows states with Lowest Aggregated Percentage of Functional Toilets.

	States.UTs	aggregated.functional.percentage
35	Uttarakhand	89.80968
2	Andhra Pradesh	89.12974
33	Tripura	86.23275
23	Meghalaya	86.00337
22	Manipur	85.75043
5	Bihar	82.47178



# Visualizations



The graph shows us the number of "functional" girls toilet created across various states and union territories amongst the already existing girls toilets i.e. a toilet that has SAFETY, HYGIENCE and PRIVACY.

Darker shades of blue signify those states that a low percentage of functional toilets- Bihar, Andhra Pradesh, Manipur, Meghalaya, Mizoram, Tripura, Uttarakhand.

Hence, we observe that making up of toilets for woman is not enough, it should be ensured that the toilets are such which woman can use without any issues related to hygiene, privacy or safety.

## References

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### Images:

[https://www.google.com/url?](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ndtv.com%2Feducation%2Fpunjab-government-distribute-free-school-uniforms-over-13-lakh-students-minister&psig=AOvVaw0_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12_Lynv0CFQAAAAAdAAAAAAQ)

[sa=i&url=https%3A%2F%2Fwww.ndtv.com%2Feducation%2Fpunjab-government-distribute-free-school-uniforms-over-13-lakh-students-minister&psig=AOvVaw0\\_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12\\_Lynv0CFQAAAAAdAAAAAAQ](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ndtv.com%2Feducation%2Fpunjab-government-distribute-free-school-uniforms-over-13-lakh-students-minister&psig=AOvVaw0_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12_Lynv0CFQAAAAAdAAAAAAQ)

[https://www.google.com/url?](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.pinterest.com%2Fpin%2F501869952199636673%2F&psig=AOvVaw0_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12_Lynv0CFQAAAAAdAAAAABAJ)

[sa=i&url=https%3A%2F%2Fwww.pinterest.com%2Fpin%2F501869952199636673%2F&psig=AOvVaw0\\_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12\\_Lynv0CFQAAAAAdAAAAABAJ](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.pinterest.com%2Fpin%2F501869952199636673%2F&psig=AOvVaw0_X4Xfvzk5b2wlbrDVE6K3&ust=1676803752812000&source=images&cd=vfe&ved=0CBAQjRxqFwoTCOj12_Lynv0CFQAAAAAdAAAAABAJ)

### Dataset:

<https://data.gov.in/resource/stateut-wise-details-percentage-government-schools-girls-toilets-and-functional-girls>

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# Thankyou!

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