

Maps can be rubbish for
visualising global data.

A look at other options

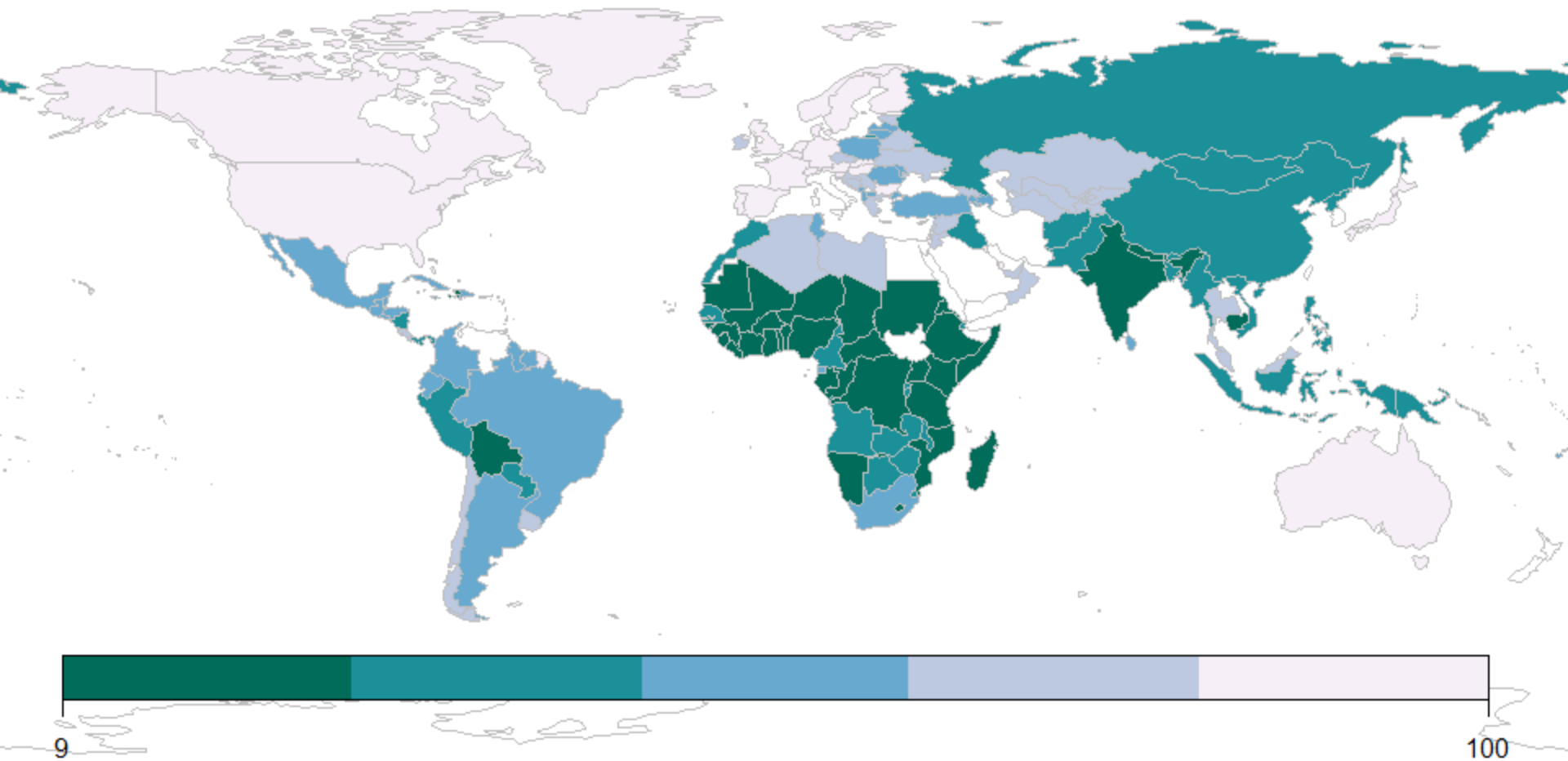
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slides at : andysouth.co.uk

% popn with access to improved sanitation 2005 (world bank)



R & global maps

1. R is great for getting global, country referenced data.
2. rworldmap package for mapping global data

R Journal paper (2011)

useR2013 tutorial : <https://t.co/Kilp0QXLhv>

... so why am I saying maps can be rubbish ?

I  maps



is

blind

With any visualisation the
important question is ...

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important question is ...

¿ Que quieres decir ?

With any visualisation the
important question is ...

What do you want to say ?

What do you want to say with your global data ?

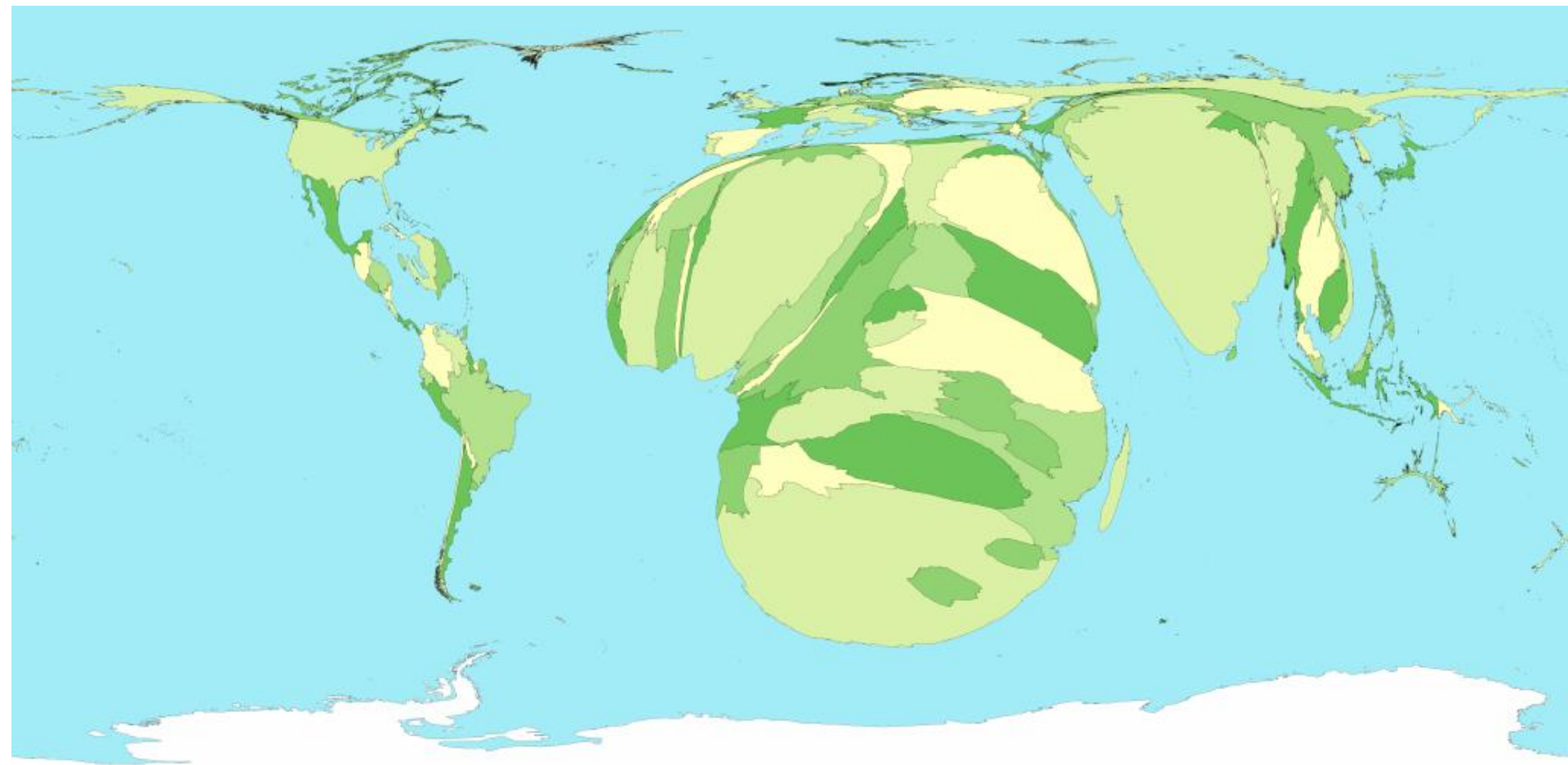
1. Geographical pattern
2. Identify key countries quickly
3. Ranking
4. Relative values
5. Extremes
6. (Hey! Look at my data)

Difficulties with global maps

- a. countries are different sizes & shapes
- b. there are too many countries
- c. your reader is unlikely to know where all countries are
- d. some countries are too small & disappear
- e. some countries are split

Options for displaying global country data

- i. choropleth map
- ii. bubble map
- iii. ranked bar plots
- iv. tree maps
- v. (cartograms)



Cartogram by Mark Newman : <http://www.omegahat.org/Rcartogram/>

Getting world bank indicator data

```
library(WDI)
```

```
# http://data.worldbank.org/indicator/  
# Improved sanitation facilities (% of popn)
```

```
indicator <- "SH.STA.ACSN"
```

```
dFsanitation <- WDI( indicator=indicator  
                    , start=2005  
                    , end=2005 )
```

i. chloropleth map

```
library(rworldmap)
```

```
sPDFsanitation <-
```

```
joinCountryData2Map( dFsanitation  
                      , nameJoinColumn='iso2c'  
                      , joinCode='ISO2')
```

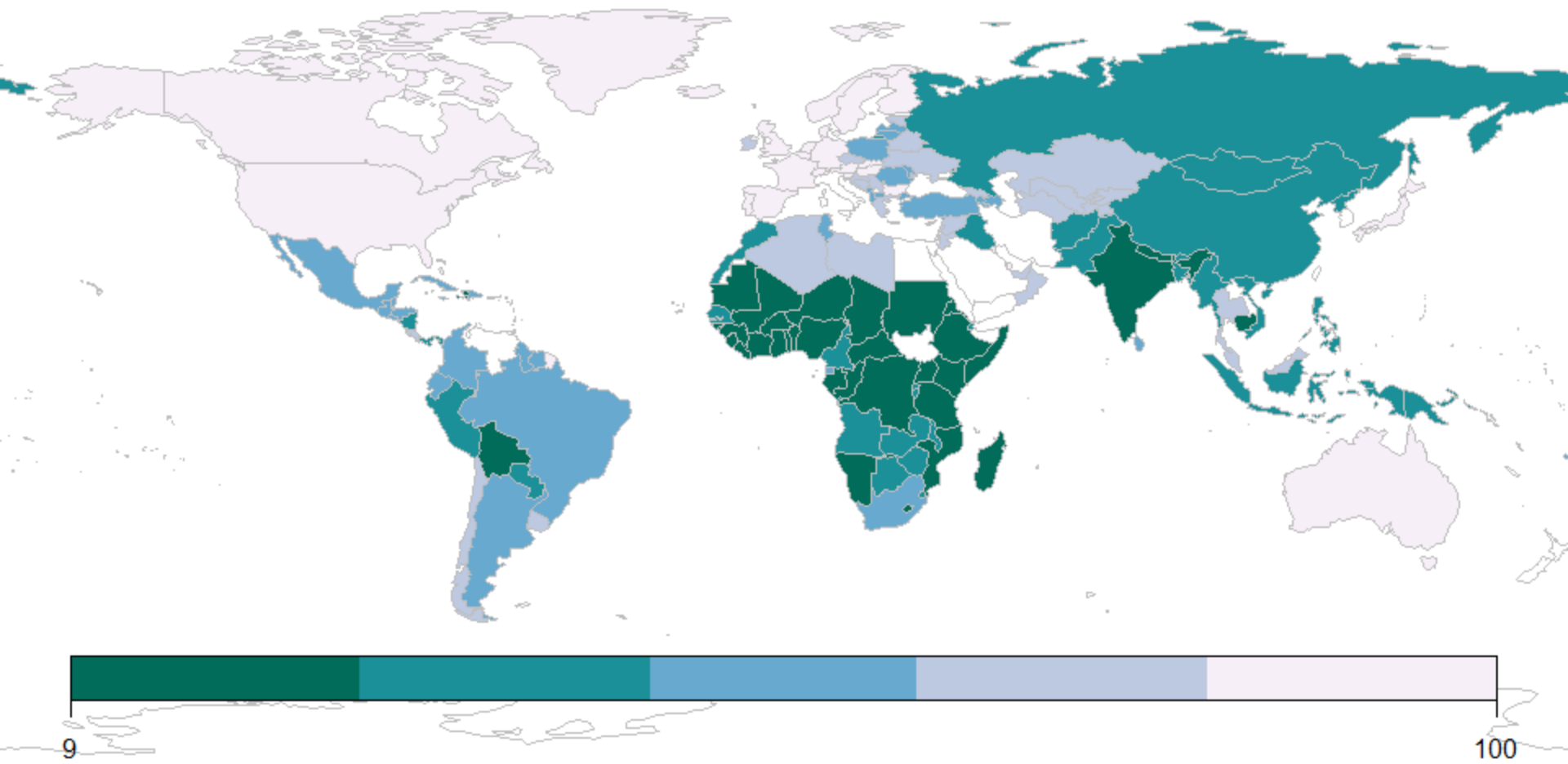
```
library(RColorBrewer)
```

```
numCats <- 5
```

```
colourPalette <- rev(brewer.pal(numCats, "PuBuGn"))
```

```
mapCountryData( sPDFsanitation  
                , nameColumnToPlot=indicator  
                , colourPalette=colourPalette  
                , numCats=numCats )
```

Access to Sanitation 2005



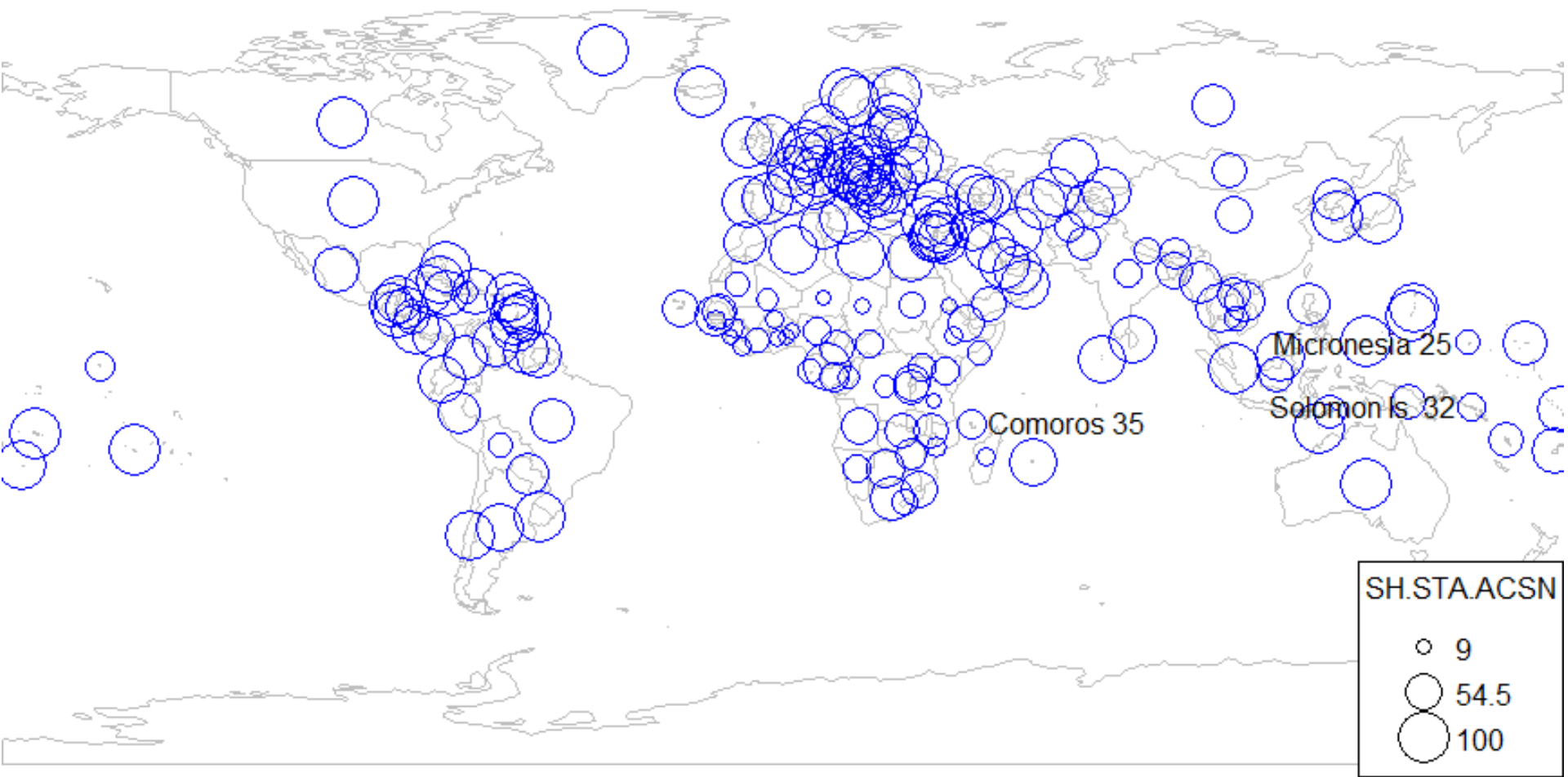
ii. bubble map

```
library(rworldmap)
```

```
mapBubbles( sPDFsanitation  
            , nameZSize = indicator  
            , nameZColour = 'blue'  
            , fill = FALSE )
```

#optional interactive labelling of countries

```
identifyCountries( sPDFsanitation  
                  , nameColumnToPlot = indicator )
```

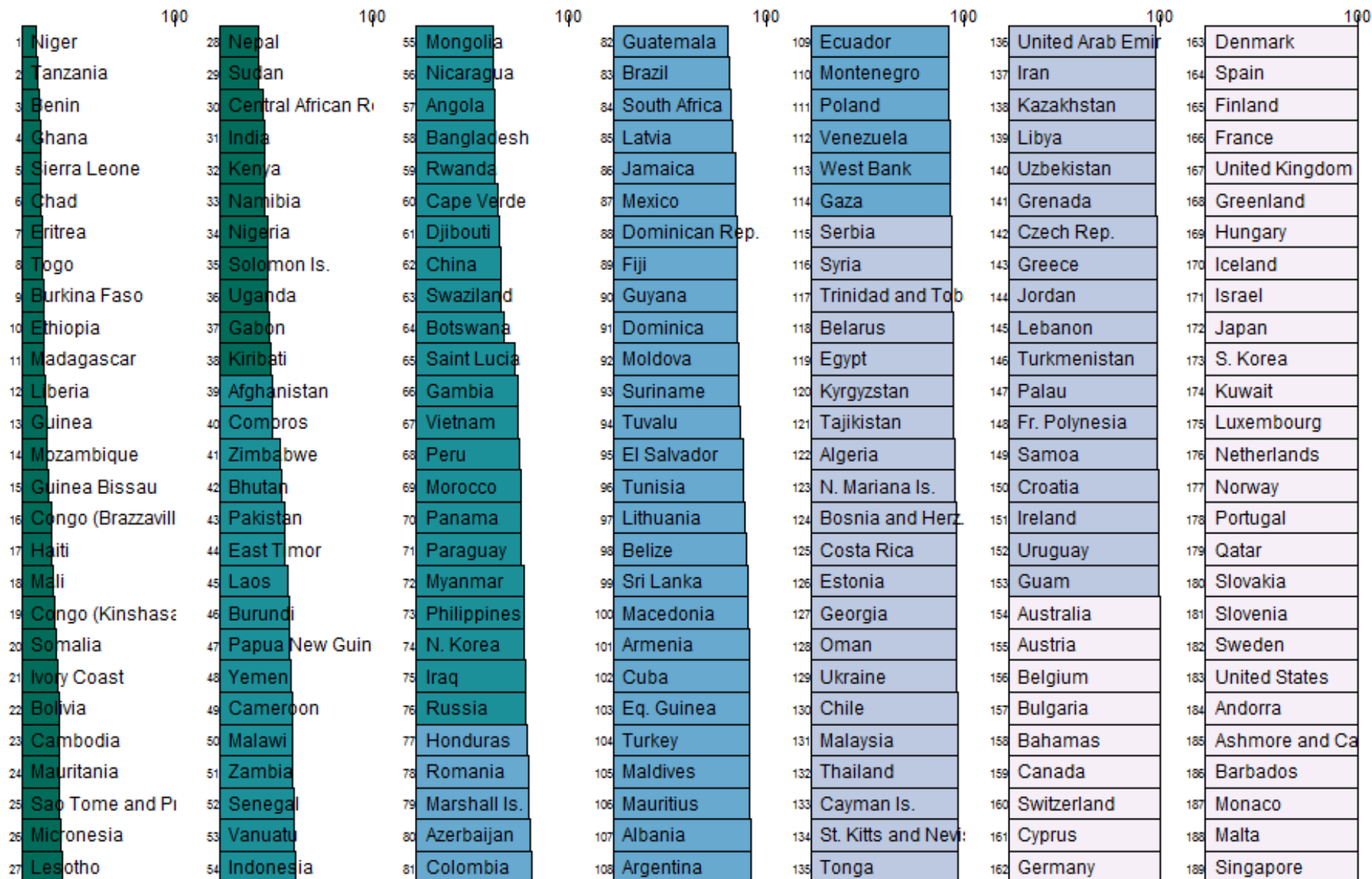



iii. Ranked bar plot

```
library(rworldmap)
```

```
barplotCountryData( sPDFsanitation  
  , nameColumnToPlot=indicator  
  , nameCountryColumn = "NAME"  
  , numCats = numCats  
  , colourPalette = colourPalette  
  , na.last = NA  
  , decreasing = FALSE  
  , scaleSameInPanels = TRUE  
  , numPanels = 7  
  , cex = 1.1 )
```

SH.STA.ACSN



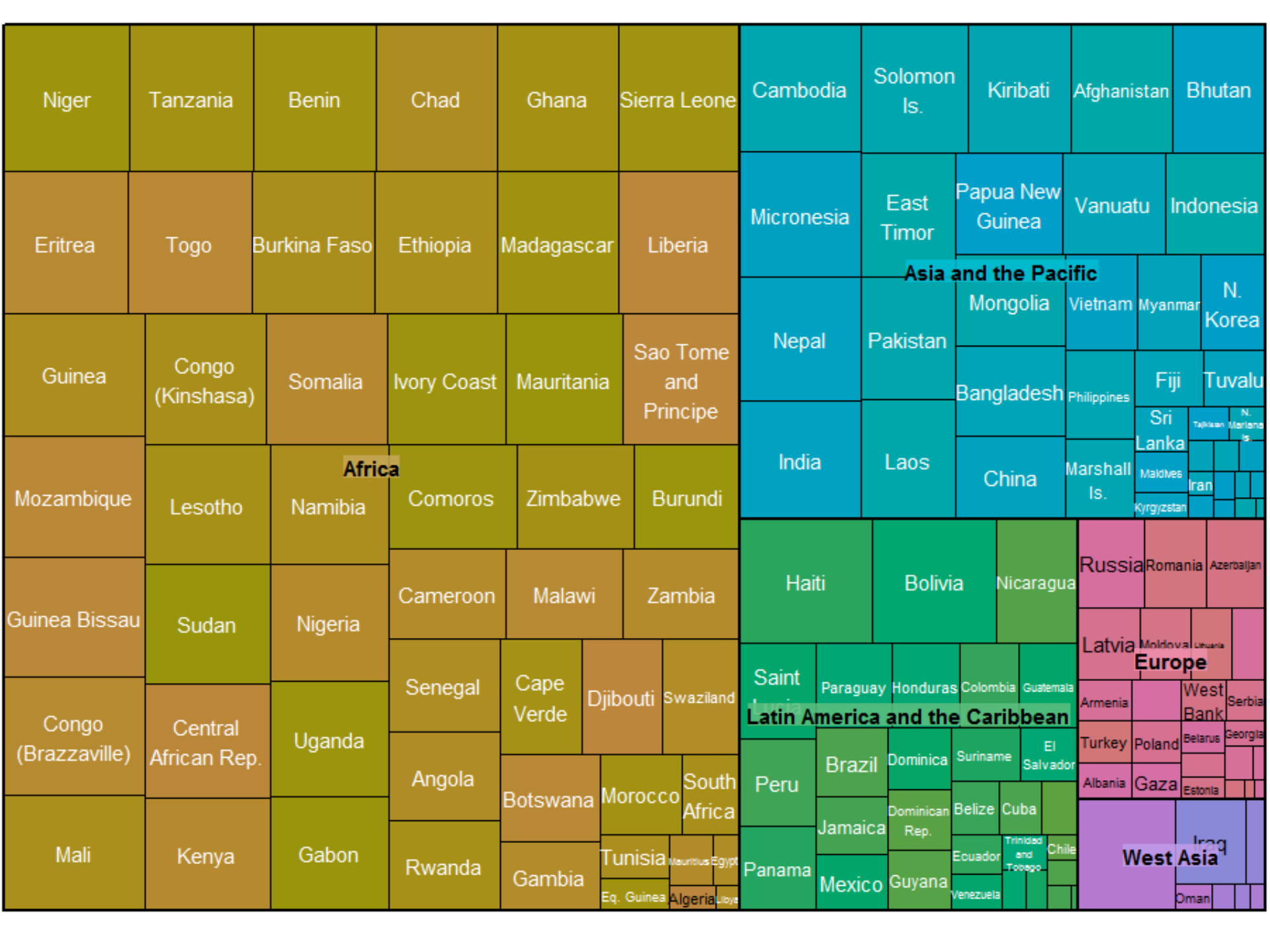
iv. treemap



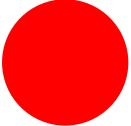







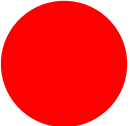



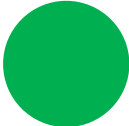






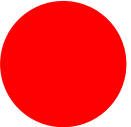
```
library(treemap)
```

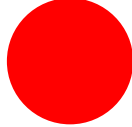


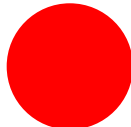



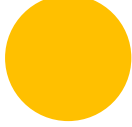
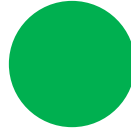
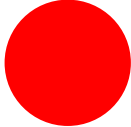



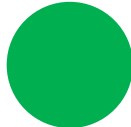




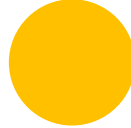


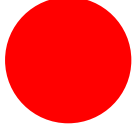

```
dFsanitation2 <- sPDFsanitation@data
```

```
dFsanitation2$inverse <- 100 -  
                        dFsanitation2[[indicator]]
```

```
treemap( dFsanitation2  
        , index = c("GEO3major", "NAME")  
        , vSize = "inverse")
```



Solutions	Geog. pattern	Key countries	Ranks	Relative values	Extremes
Chloropleth					
bubbles					
Ranked bars					
Tree maps					
Cartograms					

Problems	Different sizes	Too many	Unknown location	Small disappear	Split
Chloropleth					
bubbles					
Ranked bars					
Tree maps					
Cartograms					

Things to remember maybe

- Think about what you want to say with global data. Is a map the best way of saying it ?
- R packages : `rworldmap`, `WDI`, `treemap`
- These slides : andysouth.co.uk
- Thanks to the developers of the packages on which this is built (`sp`, `classInt`, ...)