

# Plastic Waste

## 1. Load packages

```
library (tidyverse)
library (janitor)
library (ggthemes)
library (ggrepel)
library (scales)
```

## 2. Get data

```
mismanaged_vs_gdp<- read_csv("https://raw.githubusercontent.com/rfordatascience/tidytuesday/master/data/2010/01/mismanaged_vs_gdp.csv",
  clean_names())

coast_vs_waste <- readr::read_csv("https://raw.githubusercontent.com/rfordatascience/tidytuesday/master/data/2010/01/coast_vs_waste.csv",
  clean_names())
```

## 3. Transform data

```
waste_raw <- left_join (mismanaged_vs_gdp, coast_vs_waste, by = c("code", "year")) %>%
  filter (year == 2010)

waste <- waste_raw %>%
  filter (year == 2010) %>%
  drop_na () %>%
  rename (
    country_name = entity.x,
    waste = mismanaged_plastic_waste_tonnes,
    gdp_per_capita = gdp_per_capita_ppp_constant_2011_international_rate,
    population = total_population_gapminder.x
  ) %>%
  mutate (
    waste_per_coastal_capita = waste / coastal_population * 100,
    population = population / 1000000
  ) %>%
  select (country_name, waste, coastal_population, waste_per_coastal_capita, gdp_per_capita, population)
  arrange (-waste_per_coastal_capita)

head(waste)
```

```
## # A tibble: 6 x 6
##   country_name waste coastal_populat~ waste_per_coast~ gdp_per_capita
##   <chr>         <dbl>         <dbl>         <dbl>         <dbl>
## 1 Sri Lanka    1.59e6      14568174      10.9          8530.
## 2 Vanuatu      2.25e4       251851       8.93          2948.
## 3 Guyana       4.20e4       513235       8.18          5848.
```

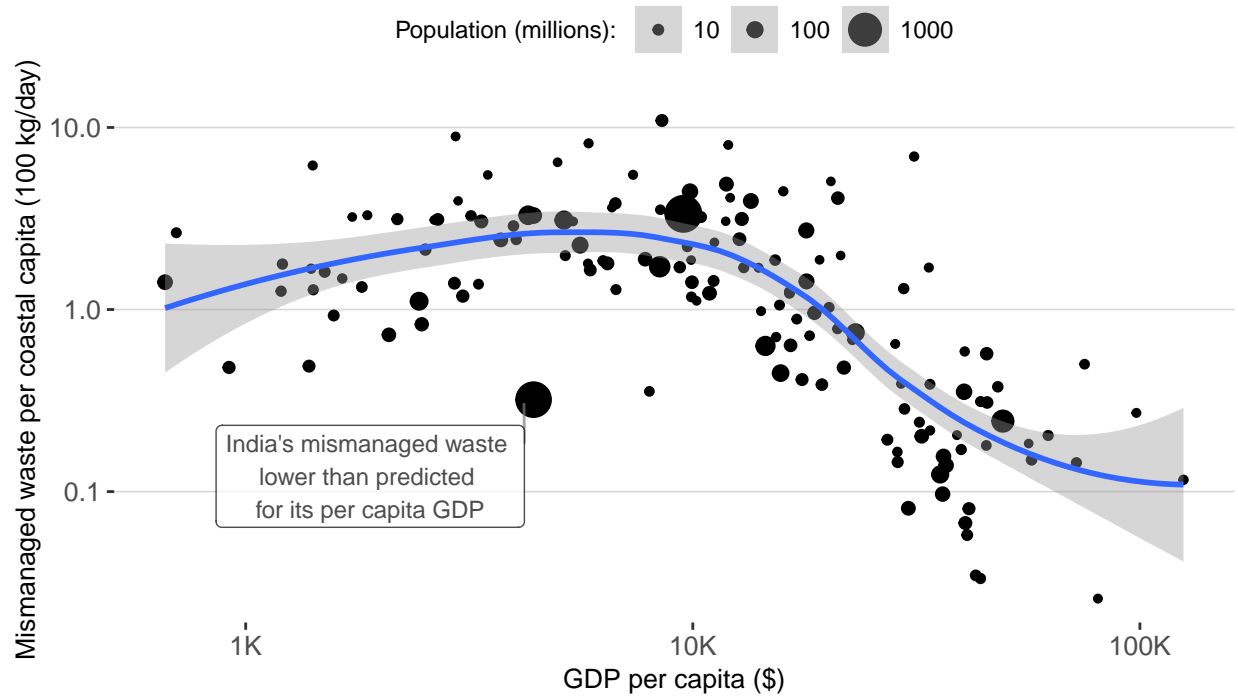
```
## 4 Maldives      3.15e4      392567      8.02      12006.
## 5 Trinidad an~ 9.41e4      1358433      6.92      31261.
## 6 Tonga         6.62e3      102872      6.44      4984.
## # ... with 1 more variable: population <dbl>
```

#### 4. Visualize

```
ggplot (waste,
  aes(x = gdp_per_capita, y = waste_per_coastal_capita, size = population)) +
  geom_point () +
  geom_smooth () +
  #scales
  scale_x_continuous(
    trans = log10_trans(),
    label = unit_format(unit = "K", scale = 1e-3, sep = "")
  ) +
  scale_y_continuous(trans = log10_trans()) +
  scale_size_continuous(breaks = c(10, 100, 1000)) +
  guides(size = guide_legend(override.aes = list(linetype = 0))) +
  labs(
    title = "Mismanaged waste decreases as GDP above $10K per capita",
    caption = "\n Sources: National Geographic, Gapminder, R4DS Tidy Tuesday
    Visualization: Joel Soroos (Twitter: @soroosj)",
    x = "GDP per capita ($)",
    y = "Mismanaged waste per coastal capita (100 kg/day)",
    size = "Population (millions): "
  ) +
  theme_hc () +
  geom_label_repel(
    aes (label = "India's mismanaged waste \nlower than predicted \nfor its per capita GDP"),
    data = subset (waste, country_name == "India"),
    box.padding = 0.5,
    point.padding = 0.5,
    alpha = 0.7,
    size = 3,
    segment.color = 'grey50'
  ) +
  theme(
    legend.title = element_text(colour="black", size=9),
    legend.text = element_text(colour="black", size=9),
    legend.position = "top",
    axis.title=element_text(size=10),
    panel.grid.major = element_line(size = 0.3, linetype = 'solid'),
    plot.caption = element_text(colour="black", size=8)
  )
)
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```

## Mismanaged waste decreases as GDP above \$10K per capita



Sources: National Geographic, Gapminder, R4DS Tidy Tuesday  
Visualization: Joel Soroos (Twitter: @soroosj)

```
#@plot1  
#ggsave("plots/plot1.png",plot1)
```