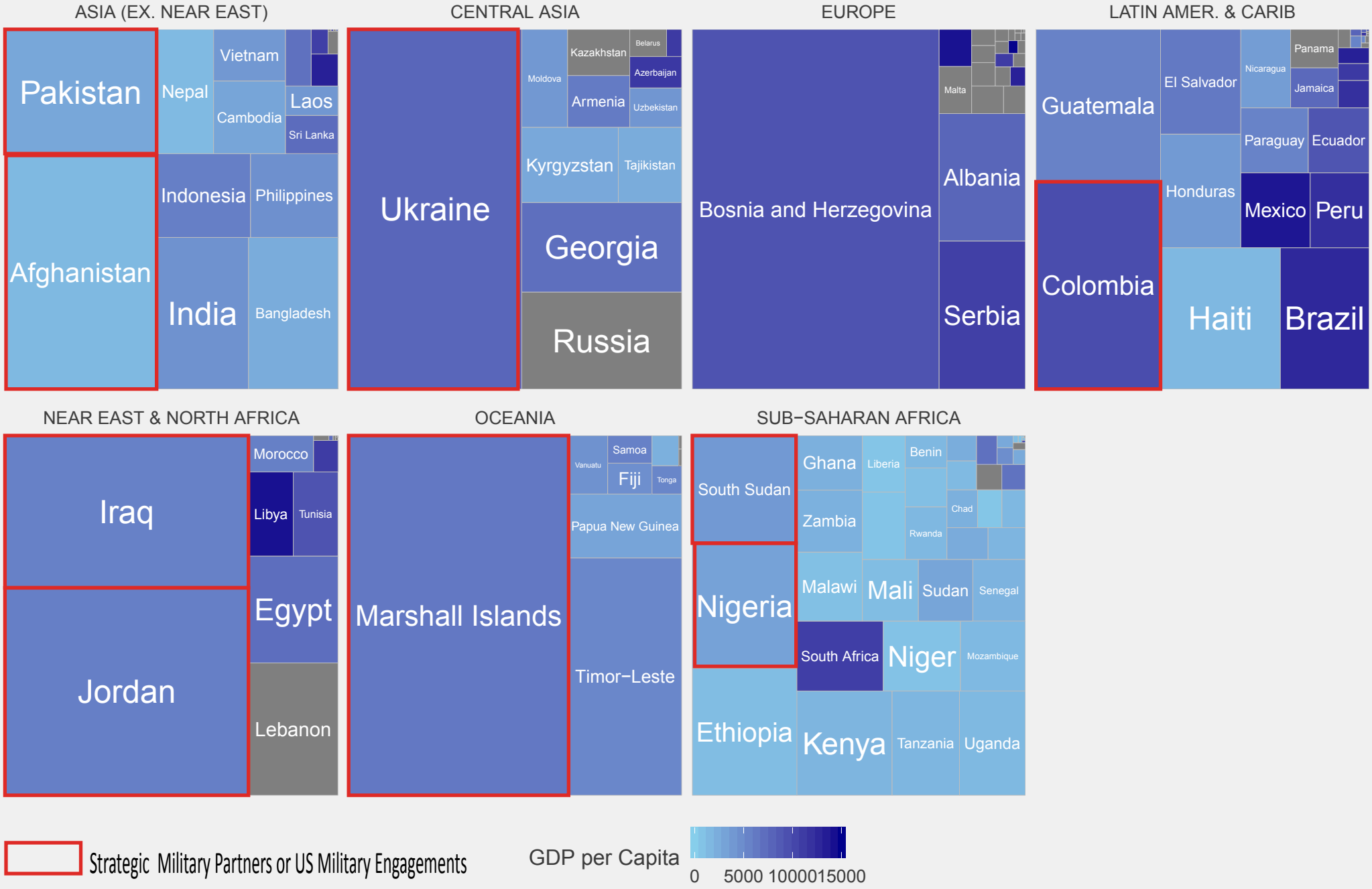
Visualization 1

This first visualization divides US foreign assistance spending into regional blocks, which is then further divided by total share of the total amount across the nations that comprise that region. This visualization seeks to drive home a key point: US ‘foreign aid’ does not necessarily go to poor nations that channel these funds into development programs to improve human development outcomes. Rather, in almost every region, the nation(s) with the largest share of US foreign assistance are those in which the US has a strategic interest, either in regional stability or active conflicts. The US has long provided military assistance to or maintains a strong military interest in Pakistan, Jordan, The Marshall Islands, and Colombia. The US is actively involved in or funding military engagements in Afghanistan, Iraq, Ukraine, and Nigeria

Strategic Funding

US Regional Foreign Assistance is targeted to Strategic Partners rather than countries with the greatest financial need



Source: ForeignAssistance.gov; World Bank; UN Data
*Tile Area is Propotional to Share of Regional Aid

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##########################################
### Data Visualization Assignment  4.1 ###
#     Connor Harrison, Mar 10, 2019      #
##########################################

# Load Packages
library(tidyverse)
library(readr)
library(readxl)

# Load Data
ForeignAssistance_data <- read_csv("~/Georgetown Docs/Data/ForeignAssistance-FullDataSet/ForeignAssistance-FullDataSet-2017-and-Later.csv")
region <- read_excel("~/Georgetown Docs/Data/countries of the world.xls")
gdp_full <- read_excel("~/Georgetown Docs/Data/gapdata_gdp_ppp_v14.xlsx")
population <- read_csv("~/Georgetown Docs/Data/UNdata_Export_20190210_173214793/UNdata_Export_20190210_173214793.csv")

# Clean GDP Data
gdp <- gdp_full[, 1:3]
gdp_2018 <- filter(gdp, Year=='2018')
gdp_2018 <- select(gdp_2018, Country='Area', gdp='GDP per capita - with interpolations')

# Keep Data for 2018
FA_2018 <- filter(ForeignAssistance_data, Award_Transaction_Fiscal_Year==2018)

# Keep and Rename Relevant Variables
FA_2018 <- select(FA_2018, Year = 'Award_Transaction_Fiscal_Year', Category = 'Award_Transaction_US_Foreign_Assistance_Category',
                  Amount = 'Award_Transaction_Value', Country = 'Recipient_Location')
```

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# Order by Country
FA_2018 <- arrange(FA_2018, desc(Country, Category))

# Create Variable: Sum of Total FA for each country
FA_2018_sum_total <- FA_2018 %>% group_by(Country) %>%
  mutate(Sum_Amount = sum(Amount))

# Drop Duplicate Observations
FA_2018_sum_total <- select(FA_2018_sum_total, Year, -Category, Country, Sum_Amount, -Amount)
FA_2018_unique_total <- unique(FA_2018_sum_total)

# Clean Region and Country Data to Merge
region <- select(region,Country='Data is public domain from US government.', region='..2')
FA_2018_regions <- left_join(FA_2018_unique_total,region,by="Country")

# Check Missing Values on Merge
region_missing <- filter(FA_2018_regions, is.na(region))
region_missing <-arrange(region_missing, desc(Country))

# Join GDP Data
FA_2018_complete <- left_join(FA_2018_regions_total,gdp_2018,by="Country")

# Drop observations with missing gdp data
FA_2018_complete <- filter(FA_2018_complete, !is.na(gdp))

# Add Missing Region Observations
FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="Trinidad and Tobago", "LATIN AMER. & CARIB"))
```

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FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="Timor-Leste", "OCEANIA"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="South Sudan", "SUB-SAHARAN AFRICA"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="Sao Tome and Principe", "SUB-SAHARAN AFRICA"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="Bosnia and Herzegovina", "EASTERN EUROPE"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, Country=="Montenegro", "EASTERN EUROPE"))

# Base Plot
ggplot(data = FA_2018_complete,
       aes(area = Sum_Amount, fill = gdp, label = Country)) +
  geom_treemap() +
  geom_treemap_text(colour = "white", place = "centre") +
  scale_fill_gradient(limits = c(0, 15000)) +
  facet_wrap(~region, ncol = 3)

# Too many regions w/ facet
# Drop N. America and NA regions
# Combine Remaining Regions

FA_2018_complete <- FA_2018_complete %>%
```

```
  mutate(region=replace(region, region=="NEAR EAST", "NEAR EAST & NORTH AFRICA"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, region=="NORTHERN AFRICA", "NEAR EAST & NORTH AFRICA"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, region=="BALTICS", "EUROPE"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, region=="WESTERN EUROPE", "EUROPE"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, region=="EASTERN EUROPE", "EUROPE"))

FA_2018_complete <- FA_2018_complete %>%
  mutate(region=replace(region, region=="C.W. OF IND. STATES", "CENTRAL ASIA"))

FA_2018_complete <- filter(FA_2018_complete, region != "NORTHERN AMERICA" & region != "NA")

# Just SSA Data Set
FA_2018_ssa <- filter(FA_2018_complete, region == "SUB-SAHARAN AFRICA")



# Revised Plot 1.0
ggplot(data = FA_2018_complete,
       aes(area = Sum_Amount, fill = gdp, label = Country)) +
  geom_treemap() +
  geom_treemap_text(colour = "white", place = "centre") +
```

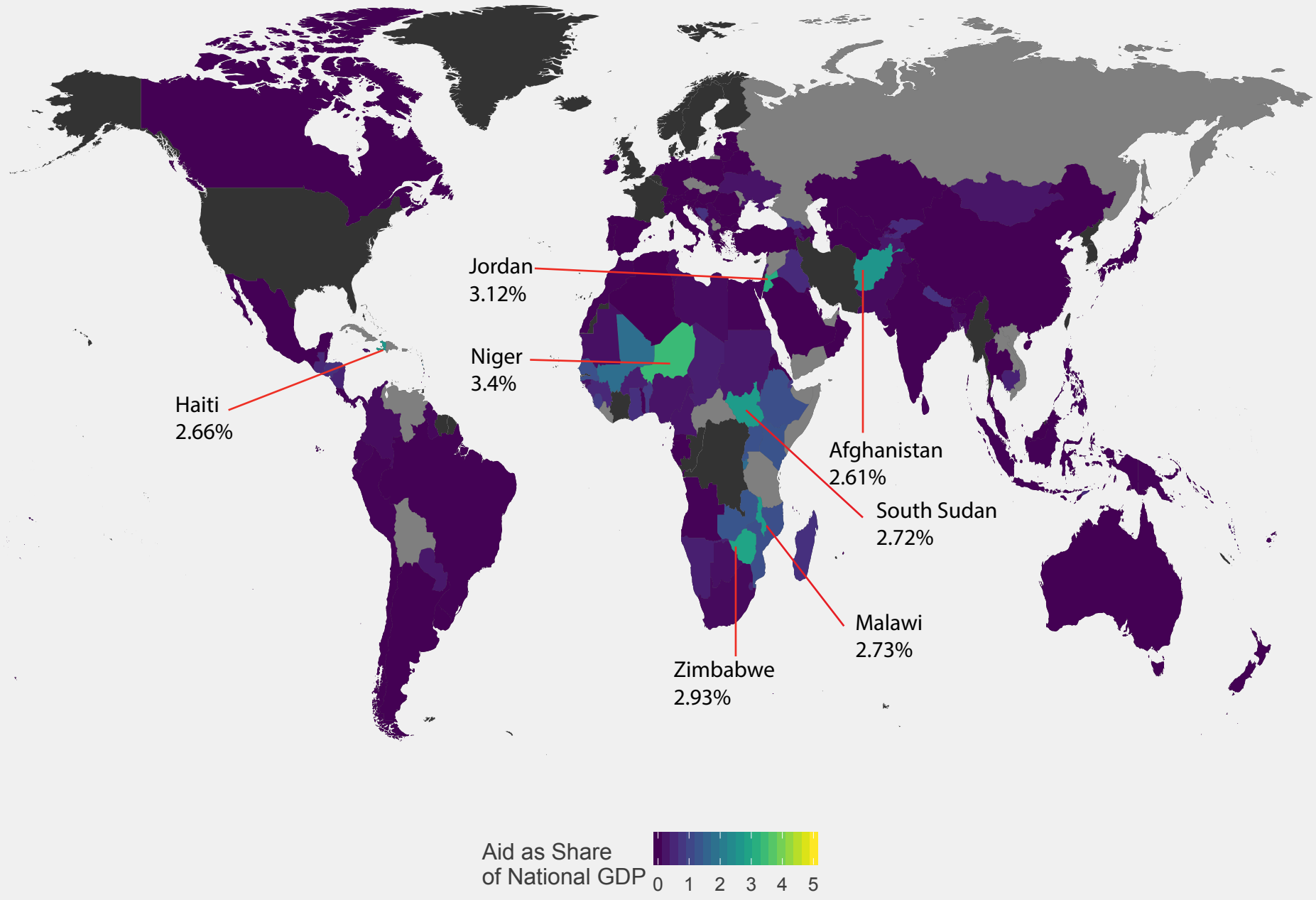
```
  scale_fill_gradient2(limits = c(0, 15000), low = "white", mid = "skyblue", high = "blue4", name="GDP per Capita") +
  facet_wrap(~region, ncol = 3) +
  labs(title = paste("Strategic Funding"),
       subtitle = "US Regional Foreign Assistance is targeted to Strategic Partners \nrather than countries with the greatest financial need",
       caption = "Source: ForeignAssistance.gov; World Bank; UN Data\n*Tile Area is Propotional to Share of Regional Aid")
```

Visualization 2

Your average US citizen that reads an article detailing the U.S.'s foreign assistance spending is limited on two fronts; both the reader and author tend to frame spending in terms of the alternative for the U.S. For example, a US $1 Million aid program could fund the police force in X town for Y years. While this perspective is intrinsically important, it unfortunately ignores the impact this outlay has on the recipient nation. The best example of this is Niger, where US foreign assistance accounts for nearly 3.5% of the country's annual GDP. An example is helpful to illustrate this point and place this in perspective for US readers. 3.5% of US GDP is $752.5 million, certainly a large enough amount to fund impactful public programs. While the nominal value is certainly not the same for a country like Niger, the relative impact is the same. For the relatively small amount of our budget that is spent on foreign assistance, the positive impact we have on poor nations is outsized relative to foregone domestic spending.

How Much does US Foreign Aid Impact Recipient Budgets?

US Foreign Assistance Accounts for a significant portion
of the budgets of Poor Nations



Source: ForeignAssistance.gov
World Bank
UN Data

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##########################################
###        Data Visualization Assignment 4.2       ###
#              Connor Harrison, Mar 10, 2019             #
##########################################

# Load Packages
library(tidyverse)
library(readr)
library(readxl)
library(maps)
library(viridis)
library(ggthemes)



# Load Data
ForeignAssistance_data <- read_csv("~/Georgetown Docs/Data/ForeignAssistance-FullDataSet/ForeignAssistance-FullDataSet-2017-and-Later.csv")
region <- read_excel("~/Georgetown Docs/Data/countries of the world.xls")
gdp_full <- read_excel("~/Georgetown Docs/Data/gapdata_gdp_ppp_v14.xlsx")
population <- read_csv("~/Georgetown Docs/Data/UNdata_Export_20190210_173214793/UNdata_Export_20190210_173214793.csv")


# Clean FA Data
FA_2018 <- filter(ForeignAssistance_data, Award_Transaction_Fiscal_Year==2018)
FA_2018 <- select(FA_2018, Year = 'Award_Transaction_Fiscal_Year', Category = 'Award_Transaction_US_Foreign_Assistance_Category',
                  Amount = 'Award_Transaction_Value', Country = 'Recipient_Location')
FA_2018 <- FA_2018 %>% group_by(Country) %>%
  mutate(Sum_Amount = sum(Amount))
FA_2018 <- select(FA_2018, Year, -Category, Country, Sum_Amount, -Amount)
```

```
FA_2018_unique <- unique(FA_2018)

# Clean Region and Country Data to Merge
region <- select(region,Country='Data is public domain from US government.', region='..2')
FA_2018_regions <- left_join(FA_2018_unique,region,by="Country")

# Set up Popluation Data for Merge
pop <- mutate(population, Population=Value*1000)
pop <- select(pop, Country = 'Country or Area', Population = 'Population')

# Merge Population Data
FA_2018_region_pop <- left_join(FA_2018_regions,pop,by="Country")

# Clean GDP Data
gdp <- gdp_full[, 1:3]
gdp_2018 <- filter(gdp, Year=='2018')
gdp_2018 <- select(gdp_2018, Country='Area', gdp='GDP per capita - with interpolations')

# Merge GDP Data
FA_2018_complete <- left_join(FA_2018_region_pop,gdp_2018,by="Country")

# GDP is in per capita terms. Create national gdp variable
FA_2018_complete <- mutate(FA_2018_complete, gdp_total=gdp*Population)

# Create variable to map: Foreign aid as a percentage of national gdp
FA_2018_complete <- mutate(FA_2018_complete, fa_as_share=(Sum_Amount/gdp_total)*100)

# Load Map Data
world_map <- map_data("world")
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world_map <- filter(world_map, region!="Antarctica")


# Plot 1.0

ggplot() +

  geom_map(data=world_map, map=world_map, aes(x = long, y = lat, map_id=region)) +

  geom_map(data = FA_2018_complete, aes(fill = fa_as_share, map_id=Country), map=world_map) +

  scale_fill_viridis(name="Aid as Share \nof National GDP", limits = c(0,5), option="viridis") +

  theme_fivethirtyeight() +

  theme(panel.background = element_blank(), panel.grid.major = element_blank(), panel.grid.minor =
element_blank(),

       axis.text.x = element_blank(), axis.text.y = element_blank()) +

  labs(title = paste("How Much does US Foreign Aid Impact Recipient Budgets?"),

      subtitle = "US Foreign Assistance Accounts for a significant portion \nof the budgets of Poor
Nations",

      caption = "Source: ForeignAssistance.gov\nWorld Bank\nUN Data")
```