Report for ForestQuery into Global Deforestation, 1990 to 2016

ForestQuery is on a mission to combat deforestation around the world and to raise awareness about this topic and its impact on the environment. The data analysis team at ForestQuery has obtained data from the World Bank that includes forest area and total land area by country and year from 1990 to 2016, as well as a table of countries and the regions to which they belong.

The data analysis team has used SQL to bring these tables together and to query them in an effort to find areas of concern as well as areas that present an opportunity to learn from successes.

1. **GLOBAL SITUATION**

According to the World Bank, the total forest area of the world was _____41,282,694.9sqkm_____ in 1990. As of 2016, the most recent year for which data was available, that number had fallen to _____3,995,824_____, a loss of _____1,324,449sqkm_____, or _____3.21_____%.

The forest area lost over this time period is slightly more than the entire land area of _____Peru_____ listed for the year 2016 (which is _____1,280,000sqkm_____).

2. **REGIONAL OUTLOOK**

In 2016, the percent of the total land area of the world designated as forest was _____31.38%_____. The region with the highest relative forestation was_Latin America & Caribbean_____, with _____46.16_____%, and the region with the lowest relative forestation was _____Middle East & North Africa_____, with _____2.07_____% forestation.

In 1990, the percent of the total land area of the world designated as forest was _____32.42%_____. The region with the highest relative forestation was_____Latin America & Carribean_____, with _____51.03_____%, and the region with the lowest relative forestation was _____Middle East & North Africa_____, with _____1.78_____% forestation.

Table 2.1: Percent Forest Area by Region, 1990 & 2016:

Region	1990 Forest Percentage	2016 Forest Percentage
Latin America & Carribean	51.03	46.16
Europe & Central Asia	37.29	38.04
North America	35.65	36.04
Sub-Saharan Africa	30.65	28.72
East Asia & Pacific	25.57	26.29
South Asia	16.51	17.51
Middle East & North Africa	1.78	2.07

The only regions of the world that decreased in percent forest area from 1990 to 2016 were ____Latin America & Carribean_____ (dropped from _____51.03_____% to _____46.16_____%) and ____Sub-Saharan Africa_____ (_____30.65_____% to _____28.72_____%). All other regions actually increased in forest area over this time period. However, the drop in forest area in the two aforementioned regions was so large, the percent forest area of the world decreased over this time period from _____32.42_____% to _____31.38_____%.

3. **COUNTRY-LEVEL DETAIL**

A. SUCCESS STORIES

There is one particularly bright spot in the data at the country level, _____China_____. This country actually increased in forest area from 1990 to 2016 by _____527,229.06sqkm_____. It would be interesting to study what has changed in this country over this time to drive this figure in the data higher. The country with the next largest increase in forest area from 1990 to 2016 was the_____United States_____, but it only saw an increase of _____79,200sqkm_____, much lower than the figure for _____China_____.

_____China_____ and _____United States_____ are of course very large countries in total land area, so when we look at the largest *percent* change in forest area from 1990 to 2016, we aren't surprised to find a much smaller country listed at the top. _____Iceland_____ increased in forest area by _____213.66_____% from 1990 to 2016.

B. LARGEST CONCERNS

Which countries are seeing deforestation to the largest degree? We can answer this question in two ways. First, we can look at the absolute square kilometer decrease in forest area from 1990 to 2016. The following 3 countries had the largest decrease in forest area over the time period under consideration:

Table 3.1: Top 5 Amount Decrease in Forest Area by Country, 1990 & 2016:

Country	Region	Absolute Forest Area Change
Brazil	Latin America & Carribean	541,510 sqkm
Indonesia	East Asia & Pacific	282,193 sqkm
Myanmar	East Asia & Pacific	107,234 sqkm
Nigeria	Sub_Saharan Africa	106,506 sqkm
Tanzania	Sub_Saharan Africa	102,320 sqkm

The second way to consider which countries are of concern is to analyze the data by percent decrease.

Table 3.2: Top 5 Percent Decrease in Forest Area by Country, 1990 & 2016:

Country	Region	Pct Forest Area Change
Togo	Sub_Sahara Africa	75.45%
Nigeria	Sub-Saharan Africa	61.80%
Uganda	Sub-Saharan Africa	59.27%
Mauritania	Sub-Saharan Africa	46.75%
Honduras	Latin America & Caribbean	45.03%

When we consider countries that decreased in forest area percentage the most between 1990 and 2016, we find that four of the top 5 countries on the list are in the region of _____Sub-Saharan Africa_____. The countries are _____Togo_____, _____Nigeria_____, ____Uganda_____, and _____Mauritania_____. The 5th country on the list is _____Honduras_____, which is in the _____Latin America & Carribean_____ region.

From the above analysis, we see that _____Nigeria_____ is the only country that ranks in the top 5 both in terms of absolute square kilometer decrease in forest as well as percent decrease in forest area from 1990 to 2016. Therefore, this country has a significant opportunity ahead to stop the decline and hopefully spearhead remedial efforts.

C. QUARTILES

Table 3.3: Count of Countries Grouped by Forestation Percent Quartiles, 2016:

Quartile	Number of Countries
0-25%	85
25-50%	73
50-75%	38
75-100%	9

The largest number of countries in 2016 were found in the _____0-25%_____ quartile.

There were _____9_____ countries in the top quartile in 2016. These are countries with a very high percentage of their land area designated as forest. The following is a list of countries and their respective forest land, denoted as a percentage.

(side note: 94 countries had a percent forestation higher than the United States in 2016)

Table 3.4: Top Quartile Countries, 2016:

Country	Region	Pct Designated as Forest
Suriname	Latin America & Caribbean	98.26%
Micronesia, Fed. Sts.	East Asia & Pacific	91.86%
Gabon	Sub-Saharan Africa	90.04%
Seychelles	Sub-SaharanAfrica	88.41%
Palau	East Asia & Pacific	87.61%
American Samoa	East Asia & Pacific	87.50%
Guyana	Latin America & Caribbean	83.90
Lao PDR	East Asia & Pacific	82.11%
Solomon Islands	East Asia & Pacific	77.86%

5. RECOMMENDATIONS

- Given the information above, I believe it would be in our best interest to focus our efforts toward the Sub-Saharan Africa and East Pacific regions as these regions have suffered the greatest loss of forestation in both square kilometers and percentage.
- While some larger countries, such as China and The United States, are thriving and have actually increased their forestation between 1190 and 2016 by 527,229 sqkm and 79,200 sqkm respectively, they could not offset the overall loss of forestation worldwide (a loss of 3.21% forestation from 1990 to 2016).
- Looking at the large number of countries that lie in the 0-25% quartile of forestation, we can see a glaring issue that needs to be addressed