

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 [41,282,694.9 sq km](#) in 1990. As of 2016, the most recent year for which data was available, that number had fallen to [39,958,245.9 sq km](#), a loss of [1,324,449 sq km](#), 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 [1,279,999.9891 sq km](#)).

2. REGIONAL OUTLOOK

In 2016, the percentage 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 percentage of the total land area of the world designated as forest was [32.42%](#). The region with the highest relative forestation was [Latin America & Caribbean](#), 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 & Caribbean	51.03%	46.16%
Sub-Saharan Africa	30.67%	28.79%
World	32.42%	31.38%

The only regions of the world that decreased in percent forest area from 1990 to 2016 were Latin America & Caribbean (dropped from 51.03% to 46.16%) and Sub-Saharan Africa (30.67% to 28.79%). 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 sqkm. 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 79,200 sqkm, much lower than the figure for China.

China and the 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 & Caribbean	-541,510 sqkm
Indonesia	East Asia & Pacific	-282,193.98 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-Saharan 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 & Caribbean](#) 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
Quartile 1	85
Quartile 2	72
Quartile 3	38
Quartile 4	9

The largest number of countries in 2016 were found in the [first](#) 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.

Table 3.4: Top Quartile Countries, 2016:

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

4. RECOMMENDATIONS

This data proves that we are slowly losing forests and must create a plan to save them.

From one point of view, it may not seem like deforestation is a huge issue. For example:

- Of the seven regions in the world, only three experienced deforestation between 1990 and 2016. However, four regions actually expanded their forests.
- China increased their forest area by 527,229 sq km between 1990 and 2016.
- Iceland, while only a small country, increased their forest area by 213.66%.

From another point of view, it is clear that deforestation is an issue that requires action. For example:

- The total forest area dropped 3.21% over 26 years. It may seem small, but the trend will continue without action.
- Brazil, which had the second largest forest area in 1990, lost 541,510 sq km of forest by 2016. This is nearly a 10% change in forest. It won't take long before it's all gone!

We need to take action, quick. Based on the data, I recommend the following:

- Focus on Brazil. It has the 5th largest land area and experienced an astonishing 10% change in forest between 1990 and 2016.
- Focus on the Sub-Saharan Africa region. Four out of the top five countries that experienced the highest percent decrease in forest area between 1960 and 2016 are part of the Sub-Saharan Africa region.
- Focus on the Latin America & Caribbean region. The countries in this region collectively dropped from 51.03% forest area down to 46.16% forest area between 1960 and 2016.

5. APPENDIX: SQL Queries Used

See included file.