

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 41,282,694.90 sq kms in 1990. As of 2016, the most recent year for which data was available, that number had fallen to 39,958,245.90 sq kms, a loss of 1324449.00 sq kms, or 3.21 %.

The forest area lost over this time period is slightly more than the entire land area of 1,324,449 sq kms listed for the year 2016 (which is Peru).

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 & 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
World	32.42%	31.38%
Latin America & Caribbean	51.03%	46.16%
Sub - Saharan Africa	30.67%	28.79%

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 527,229.06 sq kms. 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 sq kms, 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's forest area increased by 68.12% 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 &	541510.00

	Caribbean	
Indonesia	East Asia & Pacific	282193.98
Myanmar	East Asia & Pacific	107234.00
Nigeria	Sub-Saharan Africa	106506.00
Tanzania	Sub-Saharan Africa	102320.00

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	59.13
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
0%-25%	85
25-50%	72
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.

Table 3.4: Top Quartile Countries, 2016:

Country	Region	Pct Designated as Forest
Solomon Islands	East Asia & Pacific	77.86
Lao PDR	East Asia & Pacific	82.11
Guyana	Latin America & Caribbean	83.90
American Samoa	East Asia & Pacific	87.50
Palau	East Asia & Pacific	87.61

Seychelles	Sub-Saharan Africa	88.41
Gabon	Sub-Saharan Africa	90.04
Micronesia, Fed. Sts.	East Asia & Pacific	91.86
Suriname	Latin America & Caribbean	98.26

4. RECOMMENDATIONS

Write out a set of recommendations as an analyst on the ForestQuery team.

- I observed that the forest area has been decreasing over the decades. It went down from 32.42% to 31.38% from 1990 to 2016 which is equal to 1.04% across the world. This is not a small amount. On the other hand most of the countries have raised their forest area. Among these countries China is the top country followed by the US and India. China expanded their forest area by 527229.06 sq kms which is a huge increase. Iceland on the other hand in spite of its small land area got a higher increase of 68.12 percent. According to the regions Latin America & Caribbean has a decrease in their forest area by 4.87% which is the highest by any region in the world from 1990 to 2016 followed by Sub-Saharan Africa having 1.88% decrease. Nigeria is the country that is positioned in both the top 5 lists of decreased areas by area and percentage. There are 9 countries which have a designated forest area of more than 75% is a great thing and we need more nations with an increase in designated forest areas in the future.*
- Among those countries which are in the top 5 by percentages 4 of them are from Sub-Saharan Africa only. Nigeria is the only country that appeared in both the lists by area and percent change of forest by 106506 sq kms and 61.8%. Most of the countries are in the first quartile where the percent forestation is below 25%. We have to concentrate more on these countries so that we can raise the forest area in the future which helps us in decreasing deforestation. We have to see more countries in the 4th quartile than in the 1st.*

5. APPENDIX: SQL Queries Used

https://docs.google.com/file/d/14GwQaOSI_GozAjVY8FxxAqrMclqE--ih/edit?usp=docslst_api&filetype=msword