

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 41282694.9 in 1990. As of 2016, the most recent year for which data was available, that number had fallen to 39958245.9, a loss of -1324449, or -3.20824258980244%.

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 1279999.9891).

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
Middle East & North Africa	1.78	2.07
South Asia	16.51	17.51
East Asia & Pacific	25.78	26.36
Sub-Saharan Africa	30.67	28.79
World	32.42	31.38
North America	35.65	36.04
Europe & Central Asia	37.29	38.04
Latin America & Caribbean	51.03	46.16

The only regions of the world that decreased in percent forest area from 1990 to 2016 were **Sub-Saharan Africa (dropped from 30.67 % to 28.79 %)** and **Latin America & Caribbean (51.03% to 46.16%)**. 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 **527229.062**. 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 America, but it only saw an increase of **79200**, much lower than the figure for **China**.

China and **America** 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. **Vietnam** increased in forest area by **59.16%** 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 AMERICAN & CARIBBEAN	541510.0000
INDONESIA	EAST AFRICA & PACIFIC	282193.9844
MYANMAR	EAST AFRICA & PACIFIC	107234.0039
NIGERIA	SUB-SAHARAN AFRICA	106506.00098
TANZANIA	SUB-SAHARAN AFRICA	102320.0000

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 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
1	85
2	73
3	38
4	9

The largest number of countries in 2016 were found in the **1st** quartile.

There were **85** 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
SURINAME	LATIN AMERICA & CARIBBEAN	98.26
MICRONESIA, FED. STS.	EAST ASIA & PACIFIC	91.86
GABON	SUB-SAHARAN AFRICA	90.04
SEYCHELLES	SUB-SAHARAN AFRICA	88.41
PALAU	EAST ASIA & PACIFIC	87.61
AMERICAN SAMOA	EAST ASIA & PACIFIC	87.50
GUYANA	LATIN AMERICA & CARIBBEAN	83.91
LAO PDR	EAST ASIA & PACIFIC	82.11
SOLOMON ISLANDS	EAST ASIA & PACIFIC	77.86

5. RECOMMENDATIONS

I learned from the data that the total forest area of the world has gone down by 3.2 %. This is not good because loss of forest area can affect the world negatively in ways such as climate change , soil erosion, loss of trees etc.

In 2016, Latin America & Caribbean had the highest forest percentage with 46.16 % while Middle East & North Africa had the lowest forest percentage with 2.07 %.

Most countries that have high forest percentage come from the East Asia and Pacific, Although the top country is latin america & caribbean.

China had the highest increase in forest area between 1990 and 2016. It increased in forest area from 1990 to 2016 by 527229.062 sq km. The second highest increase in forest area was the United States of America with an increase of 79200. There is a massive gap between the increase in China and second place difference which is about 448,029.062. It would be amazing to further analyze how China was able to increase in forest by that large of an amount. Vietnam increase is actually surprising compared to the rest of the other 4 top 5 countries in forest increase due to the fact that Vietnam is relatively smaller in country size compared to the other 4.

Brazil needs attention and focus due to it being the highest country with deforestation it has an Absolute Forest Area Change of 541510 which is about double the Absolute Forest Area Change of the Indonesia in second place. Nigeria is another country that needs major attention

as it is the only in top 5 both in terms of absolute square kilometer decrease in forest as well as percent decrease in forest area. There is a lot of work to help reduce that percentage decrease. Togo has the highest percent decrease in forest area. Looking at both tables for absolute square kilometer decrease in forest as well as percent decrease in forest area, the region with the most countries is the SUB-SAHARAN AFRICA.