

# 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 km<sup>2</sup> in 1990. As of 2016, the most recent year for which data was available, that number had fallen to 39958245.9 km<sup>2</sup>, a loss of 1324449 km<sup>2</sup> 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 1279999.9891 km<sup>2</sup>).

## 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%,
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 & 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 527229.062 km<sup>2</sup>. 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 79200 km<sup>2</sup>, 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 (km <sup>2</sup> )
Brazil	Latin America & Caribbean	541510
Indonesia	East Asia & Pacific	282193.984
Myanmar	East Asia & Pacific	107234.004
Nigeria	Sub-Saharan Africa	106506.001
Tanzania	Sub-Saharan Africa	102320

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	61.8
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 fifth 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 (%)
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	83.90
Lao PDR	East Asia & Pacific	82.11
Solomon Islands	East Asia & Pacific	77.86

## 4. RECOMMENDATIONS

- According to the data from the World Bank the forestation areas of the planet have decreased from 1990 to 2016 in a quantity comparable with the entire land area of Peru.
- Although in most of the regions analysed the percentage of forest areas during this period has increased, it is concerning the high decrease of this percentage in the Latin America & Caribbean and Sub-Saharan Africa regions.
- In this report it has been highlighted China, the United States and Iceland as countries with representative growth in the forest areas. These countries could be used as models to come up with successful strategies for the most deforested countries.
- Among the most affected countries, Brazil had the higher reduction in the amount of forest area. Some countries from the Sub-Saharan Africa region had the highest reduction in the percentage of forest areas, among them Nigeria deserves special attention because it is also one of the most deforested countries in terms of square kilometres.
- When we analysed all the countries based on the percentage of forest areas it was found that just 9 countries are in the top level of the countries with high areas designated as forest.
- Based on these results, it is concluded that ForestQuery should put most of its efforts in countries from the Latin America & Caribbean and Sub-Saharan Africa regions, giving priority to Brazil and Nigeria, the most deforested countries from 1990 to 2016.