

# 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 **3.21%**.

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**).

## 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	Difference
<b>Latin America &amp; Caribbean</b>	51.03	46.16	<b>-4.87</b>
<b>Sub-Saharan Africa</b>	30.67	28.79	<b>-1.88</b>
<b>World</b>	32.42	31.38	<b>-1.04</b>
<b>Middle East &amp; North Africa</b>	1.78	2.07	<b>0.29</b>
<b>North America</b>	35.65	36.04	<b>0.39</b>
<b>East Asia &amp; Pacific</b>	25.78	26.36	<b>0.58</b>
<b>Europe &amp; Central Asia</b>	37.28	38.04	<b>0.76</b>
<b>South Asia</b>	16.51	17.51	<b>1.00</b>

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**. 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**, 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 **213%** 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
<b>World</b>	World	<b>-1324449</b>
<b>Brazil</b>	Latin America & Caribbean	<b>-541510</b>
<b>Indonesia</b>	East Asia & Pacific	<b>-282193.98</b>
<b>Myanmar</b>	East Asia & Pacific	<b>-107234.00</b>
<b>Nigeria</b>	Sub-Saharan Africa	<b>-106506.00</b>

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
<b>Togo</b>	<b>Sub-Saharan Africa</b>	<b>-75.45</b>
<b>Nigeria</b>	<b>Sub-Saharan Africa</b>	<b>-61.80</b>
<b>Uganda</b>	<b>Sub-Saharan Africa</b>	<b>-59.13</b>
<b>Mauritania</b>	<b>Sub-Saharan Africa</b>	<b>-46.75</b>
<b>Honduras</b>	Latin America & Caribbean	<b>-45.03</b>

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(<25%)	85
Quartile 2(25%-50%)	73
Quartile 3(50%-75%)	38
Quartile 4(>75%)	9

The largest number of countries in 2016 were found in the **Quartile 1(<25%)**.

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

<b>American Samoa</b>	East Asia & Pacific	<b>87.50</b>
<b>Guyana</b>	Latin America & Caribbean	<b>83.90</b>
<b>Lao PDR</b>	East Asia & Pacific	<b>82.11</b>
<b>Solomon Islands</b>	East Asia & Pacific	<b>77.86</b>

## 4. RECOMMENDATIONS

Globally, forest area has decreased by 3.21%. The amount of forest lost over this period is greater than the area of Peru's entire land area. Both in 2016 and 1990, we can see the highest relative forestation in Latin America & Caribbean and the lowest relative forestation in the Middle East & North America. It is estimated that from 1990 to 2016, China and the United States increased their forest area by 527229.062, followed by 79200. Although both are larger countries. However, if we look at it from a percentage point of view, Iceland is a relatively smaller country and their forest area has grown by 213%. The largest number of countries in 2016 were found in Quartile 1(<25%) and there were 9 countries in Quartile 4 with a very high percentage of their land area designated as forest.

As we can see, the countries that decreased in forest area percentage were all from Sub-Saharan Africa. Our focus should be on Sub-Saharan African countries Togo, Nigeria, Uganda, and Mauritania, and Latin American & Caribbean countries like Honduras.