Report for ForestQuery into Global Deforestation, 1990 to 2016

Raghad Alamoudi

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 41282695 in 1990. As of 2016, the most recent year for which data was available, that number had fallen to 39958246, 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 12).

## 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.

2.1: Percent Forest Area by Region, 1990 & 2016:

|  |  |  |
| --- | --- | --- |
| Region | 1990 Forest Percentage | 2016 Forest Percentage |
| East Asia & Pacific | 25.78 | 26.36 |
| Europe & Central Asia | 37.28 | 38.04 |
| Latin America & Caribbean | 51.03 | 46.16 |
| Middle East & North Africa | 1.78 | 2.07 |
| North America | 35.65 | 36.04 |
| South Asia | 16.51 | 17.51 |
| 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**

### SUCCESS STORIES

There is one particularly bright spot in the data at the country level, China. This country increased in forest area from 1990 to 2016 by 527229.06. 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 Unites States, but it only saw an increase of 79200, much lower than the figure for Iceland.

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.

### 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 | 541510 |
| Indonesia | East Asia & Pacific | 282193.9844 |
| Myanmar | East Asia & Pacific | 107234.0039 |
| Nigeria | Sub-Saharan Africa | 106506.00098 |
| 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 | 75.4452 |
| Nigeria | Sub-Saharan Africa | 61.7999 |
| Uganda | Sub-Saharan Africa | 59.1286 |
| Mauritania | Sub-Saharan Africa | 46.7498 |
| Honduras | Latin America & Caribbean | 45.0344 |

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, 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.

### QUARTILES

Table 3.3: Count of Countries Grouped by Forestation Percent Quartiles, 2016:

|  |  |
| --- | --- |
| Quartile | Number of Countries |
| 1 | 85 |
| 2 | 72 |
| 3 | 38 |
| 4 | 9 |

The largest number of countries in 2016 were found in the **First** quartile. There were **9** countries in the top quartile (fourth 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 | Percentages Designated as Forest |
| American Samoa | East Asia & Pacific | 87.5 |
| Gabon | Sub-Saharan Africa | 90.04 |
| Guyana | Latin America & Caribbean | 83.9 |
| Lao PDR | East Asia & Pacific | 82.11 |
| Micronesia, Fed. Sts. | East Asia & Pacific | 91.86 |
| Palau | East Asia & Pacific | 87.61 |
| Seychelles | Sub-Saharan Africa | 88.41 |
| Solomon Islands | East Asia & Pacific | 77.86 |
| Suriname | Latin America & Caribbean | 98.26 |

## 

## 4. RECOMMENDATIONS

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

* *What have you learned from the World Bank data?*

Globally, the total area of forests decreased by 3.02 percent between 1990 and 2016. This decline is caused by a variety of issues, including pasturage saturation, illicit deforestation, corruption, climate change, and resource trafficking.

Aside from the fact that the majority of the world's regions have seen a rise in their forest cover, just two have seen a loss in it: Latin America and the Caribbean and Sub-Saharan Africa.

Since 1990, several nations and governments have made significant efforts to raise the mass of threes globally. But maintaining the best possible harmony in nature will be difficult.

* *Which countries should we focus on over others?*

1. Nigeria should be the primary area of attention because it is one of the top 5 nations in terms of the amount and percentage of forest area lost.

2. Because they have lost the most forest area, Brazil, Indonesia, Myanmar, and Tanzania should be the focus of attention.

3.Sub-Saharan Africa is a region that needs more attention because it has lost the most forest acreage overall.

## 5. APPENDIX: SQL queries used

Part 1:

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Part 2:

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Part 3:

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