

# Report for Forest Query into Global Deforestation, 1990 to 2016

Forest Query 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 Forest Query 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 41,282,694.9 sqkm in 1990. As of 2016, the most recent year for which data was available, that number had fallen to 39,958,245.9 sqkm a loss of 1,324,449 sqkm 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 1,279,999.9 sqkm).

## 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 Europe & Central Asia, with 2.07% forestation.

In 1990, the percent of the total land area of the world designated as forest was 32.43%. 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
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 527,229.062 sqkm. 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 sqkm 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
Brazil	Latin America & Caribbean	541,510 sqkm
Indonesia	East Asia & Pacific	282,193.98 sqkm
Myanmar	East Asia & Pacific	107,234.00 sqkm

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%

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
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% (first) 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	87.5%
Guyana	Latin America & Caribbean	83.9%
Lao PDR	East Asia & Pacific	82.11%
Solomon Islands	East Asia & Pacific	77.86%

# Summary:

## Highlights:

The total forest area of the World was 41.28 million sqkm in 1990 which had fallen to 39.98 million sqkm by percentage loss of 3.20% and total land area of the World designated as forest had fallen from 32.48% to 31.38% in the mentioned time span.

Latin America & Caribbean region had highest relative forestation of 51.03% and 46.16% respectively in 1990 and 2016, whereas Middle East & North Africa region had lowest relative forestation of 1.78% in 2019 and Central Asia has lowest relative forestation of 2.07% in 2016.

## Facts about countries achievements:

China had shown a considerable increase in forest area from 1990 to 2016 by 527229 sqkm i.e. by 33.55. Along with China, United States had also achieved increase in the forestation of 79200 sqkm.

It is very interesting and surprising to see the smallest country Iceland, having its forest area 161sqkm in 1990 increased it up to 505sqkm, with the total rise of 213%.

## Deforestation as a concern:

Deforestation is a matter of concern for countries like Brazil, Indonesia and Myanmar for considerable decrease in the absolute forest area from 1990 to 2016 respectively, 541510sqkm, 282193sqkm and 107234sqkm with percentage decrease of 58.93%, 49.86% and 43.63% respectively.

Considering the percentage wise decrease in forestation, mainly the countries from Sub-Saharan Africa region such as Togo, Nigeria, Uganda had a highest fall in the given timeframe of 75.44%, 61.79% and 59.12% respectively.

## Region wise facts:

East Asia & Pacific region's five countries namely Micronesia, Fed Sts, Palau, American Samoa, Lao PDR and Salomon Islands had percentage increase in forestation between 75-100%. Along with two countries each from Latin America & Caribbean region and Sub-Saharan region had percentage increase in forestation between 75-100%. Only nine countries are ranged between 75-100% is actually the matter of worry.

In addition, 85 countries had lowest percentage increase in the forestation ranging between 0-25%. Out of which, 22 countries from Europe & Central Asia region, 22 countries from Sub-Saharan Africa region and 20 countries from Middle East & North Africa region.

## Conclusion:

Deforestation is high in the Europe & Central Asia region and the Sub-Saharan region which has highest country count of 1566 and 1296 respectively. Whereas the East Asia & Pacific and the Latin America & Caribbean regions had shown much positive efforts in increase in forestation.

## 5. RECOMMENDATIONS

How does China and United States achieve such an increase in forest area? What strategy adopted for rising forestation by 213% by Iceland? In order to tackle the problem with the rising deforestation, the pathways followed by these countries must be studied and implemented. Implementation of tree plantation program and spreading awareness about it. Forest protection programme should be initiated. Upgradation of the forest Laws, new land settlement schemes and industrialized agriculture should be introduced by government.

The wildfire plays an important role in the destruction of dry forests. In order to avoid wild fires, certain advanced Laws regarding the open fires, including campfires must be made. Making fire safe zones or having the firefighting tool nearby would also help.

Most attention should be provided towards Togo, Nigeria, Uganda countries from Sub-Saharan Afrika region and most of the countries from Middle East & North America region.

Sites Used:

<https://www.weforum.org/agenda/2022/07/china-deforestation-biodiversity>

<https://royalsocietypublishing.org/doi/full/10.1098/rstb.2012.0405>