How effective/efficient is foreign aid in developing countries for renewable energy?

One of the main drivers in the global transition to renewable energies is finance. Developed countries often financially assist with the implementation and upkeep of renewable energy in less developed countries. There are two columns on the twenty-year dataset that our group found interesting to diving into this question further. The financial flows for each country, which shows the amount of funding given to developing countries each year between the year 2000 to 2020 for the purpose of moving towards renewable energy. Also, the renewable energy usage share percentage of a country’s total energy consumption for each year. The goal was to compare these two factors and see if there was any significant correlation between them.

To begin the comparison, the data was drilled down to find both the top 10 countries and bottom 10 countries in both average financial flow and renewable energy usage share percentage over the course of the twenty-year period. Both columns were cleaned of null values and replaced with “0” if there was no information available. Then code was ran to get the average for both values and which countries were in the top 10 and bottom 10.

For the financial flows category, developing countries India, Pakistan, Nigeria, Ethiopia, Turkey, Indonesia, Morocco, Egypt, Argentina, and Chile were in the top 10 countries receiving funding from developed countries for the purpose of renewable energy usage on average over the course of the twenty-year period. With each country receiving 100s of millions of dollars on average. Most of the top 10 was made up of countries from both Africa and Asia.

A graph with orange bars

Description automatically generated

The countries in the bottom 10 that received at least an average of $10,000 in funding during the twenty-year period were Comoros, Eswatini, Saint Lucia, Sao Tome and Principe, Algeria, Turkmenistan, Grenada, New Caledonia, Seychelles, and the Bahamas. All receiving less than $650,000 on average in financial flow. Most of the countries in the bottom 10 were smaller or island countries.

A graph with orange bars

Description automatically generated

Next, the renewable energy usage percentage category was reviewed. The top ten was made up of countries Somalia, Uganda, Ethiopia, Burundi, Central African Republic, Bhutan, Guinea-Bissau, Liberia, Rwanda, and Zambia. Having an average of at least 80% of energy used being renewable energy during the twenty-year period. Almost all the countries in the top 10 were African countries.

A graph showing the solar energy

Description automatically generated with medium confidence

The bottom 10 was made up of countries Malta, Tuvalu, Tonga, Kazakhstan, Maldives, the Bahamas, Yemen, Uzbekistan, Seychelles, and Iraq. Having an average of up to 2.5% of renewable energy being used over the twenty-year period. A decent amount of the countries in the bottom 10 were middle eastern countries.

A graph with orange bars

Description automatically generated

Next, a scatter plot was used to identify the relationship between these two factors for all the countries in the data set.

A graph showing a line and a dotted line

Description automatically generated

The scatter plot looked at the total amount of funding the countries received over the twenty-year period and their average percentage of renewable energy used compared to overall energy consumption. Most of the countries received very little funding, but many of these countries still had a very high consumption of renewable energy. Also, some countries that received a good amount of funding did not have a very high renewable energy consumption. This gave some insight into the other factors that maybe influencing the pattern of the data that will be explored further in the following questions.