ASSIGNMENT 2: Statistics and Trends

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Github link: https://github.com/anjanajoshy/Statistics-and-trends.git

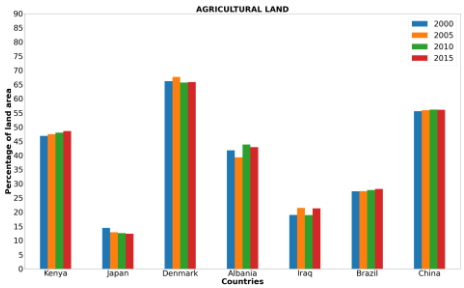
Data source link: https://data.worldbank.org/topic/environment

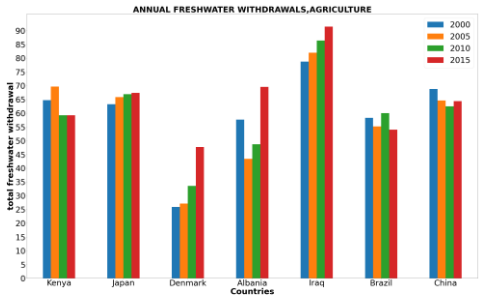
ABSTRACT

This research compares a number of environmental indicators across seven distinct nations. Line plots, bar plots and heat maps are the visualisation methods utilised in this study to analyse the relationships between various markers. These tools help to explain structure, behaviour and relationships among several other elements. Heat maps are used to represent the distribution and intensity values of several datasets. Moreover, line and bar plots assist in the analysis and visualization of factor's trends.

Environment Data Analysis based on World Bank

Seven countries were 3 chosen for the analysis of data, and in the context of the environment, indicators such as: agricultural land, Annual freshwater withdrawals, Access to electricity, Electricity production from oil, gas, coal sources, Methane emission and renewable electricity output were used to find relation between them.





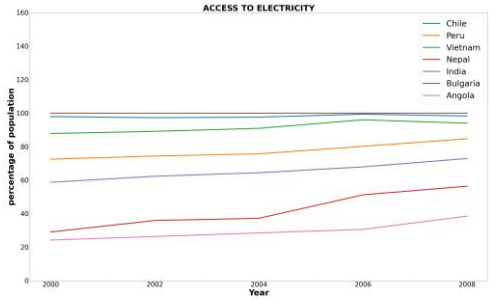
The agricultural land of various nations is shown in the above bar plot from the year 2000 to 2015, with five-year increments. By analysing this graph with annual freshwater withdrawals it reveals that except China and Albania, all others had an inverse proportional relation between them. Denmark had one of the highest agricultural areas, although its freshwater withdrawal rates were modest.

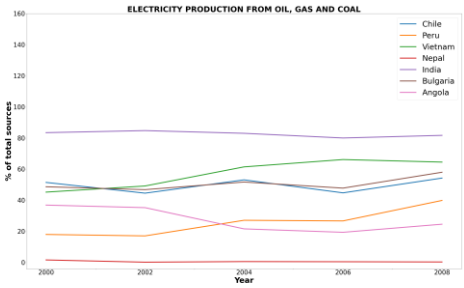
China's water withdrawals had decreased during the previous 15 years. Yet, despite having less agriculture area, Iraq and Japan used a lot of freshwater.

statistics_report

	Nitrous oxide emissions (% change from 1990)	Agricultural nitrous oxide emissions (% of total)	CO2 emissions from liquid fuel consumption (% of total)
count	13.0	9.0	16.0
mean	10.936553435888800	49.22886365981000	69.32850765177010
std	22.114530401150500	3.284989723064030	6.17189349648338
min	-16.8004563151505	45.0980392156863	58.3579475238528
25%	4.19579687696237	45.6521739130435	65.80282229786640
50%	7.21993134340855	50.0	67.7457452959551
75%	16.557646418554	51.3513513513513	73.20216903206850
max	74.134989743375	54.2857142857143	82.3560114605544

The above statistics report shows the data of Nitrous oxide emission, Agricultural nitrous oxide emissions and CO2 emissions from liquid fuel consumption.

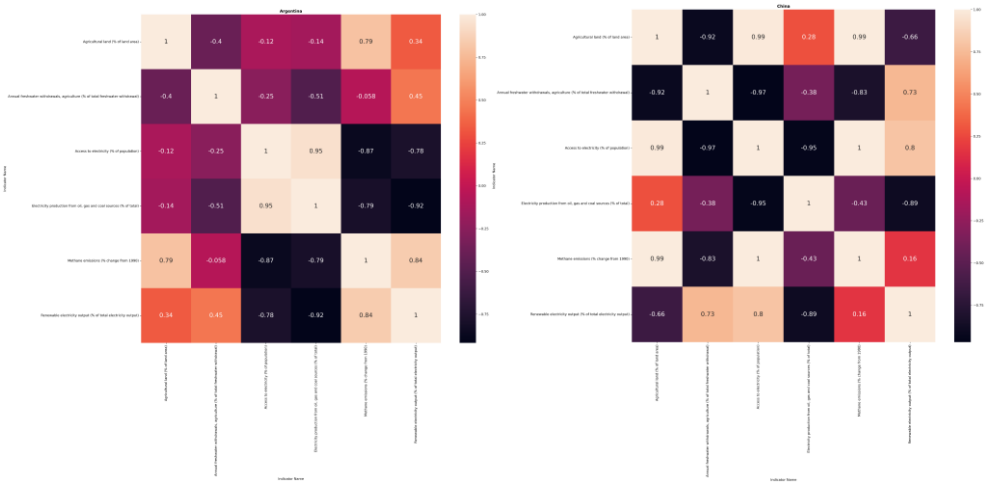




In Nepal, the population's rate of access to electricity grew marginally between 2000 and 2008. The countries with the widest populations that had access to electricity were found in Chile and Bulgaria.

By analysing the situation in Peru, it can be shown that the growing production of power from various sources had boosted access to electricity.

India had the highest productivity of electricity but the population accessing were only an average amount. According to an analysis of the lines of Chile and Bulgaria, both shows similar types of oscillations and a minor rise in 2008



According to Argentina's correlation heat map, access to power was negatively related to agricultural land, which was positively correlated with methane emission. Additionally, the output of renewable energy was negatively affecting the generation of electricity from other sources.

By evaluating the case of China, it was discovered that the variables annual freshwater withdrawal and agricultural land had an inverse relation. Moreover, methane emission and the production of renewable power demonstrated inversely proportional relationship.