Overpopulation: An ecofascist myth, or key to solving climate change?

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Climate change is a crisis that's threatening our planet. It's caused by the large amounts of greenhouse gases (GHG) produced by various industries. The increase in GHG is caused by a wide variety of factors. It's become a hot topic of debate whether overpopulation has an impact on it or not; many environmentalists claiming that if there were less people, the climate crisis would be solved.[1]

This report takes a look at GHG emissions and four factors affecting it, including overpopulation, from 1992 to 2012. The data was retrieved from The World Bank, for three countries of similar sizes and the world as a whole.

Figure 1 shows the population growth of the world along with the three countries, in comparison to the increase in GHG emissions over time. To produce an accurate trend graph, the numbers were normalised using min-max normalisation.

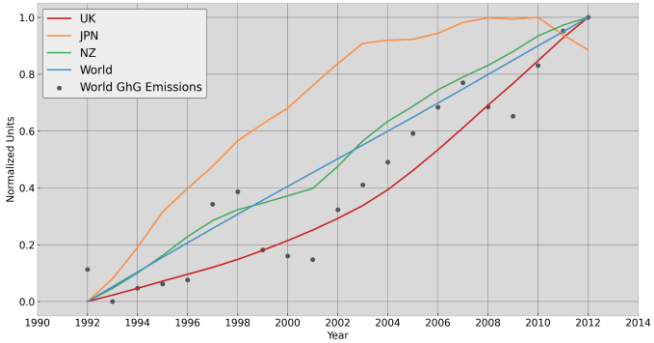

Figure 1

The graph show that populations are not increasing exponentially, and some of them are declining, e.g. in Japan. GHG emissions fluctuate over time, but are generally on the rise.

Using Pearson's coefficient and the p-value, we tested the correlation between GHG emissions and population, along with the other causes: use of land for agriculture, and fossil fuel usage which produce GHG, and renewable energy usage, which does not.

	UK			JPN			NZ			World		
	r	p	verdict	r	p	verdict	r	p	verdict	r	p	verdict
Population	-0.955	0	negative	0.311	0.17	positive	0.787	0	positive	0.939	0	positive
Fossil Fuel	0.252	0.27	correlation	0.354	0.115	correlation	-0.208	0.366	correlation	0.916	0	correlation
Renewable Energ	-0.853	0	statistically	-0.23	0.315	statistically	-0.001	0.997	statistically	-0.681	0.001	statistically
Agriculture	0.375	0.094	significant	-0.274	0.229	insignificant	-0.839	0	significant	0.114	0.621	significant

Table 1

Table 1 shows the results. There's a correlation between population and GHG emissions in the world and in New Zealand. But in Japan and the UK, the correlation is negative and/or statistically insignificant.

Figure 2 and table 2 look at the GHG emissions in individual countries and the world, plotted against the indicators, along with their percentage increases.

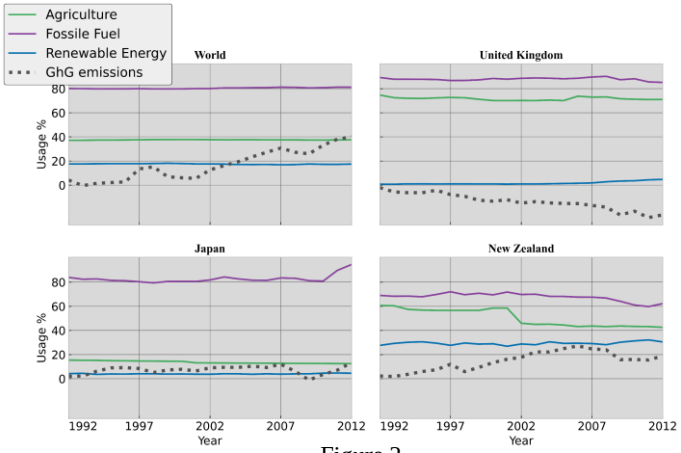

Figure 2

	UK	JPN	NZ	World
Population	11%	3%	25%	30%
GHG Emissions	-23%	11%	16%	34%
Agriculture	-5%	-19%	-30%	1%
Fossil Fuel	-5%	13%	-10%	1%
Renewable Energy	465%	8%	10%	-1%

Table 2

These indicators remain relatively stable in the world as a whole, but differ in individual countries. New Zealand and the UK lowered the use of both agricultural land and fossil fuel, and increased the use of renewable energy. New Zealand's GHG emissions remain on the rise. However, despite having an increase in of 11%, the UK's GHG emission have gone down by a shocking 23%.

On the other hand, Japan, whose population is rapidly declining, had a spike of 11% in fossil fuel usage between 2011 and 2012, and a consequent spike in GHG emissions. This was due to the Tōhoku earthquake and tsunami that struck the country in 2011, and lead to the shutdown of nuclear reactors which were a source of renewable energy.[2]

Overall, the data suggests that energy usage has a much more significant impact on climate change than population. The data showed that this is a crisis that can only be tackled if every country took an approach that best suited its resources.

1. M. Barnard. What Does Overpopulation Have To Do With Global Warming? Forbes [Internet]. 2017 Aug 21; Available from: shorturl.at/pxOP0

2. 10.Nakano J. Japan's Energy Supply and Security since the March 11 Earthquake [Internet]. shorturl.at/hpyD9