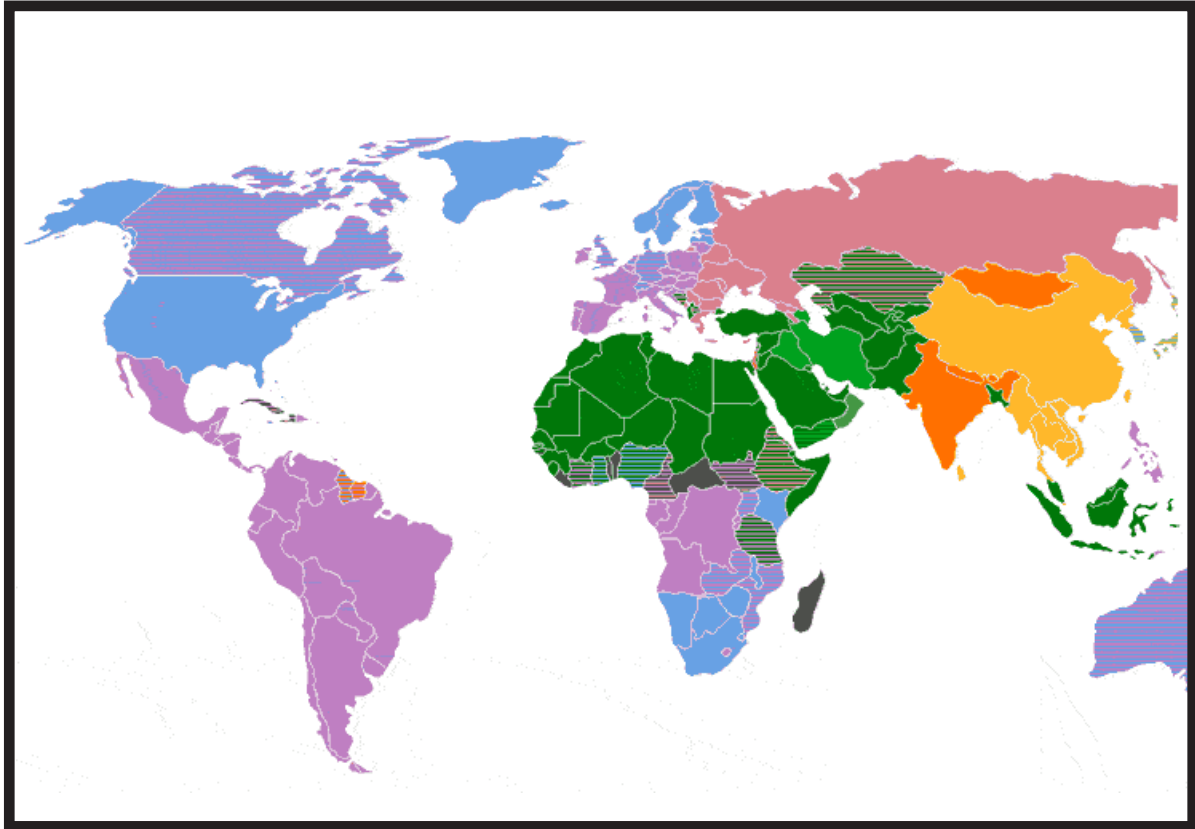


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*To what extent should we be concerned by the continued increase in our global population?*

# ESSAY COMPETITION

**SUMMER 2021**

# FIRST PRIZE

## KEILYN WIJAYA (YEAR 12)

The global population is defined as the total number of human beings living on Earth at a particular time. Today's current world population is 7.9 billion people, with China being the most populated country of 1.4 billion people, followed by India (1.3 billion people) and the United States (331 million people). (Worldometer, 2021). One of the highlighting features of rapid population growth is the exponential growth over the last century. With the onset of the Industrial revolution, the improvement in the food supply, health care, and advancements in technology has to the rapid growth of the human population. The population growth rate has slowed down in industrialized countries but continues exponentially in developing and more impoverished countries. By 2050, the United Nations projected that the world population would grow to 9.7 billion people.

The traditional Malthusian concern is that population growth will eventually outrun the food supply and that the betterment of humankind and economic development is impossible without strict limits on reproduction. Malthus agreed that the inherent capacity of the population growth exceeds the Earth's capacity to yield increases in food supply due to limits of cultivatable land. Furthermore, unrestrained population growth will increase poverty rates and increase food prices because when the demand for food exceeds the supply, a shortage will occur, triggering higher food prices. On the contrary, Boserup's theory of agricultural intensification says that when a population

grows, develops, and progresses, people will use its agricultural land more efficiently and trigger a positive drive-in agricultural innovation. Today, agricultural innovations such as urban agriculture and vertical farming (hydroponics, aeroponics, aquaponics) have been widely used. They have led to a more sustainable practice while producing high volumes of output. In addition, these practices contribute to the natural ecosystem assisting in reducing global warming and maintains clean water systems. These innovations reduce water consumption, lower carbon emission, and crop production is protected in indoor micro-farm; hence different seasons do not affect crop production. These practices are crucial to help meet the increasing demand for food and have significantly reduced the effects of diminishing returns in agriculture and the specter of food issue and have reduced the outspread of hunger and famine. At the same time, they are lowering the negative environmental impacts. The FAO estimates that 70% more food will be needed in 2050. A high proportion of this demand will come from rising consumer incomes in Eastern Europe, Latin America, and Asia. Farmers are slowly realizing how crucial sustainable agricultural practices are to increase yield and ensure the future of their industry and food security for all. One of the main concerns with population growth is the increased consumption of resources, leading to increased waste production and environmental degradation. They are further worsened by consumption habits, poor resource management, lack of attention to environmental goals, poor

agricultural practices, and specific technological advancements. While both developed and developing countries have contributed to global environmental issues, developed countries such as China and the US account for most mineral and fossil fuel use, resulting in considerable environmental repercussions. Increasing atmospheric carbon dioxide trace gases due to industrialization could lead to rising sea levels and climate change. In both LICs and HICs, local environmental problems emerge as current economic production has often been the overriding priority, and inadequate attention has been given to environmental protection. Local environmental damage could profoundly negatively impact health and significant impediments to future economic growth in the long run.

The cost of rapid population growth differs significantly from country to country. In a country heavily reliant on agriculture, the scarcity of natural resources will be a more significant burden. However, at any given number of resources, a slower population growth rate would help promote economic and social development within most countries. A developed country with high education levels, high investments in transport and communications system, stable political and economic systems will be more equipped to cope with rapid population growth. Instead, high-income countries with low population growth will benefit from increasing population growth as it will increase the supply of their factor of production (labor force), which will lead to a chain economic activity that will benefit the country. Countries with high levels of natural resources could support more people in the long run; however, rapid population growth makes it difficult for them to develop the skills of the labor workforce, and an administrative structure is needed to exploit their resources. Hence, high population growth in low-income countries may slow social and economic development. For example, in Brazil, the development of unused land will require significant complementary investments in roads, public sector services, and agricultural infrastructure. Therefore,

population growth can act both as a stimulus and an impediment to growth and development. The growth of population in the last century has matched the world's increase in resources through technological advancements and an increase in the supply of production, albeit food production from the land and sea has declined with population growth in the last decade. In addition, the area of agricultural land has shrunk through soil erosion and reduced possibilities for irrigation. Water supply is already a constraint in some countries such as Libya and Yemen. The basic economic fundamental is that there are unlimited wants but limited resources. If the demand for goods and services exceeds the supply, scarcity would occur, which would have a negative multiplier effect.

In conclusion, increasing population growth is concerning if the population continues to grow at an unsustainable rate. Our common goal is to improve living standards for all the people living today and the future generation, ensuring that they will have a stable and safe environment to live in with their economic, social and personal well-being to be met. These goals can be met in the long run through changes in consumption habits, controlled population growth, improvements in education, intelligent use of science, and advanced technology. However, time is short, and appropriate policy decisions are urgently needed.

# RUNNER UP

## JACOB BARON-HEATON (YEAR 12)

We should be concerned by the continued increase in our global population because there will come a point where the global population will exceed the number of resources, we have in order to survive. Resources such as food, medicine and water will become harder to distribute around the world if there is a continued increase in our global population.

Moreover, with life expectancies increasing across the world due to the advancement in medicine, countries are having increased ageing populations. This is a problem because ageing populations influence governments in countries to need to introduce a pro-natalist policy in order to get more young people in the country so that they can join the work force and look after the old people who are dependent on the working population. This is bad because it will increase the global population by a lot. For example, China at the end of May introduced a three-child policy in order to influence more people to have children so that eventually those children will join the working population. China is currently the country with the biggest population with a population of 1.3 billion people.

Some people believe that overpopulation is a myth and not obtainable because resources and technological developments increase at such a fast rate as well as the population. One theorist called Esther Boserup believes

that when the global population increases the development in agriculture is stimulated and begins to increase. This leads to a higher production of food being produced for an increasing global population.

This is an optimistic theory and is heavily supported by the Green Revolution in India during the 1960s. This development in agriculture allowed the Indian farmers to be able to feed more people in India. This development in agriculture was done by introducing new varieties of crops to India and by introducing pesticides and herbicides to farms in order to maintain the high yield of crops. India has one of the biggest populations in the world with a population of 1.3 billion people.

However, Boserup's theory was flawed because Boserup did not consider that intensive farming methods would degrade the land and lead to desertification. For example, in the Sahel region of Africa desertification took place. This is an important factor because if intensive farming methods are used in order to combat a rapidly growing global population, then the environment would suffer a great deal of damage in order to feed and maintain the global population.

I strongly agree with the Thomas Malthus Theory. Thomas Malthus wrote a pessimistic theory in 1798. Malthus believed that if the population was unchecked, the population

would outgrow the food supply. This is because in the Malthusian Population Theory the population would grow at a geometric rate while food supply production would grow at an arithmetic rate meaning that the rate of food production would not be able to feed an increasing global population.

Malthus also believed that population would be checked by war, famine and wars over limited resources. In some ways, Malthus was proved wrong. One example is that the world's population has exceeded 7 billion and this predicted population crash has not happened. This is because of technical advancements and agricultural improvements which he did not see. For example, the Green Revolution which revolutionized the ways in which the world has improved their agricultural systems. Such as increased amount of cropland due to irrigation, the increased food yields due to chemical fertilisers. Birth control such as contraception has been proving to be effective and has reduced population growth as countries moved through the demographic transition model.

On the other hand, Malthus predicted some events which did occur. For example, 800 million currently are going hungry and there's been famine and wars in some parts of sub-Saharan Africa because population has outstripped food supply. Water shortages are becoming an increasing problem in many parts of the world. For example, Sudan has faced civil wars and famine due to severe food shortages and water shortages due to droughts, floods and environmental deterioration. Over 9.6 million people face severe food shortages, this is the highest number recorded in the country's recent history. Many of those people lived in areas which lived in conflict zones such as the Blue Nile State and the South Kordofan. This food insecurity in Sudan threatens lives, livelihoods due to prolonged conflict. Another pessimistic theory which is linked

to the Thomas Malthus Theory is the Paul Ehrlich Theory. This is another theory which I agree with. Paul Ehrlich was a biologist who wrote a theory in 1968. He believed that the planet has a well-defined size and contains a finite number of resources. Whereas humans can multiply themselves in endless quantities. Therefore, leading to in the future a time where the quantity of food, clean water and other resources will be so small compared to the human population. He believed that overpopulation would lead to famines, wars and environmental disasters.

However, Ehrlich was proved wrong as well. Ehrlich predicted that many disasters would occur during the 1970s and 1980s. These did not occur. Like Malthus, Ehrlich had not taken the Green Revolution into account. Instead of famine, foods became cheaper and more plentiful than ever before.

Overall, I believe that we should be concerned about the global population increasing because of those theories I have stated in the essay but more importantly we should focus on the global population increasing because it causes problems which would not occur if the global population wasn't increasing at an alarming rate. For example, environmental deterioration due to the degrading of the land and deforestation of forests in order to make more space for land in order for people to live. Conflicts such as wars would happen less if countries' populations weren't overpopulating at such a fast rate because governments would be able to distribute essential resources such as food, medicine and water easier.



# RUNNER UP

## JEREMI SEBASTIAN KULCZYK-LUBOMIRSKI (YEAR 12)

People should not be overly concerned by the continued increase in our global population as an increase of people now is not the danger. However, the ever increasing number of people on the planet may lead to economic problems, famines and diseases if resources are not allocated well or are simply unavailable. This may then be a cause for concern. That said, it is unlikely that such a catastrophe will happen.

The argument for concern over the continued increase in our global population will lead a shortage of resources and humanity won't be able to sustain itself. The more people there are on the planet, the more resources they will consume. The problem here is that resources are not unlimited and they will eventually run out.

There also is an unequal distribution of resources on earth. Developed nations have far easier access to resources than developing nations. People in the developing nations already suffer due to having a harder time accessing already limited resources. This is why these nations continue to suffer from diseases, famines, water shortages and in some places war, like reported by the Guardian. As the global population increases, the greatest human casualties will be in developing nations as they have the highest population growth but greatest resource scarcity which can result in disaster. Not only disease may become more prevalent amongst the population suffering from malnutrition, but wars may be fought over scarce resources.

This theory of calamity from overpopulation was pioneered by Thomas Robert Malthus in the late 18th & early 19th centuries. Malthus wrote an essay of 'The Principles of Population' in which he developed a theory which stipulates that the long-term quantity of resources does not change, but the population increases over time. The larger the population is, the greater quantities of resources it needs to survive. This runs into a problem as Malthus stated that although in the short-term, the number of resources available for consumption can be increased, in the long-run, it stays the same and the population does increase until a certain point at which a 'Malthusian Catastrophe' occurs. A 'Malthusian Catastrophe' causes famine or war as a result of there being a lack of food. This results in poverty, suffering and death. With Malthus' prediction of such quick population growth, disaster seemed to loom around the corner. However, the Malthusian theory was debunked by Cambridge University's Bjørn Lomborg in his book 'The Skeptical Environmentalist'. Dr. Lomborg argues that there have been significant advances in agricultural techniques as well as reductions in human fertility as shown by current trends, particularly in developed nations. This dispels the fundamental Malthusian argument. Evidence for this can be found in many studies like that of the Food and Agriculture Organization which found that food production is increasing. Dr. Lomborg, also argues that many organizations like the World Watch Institute, make predictions about disastrous events based on short-term data, while not taking into account long-term

trends. This leads to false predictions being made as they are not based long-term trends, but rather, on information which cannot be relied upon to make long-term, accurate predictions.

The reason for there being far slower population growth in the past, is the result of global population “being controlled by death”, as Professor Rosling stated. Throughout history, people tended to have many children, but many of them did not live to adulthood and the infant mortality rate as well as deaths from child-birth amongst women very high. Compared to now, when medicine is far more advanced, less children and mother die as a result of childbirth. This is why there has been an exponential growth of the global human population in the 20th and 21st centuries. That said, many like Professor Rosling predict that population growth will slow down over the course of the 21st century. This trend can be seen in many developed nations which have had a substantial decrease in fertility rates, thus, their population growth has dramatically decreased. Notable examples are Germany, of this In some developed nations

The great population growth seen globally is mainly due to population growth in developing countries but there is no reason for concern as this is a natural process. Developed countries have already gone through it which is why they have far lower population growth than developing nations. This process is called the ‘Demographic Transition’, and it refers to a historical demographic shift. Nations with poor infrastructure, healthcare, education and which generally have lower levels of economic development, tend to suffer from high infant mortality rates and lower levels of education (particularly amongst women) which contribute to very high population growth. This can be seen most clearly in countries of sub-Saharan Africa. On the other hand, in countries like the United Kingdom, Norway, Japan, there is far lower population growth (Japan having a shrinking population) due to nations having high levels of education universally, as well as high economic development which correlates with population growth. A considerable reason for there being

slower population growth in developed nations is due to a higher level of education of women compared to developing nations. This makes women have greater opportunities as they are better qualified thanks to their education and many chose not to have children as they may want to focus on their career. Until all countries have gone through the process, global population will continue to increase, but thanks to economic growth which can be seen in many developing nations, as well as education becoming more accessible, we will see a decline in global population growth. The UN predicts that the 12th billionth person won’t be born.

In conclusion, there is no need for alarm as all nations will go through a process of rapid population increase when they are developing. As their economic situation improves, and the population becomes more educated, their population growth decreases and becomes more sustainable, leading to global population growth decreasing, as more and more nations reach this stage of their development.

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