"Science and technology can solve all of the world's problems." How far do you agree?

By Ooi Wen Ting (16A15)

Advancements in technology and science enabled the human race to improve by leaps and bounds over the last century. Technology enabled us to be connected and paved the road to globalisation, while scientific breakthroughs have solved age-old problems like diseases, hunger and even energy constraints. Yet, science and technology cannot be said to be a panacea. As we enjoy the benefits that science and technology brings us, it is crucial that we are aware of the other issues that they also bring. While science and technology has mitigated the effects of natural disasters worldwide, it is insufficient in eradicating all the issues that mankind face. Hence, though it should be acknowledged that mankind had benefited much from science and technology, it would be an erroneous assumption to say that it can provide a solution to every problem in the world.

Science and technology enabled mankind to protect themselves from naturally occurring calamities. Technologies, such as the Japan Earthquake Reactor Systems and crowdsourcing of information on the website Ushahidi, have minimised the impacts of natural disasters. Without science, mankind would never have understood the way disasters like earthquakes work, and created machines to predict and warn the masses of these disasters. While mankind had always struggled with survival in the face of natural disasters, science and technology help to mitigate the effects by increasing awareness, hence giving people more time to escape from potential areas of destruction. Similarly, science has created the vaccine for polio, and technology has enabled it to be mass produced, thereby lowering the cost of each vaccine dose to less than USD$1. Technology has also enabled the transportation of polio vaccines worldwide, benefitting the global community. Polio, once a threatening disease to mankind, has been eradicated in most parts of the world today. Hence, the industrialisation and globalisation brought about by technology has worked hand in hand with science to make mankind better off than before, not only for polio victims but other diseases like asthma, cystic fibrosis and many more. Hence, science and technology seems to solve mankind's challenges with the natural environment, as they provide a solution to these problems.

However, one cannot ignore the limitations of science and technology. Due to the vested interests of individuals, science and technology is unable to provide a solution to the selfish aspect of human nature. Individuals' greed, avarice and desire for dominance over others are stumbling blocks to the good that science and technology can bring. For example, even though there are earthquake detection technologies available, they are simply not utilised in many parts of the developing world. Rural China, specifically Sichuan, suffered from the devastating impacts of an earthquake, with many school buildings collapsed and children killed. On one hand, one can argue that the earthquake was of great magnitude, and its occurrence during school hours contributed to the large number of casualties. Yet, one cannot ignore the fact that corrupt government officials had siphoned off money intended for the building of these schools, rendering them less stable and more susceptible to the effects of earthquakes. Arguably, the rampant corruption also led to the lack of earthquake detections, as investors shy away from these officials who are only looking to further their private interests. Similarly, the Pakistani government had informed the public that polio vaccines were aimed to infect the children and sterilise them. With the government's vested interest of holding on to their mandate to rule and

reign over the people, it is hard for science and technology to ameliorate the plight of the disease-stricken. Hence, science and technology are unable to provide benefits to individuals when those in power seize the opportunity to further their interests, at the expense of the common folk.

Despite solving the world's hunger issue, it should be acknowledged that science and technology have brought about a plethora of other problems. Undoubtedly, the Green Revolution has increased food yields exponentially, and strains like the Golden Rice have addressed Vitamin A deficiency in many parts of Asia. Yet, we cannot be blinded by the positive impacts of science and technology, and ignore the adverse consequences of them. While the advent of GM (Genetically Modified) seeds have enabled farmers to grow crops that are more resistant to pesticides and extreme climate conditions, it also put them at the mercy of MNCs (Multinational Corporations) like Monsanto. Traditional farming methods allowed farmers long term food security, as they are able to save seeds from previous batches of crops to plant during the next season. However, profit-driven corporations engineer seeds that grow into infertile plants, meaning these farmers would have to go back to buying seeds from Monsanto each season. This reliance on and domination of MNCs has impoverished many farmers, as they are at the mercy of price increases, and would not be able to maintain their livelihood when the price of seeds increases. Hence, dire social consequences are seen due to a reliance on science and technology to solve our hunger problems.

Besides social consequences, environmental issues are also a growing concern globally. In agriculture, the use of pesticides, herbicides and fertilisers pollute the environment, and render water sources unfit for human consumption. These chemicals were artificially engineered by scientists to improve agriculture, yet they resulted in environmental degradation. Similarly, the planting of specific crops resulted in a loss of biodiversity that threatens to collapse ecosystems. Due to the technologies available during the Green Revolution, bananas produced were genetically identical. This resulted in the extinction of Gros Michel, a type of banana wiped out by fungal infection in the 1970s. The cause for concern is even more pertinent when one is aware that bananas today are planted using the same cloning method, which makes them highly susceptible to extinction. While this is merely speculation now, it is highly possible that such a reality will come to fruition, and ecosystems relying on this fruit will collapse. Hence, adverse environmental concerns that we may not even comprehend can result from the use of science, and these far reaching consequences may not be what mankind may be prepared for.

Furthermore, the fact that science and technology has intrinsic risks should not be lost to us. The 21st century has seen rapid advancements in nuclear technology and stem cell research. However, the nature of these technologies makes the consequences uncertain, and it is important not to get too carried away with the possibilities that science and technology promise. While nuclear technology solves the world's energy problems, stakes are high as it can be easily exploited by belligerent leaders to wreck havoc. The radiation involved in nuclear technology is also a cause of great concern, as seen from the Fukushima Nuclear Plant disaster. While nuclear technology promises a great deal for a better future, and provides efficient energy for the ever-growing energy-intensive world, we should remain cautious and remember that it can create even greater problems in the future if mishandled. Similarly, stem cell research provides endless possibilities, and promises leaps and bounds in the pursuit of science. Yet, we need to be cautious of the ethical concerns that stem cell research brings. These concerns are especially detrimental to society,as various groups with different stances regarding stem cell research can come

into conflict because of it. It would be fallacious to ignore the dire risks of science and technology, and only look at the possibilities of solving the world's problems.

Additionally, there are some problems that science and technology cannot solve. International conflicts like the Arab-Israeli War, South China Sea conflict, and Sino-Japanese animosities are all long standing problems that have dragged on as science and technology advanced. Due to historical baggage, it would take far more than science and technology to resolve tensions between China and Japan. While the Nanking Massacre still leaves a mark in the hearts of the Chinese, the Japanese history curriculum glosses over the atrocities of war and in fact, glorifies war exploits. When psychological trauma is so fresh and deep in the minds of the Chinese, it is impossible that they will simply forgive and forget. This also manifests itself in geopolitical conflicts like the Diaoyu Islands, with both parties' demands being related to the war. Arguably, technology had improved communications between these countries, but the historical baggage prevents the resolution of these tensions. It can even be said that with technology, widespread destruction of regions can be achieved when countries in conflict see no other way of resolving their differences. Hence, technology or science may not be able to resolve conflicts that are so deeply rooted, and can instead aggravate these conflicts.

In conclusion, the argument that science and technology can remedy all of the world's problems does not hold water. While science and technology does bring about unparalleled benefits, they are also the cause of many other problems that mankind has yet to find a solution to. Besides that, the sheer magnitude of the problems the world faces makes it impossible for science and technology to solve them all. While we keep in mind the problems that still exist and work towards resolving them, it is crucial we also keep in mind that science and technology have limited capabilities, and be cautious about experimenting with the unknown.

Comments:
An insightful and sound discussion of the issue. Various concerns are raised and evaluated in relation to the central ideas of the question. Apt use of supporting evidence for most parts of the essay but need to be mindful of your paragraphs, some of which are too long. Overall, a decent effort.