

93401



S

SUPERVISOR'S USE ONLY

OUTSTANDING SCHOLARSHIP EXEMPLAR



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Tick this box if
there is no writing
in this booklet

Scholarship 2020 Geography

2.00 p.m. Monday 30 November 2020

Time allowed: Three hours

Total score: 24

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

Pull out Resource Booklet 93401R from the centre of this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–24 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

INSTRUCTIONS

The materials in the resource booklet will enable you to become familiar with the theme and contexts of this examination: **climate change**.

Your answers to ALL three questions must incorporate a wide range of case studies from around the world, as well as information and ideas BOTH from the materials provided in the resource booklet and from your studies in geography.

Information to answer any question can be taken from any resource.

Space for planning has been provided on pages 4, 10, and 16 to help you prepare your responses. The questions on page 3 are repeated on their respective planning pages.

QUESTION ONE

Critically analyse and justify the most significant cultural process that contributes to climate change.

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication
- relevant original and/or effective visuals, such as maps, graphs, and diagrams.

Use page 4 to plan your ideas, and begin your answer on page 5.

QUESTION TWO

Perspectives are bodies of thought, theories, or world views that shape people's values.

With reference to different perspectives, have positive impacts on society from the use of fossil fuels outweighed the negative impacts? Discuss.

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication
- relevant original and/or effective visuals, such as maps, graphs, and diagrams.

Use page 10 to plan your ideas, and begin your answer on page 11.

QUESTION THREE

"Twenty-five years ago people could be excused for not knowing much, or doing much, about climate change. Today we have no excuse." — Desmond Tutu

With reference to different perspectives, critically evaluate the predicted future impact of climate change on human societies across the globe. Who will be most affected?

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication.

Use page 16 to plan your ideas, and begin your answer on page 17.

QUESTION ONE

Critically analyse and justify the most significant cultural process that contributes to climate change.

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication
- relevant original and/or effective visuals, such as maps, graphs, and diagrams.

Most significant:

PLANNING

until 2045 3:00

Population increase

- we produce 3.6 billion tons of GHG per year?
- "Carbon legacy"

↳ As population increases, so does energy consumption

↳ So does deforestation because more demand for paper, wood to build infrastructure, etc

↳ Agriculture industry because developing countries afford meat, changing diets etc

↳ Industrialisation & globalisation also important, although somewhat interconnected

Begin your answer to Question One here:

To rephrase the words of the International Panel on Climate Change, "high population growth" is a "key impediment" to reaching goals of decreasing global temperatures (Page 5) and therefore it can be said that the rapidly increasing human population is the most significant cultural process that contributes to climate change. Although other cultural processes such as urbanisation and globalisation play a huge role, all of the cultural processes are interconnected with the increasing human population.



FIG #24

As shown in Figure 5 (Page 5), throughout the world the world population and amount of carbon dioxide produced has a positive relationship.

Relationship between population & CO₂

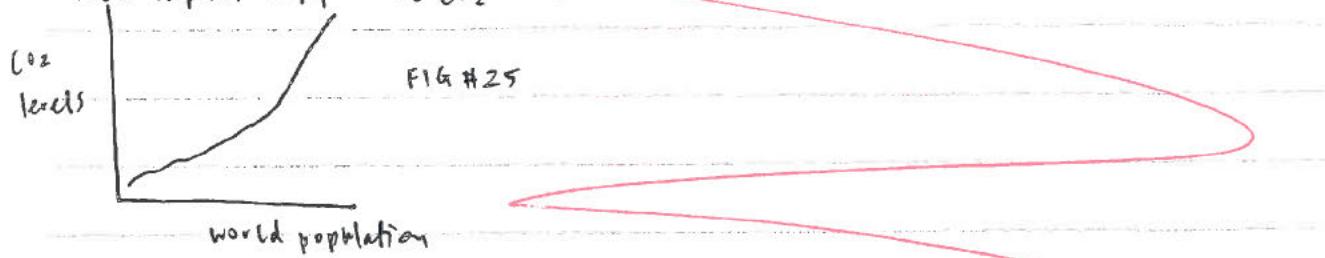
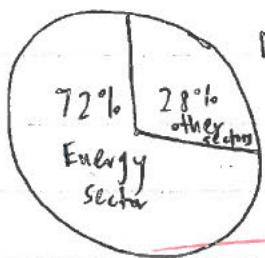


FIG #25

also demonstrated in the graph above (FIG #25) - As the human population increases globally, then so does CO₂ levels. "Unsustainable human population growth can overwhelm efforts to reduce our carbon footprint through less consumption and better technology", this is because ~~that~~ the rapidly increasing population growth doesn't let climate policies and human's habits change in time to balance it out. The population increases at a faster rate than our efforts to mitigate the effects of climate change globally. An example of this is shown in a 2009 study of the relationship

between population growth & global warming" determining that the "carbon legacy" of one just one child can produce 20 times more greenhouse gas than a person will save by driving a high-mileage car, recycling, using energy-efficient appliances & light bulbs, etc" (page 5). This study demonstrates that the CO₂ (directly & indirectly) produced by a child will outweigh the actions to mitigate climate change of a person, therefore the increasing human population is definitely (adding a billion every 12-15 years, page 5) is definitely worrisome. More humans means increased consumption of

However, increased CO₂ levels are not the only impact of an increased world population, another impact is that there will be increased energy consumption (FIG #24). ~~the energy sector represented "72%.~~



Different sectors contributing to global emissions in 2013

FIG #26

As demonstrated in FIG #26 above, the energy sector contributed to "72% of global emissions in 2013" (Page 7) and still remains the "largest contributor to emissions over any other sector" "over the past 10 years" (Page 7). As the population increases, so will the use of fossil fuels, coal & other energy-providing sources as the demand (therefore CO₂ increase as motor car use increases) for services such as transportation, heat and air conditioning all increase with population growth. Although many developed countries such as ^{Denmark} Sweden and New Zealand are beginning to have a more environmental focus and aim to switch to the use of renewable resources, developing countries such as China & India are still heavily reliant on the use of fossil fuels for power & electricity. Although the use of coal in "electricity generation slowly continues to decrease,"

"it still remains the largest source of electricity & the second-largest source of primary energy globally" (Page 7). Developing countries typically either don't have the sufficient funds to switch to renewable energy sources, or deprioritise it, because they are more consumed with other processes such as industrialisation. Therefore, as the population increases in developing countries, fossil fuel consumption will undoubtedly rise, such as in China where "The oil & gas sectors alone could add more than 200 million tonnes of carbon dioxide to China's total emissions" (Page 7).

Another effect ~~that~~ ^{world} of increased ~~human~~ population is an increase in consumption not just of energy but just in general, such as of agricultural produce. Humans have to consume food in order to survive, meaning that the demand for the agricultural industry will only increase as consumption increases. Globally, 17% of ^{GHG emissions causing} climate change ~~are~~ attributed "directly through agricultural activities & an additional 7-14% through changes in land use", thus the "main direct agricultural GHG emissions are from soils, fertilisers, manure & urine from grazing animals and methane production by ruminant animals and possibly rice cultivation". These are all to produce crops & cattle to feed the human population, so as the world population increases then so does agriculture.

All that being said Although the increasing human population is the most significant cultural process that contributes to climate change, other factors such as ^{urbanisation} industrialisation, and globalisation play a huge part as well. As the process of industrialisation occurs, many factories start being built as a country opens up their economy. As the number of factories increase, so do levels of CO₂ and possibly other GHGs as well. Plus Bangladesh and India are currently undergoing the process of industrialisation.

as they build more factories & produce more goods. Urbanisation is another cultural process that contributes to climate change because "cities are major contributors to climate change: "although they cover less than 2% of the earth's surface, urban areas account for 71-76% of the world's CO₂ from global final energy use". (Page 6).¹⁸ "Rural to urban migration often results in over crowding, pollution & poor sanitation", the pollution only amplifying the effects of climate change. Globalisation is another cultural process that worsens climate change, as our world becomes more interconnected, trade is flourishing and the use of airplanes and ships to transport cargo puts more greenhouse gases into the air. Although seemingly unrelated to the increasing human population, these other cultural processes impact it. As the world population grows, more consumers may purchase goods from around the world (& possibly newly industrialised countries), and the shipping of the goods will increase air traffic & worsen climate change.

As demonstrated in FIG # 24, ~~many factors~~ such as the cultural factor of increasing human population will cause an increase in energy consumption as well as consumption of other things such as agricultural produce. This in turn will lead to increased production of GHGs and therefore a rise in global temperatures, contributing to climate change.

Due to the interconnectedness of the cultural factor "increasing human population" and its correlation to other factors such as energy consumption and agriculture, it can be said to be the most significant cultural process that contributes to climate change.



QUESTION TWO

Perspectives are bodies of thought, theories, or world views that shape people's values.

With reference to different perspectives, have positive impacts on society from the use of fossil fuels outweighed the negative impacts? Discuss.

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication
- relevant original and/or effective visuals, such as maps, graphs, and diagrams.

PLANNING

Unit 1 4.15

Economic

short term:

Positive \rightarrow Negative

long term:

Negative \rightarrow Positive

Social

short term

Positive \rightarrow Negative

long term

Neg \rightarrow Pos

Environmental

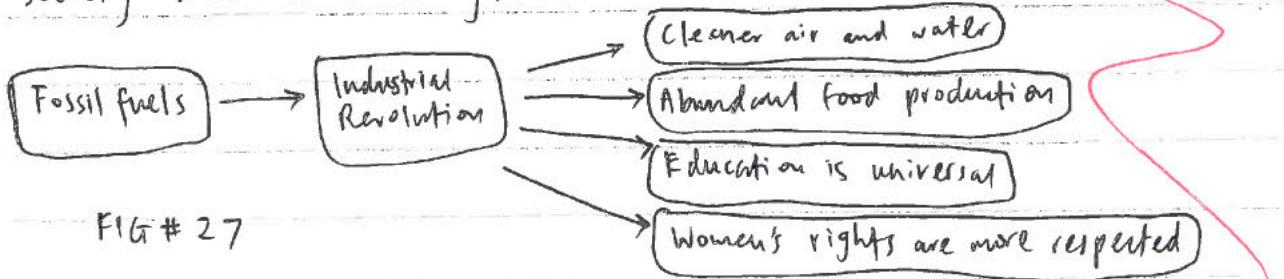
short & long term:

Neg \rightarrow Neg \rightarrow Pos

Begin your answer to Question Two here:

Fossil fuels are the most used energy source and have had various positive and negative effects on society. In the short term the effects are mostly positive from an economic & social perspective, however, in the long term, the negative impacts on society outweigh the positive ones greatly. From an environmental perspective, the negative effects impact the positive impacts in both the ~~the~~ short and long-term.

From an economic perspective in the short term, the use of fossil fuels has had a more positive impact on society. This is because fossil fuels are not only cheap ~~& they cost 3 times less than existing coal generation costs 3 times less than wind power~~ ("existing coal generation costs 3 times less than wind power", page 10) but also helps to "improve human well-being by powering labour-saving & life-protecting technologies, such as air conditioning, modern medicine, and cars and trucks" (Page 10). As well as this, it was fossil fuels that originally "provided the energy that powered the Industrial Revolution" (Page 10) and allowed the western world to become the modern, industrialised society that it is today, as shown in Fig #27 below.

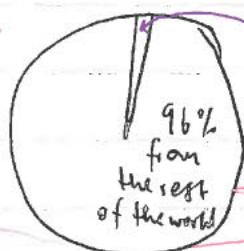


As well as this, the fossil fuel industry is still a huge industry and important part of the economy for many countries including New Zealand, Russia, Colombia and Venezuela, with the "oil and gas industry contributing \$1.57 billion of Taranaki's total GDP in 2019" (Page 11) and up to 10% of Taranaki's population still reliant on coal & gas. So as we can see, the fossil fuels have a relatively positive impact in the short-term.

However, in the long-term fossil fuels will have more negative impacts than positive impacts. As the world is becoming more & more environmentally friendly and focusing on the concept of sustainability, it has become both a social norm and an obligation to switch away from the use of fossil fuels and switch to renewable energy sources instead. As well as this, the increased use of fossil fuels has led to the worsening of the issue of climate change, which will have severe economic impacts in the long-term, this is the main negative impact of the use of fossil fuels in the long-term. Nations such as Russia, Colombia and Venezuela are all energy-dependent and heavily reliant on the oil and gas industries to power their economies, however this comes at a price. Due to Russia's inability to diversify its economy, for "every \$1 that oil prices decline, the nation loses roughly \$2 billion in revenue". In Colombia "roughly 45% of all exports are tied to oil and gas products" and in Venezuela "oil comprises 95% of its exports & 25% of its GDP", therefore as the world switches to renewable energy in the long-term, the nations still using fossil fuels will take big hits to their economy. Also, the effects of climate change means there an increase in frequency & intensity of extreme weather events (meaning governments will spend millions or billions to help those affected), rising sea levels (entire cities such as Hong Kong or New York could be underwater, damaging the country's economy) and an increase in the frequency of heat-related incidents and diseases (hospital bills will increase), when added up together, these negative implications all outweigh the almost non-existent positive ones from ~~green~~
~~green~~ an economic perspective in the long-run.

The "increased quantity of food humans produce and improved reliability of the food supply" (Page 10) are amongst the mostly positive impacts of fossil fuel use in the short-term. As well as this there is also the reduction of deaths due to cold weather and the other positive impacts that resulted from the Industrial Revolution as shown in Fig #27. ~~An increase in food supply~~ By allowing the use of "air-conditioning, modern medicine, and cars and trucks" to be used "cheaply" (Page 10), this has improved human well-being as even people on lower incomes can use air-conditioning (to avoid heatstroke) and access potentially life-saving medicine.

However, in the long-run there are many negative ^{social} ~~impact~~ impacts from the use of fossil fuels, especially on indigenous communities, and those the impoverished communities. In Australia, the "Carrickhand coal mine" has been proposed, the mine would "tear the heart" out of the Indigenous people's ancestral lands, so therefore they are opposing the mine. However, due to the power imbalance (which is only further exacerbated by the clashing indigenous perspective of protecting their ancestral land, and the western colonial perspective of economic priorities), Indigenous people are rarely heard and the ones opposing the mine face "severe social costs upon their lives" (Page 14).



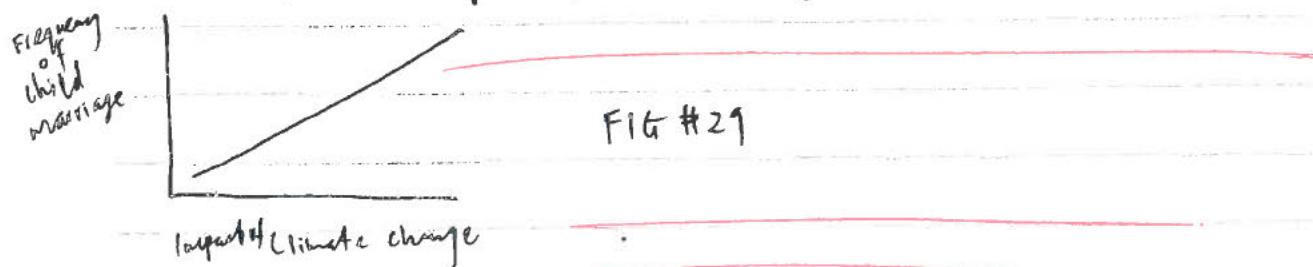
Contributions to global emissions

Fig #28

As well as this, the divide between the rich and the poor also continues to widen. "The cost of adapting to climate

change on the African continent is estimated at \$10.6 billion each year" because, and "African nations are amongst the most vulnerable" (Page 14). This is despite the fact that Africa contributes less than 4% to global emissions, as shown in FIG #28.

Relationship between impacts of climate change and child marriage



As shown in FIG #29, as the impacts of climate change increase, so does the frequency of child marriage, this is yet another negative social impact of fossil fuel use (the use of fossil fuels amplifies effects of climate change).

From an environmental perspective, whether it be short or long term, the negative effects outweigh the positive ones by far. In the short term, to produce usable fossil fuel they need to be "refined & purified" which leaves "excess waste material that requires disposal" (Page 12). As shown in FIG #12, often times the handling and disposal of the waste isn't done well and can result in spillage which not only damages the community but also whole ecosystems. As well as this, when oil & gas is extracted, wastewater is often brought to the surface which gets into water systems and can "adhere to fish and water foul and destroy algae and plankton, disrupting the primary food sources of fragile aquatic ecosystems" (Page 13). In the long-term, as more fossil fuels are used, there are bound to be more of these incidents to occur, and with more oil spills, bad handling of toxic waste

and increased pollution levels, this can not only endanger species but also possibly lead to extinction.

In the short-term, the positive impacts of fossil fuel use mostly outweigh the negatives (except for from an environmental perspective) however, in the long term, the negative impacts on society largely outweigh the positive inputs from the use of fossil fuels.

QUESTION THREE

"Twenty-five years ago people could be excused for not knowing much, or doing much, about climate change. Today we have no excuse." — Desmond Tutu

With reference to different perspectives, critically evaluate the predicted future impact of climate change on human societies across the globe. Who will be most affected?

Your answer must include:

- specific information from the resource booklet
- knowledge and insight you have gained from your studies in geography
- convincing communication.

PLANNING

80% of climate refugees are female whereas only 30% of climate change policy makers are female

In 2015, ≈530000 children under age of 5 died from diarrhoea

In 2003, 30000 people in France died from heatwave, mostly elderly >65 yrs
bc from went on holiday, left them

Begin your answer to **Question Three** here:

Climate change will have varying impacts on different groups of human societies but the most affected group depends on the perspective.

From a social perspective, women, ~~and~~ children ^{and elderly} are the most vulnerable & will be the most affected. From an economic perspective, ~~small~~ coastal nations will be the most affected. From an environmental perspective, everyone will be the most affected.

80% of climate refugees are female whereas only 30% of climate change policy makers are female. ^{shown in FIG #30 and FIG #31} This results in females being disproportionately affected by the impacts of climate change. From a social perspective, females are one of the most affected groups from the impacts of climate change. Due to the fact that we live in a male-dominated society, females often have roles of looking after their family, and tend to have less financial power within households (women earn 24% less than men for incomes). Therefore, as the impacts of climate change worsen, resulting in an increase in both the frequency & intensity of extreme weather events (such as hurricanes, floods), females will be especially affected. The women of the family won't have much economic power & therefore can't make economic decisions, leaving the power to males. The females often stay behind in times of crisis to look after the children and elderly, and often sacrifice their own meals and resources to care for them, making them more vulnerable.

^{gender}
Number of climate refugees

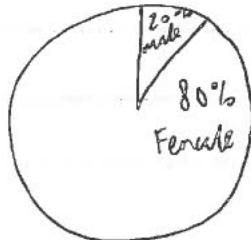
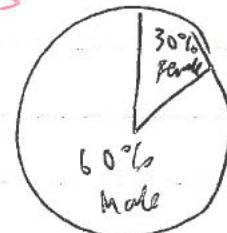


FIG #30

Gender of climate change policy makers



Another group that will be most affected from a social perspective are the dependants - the children & elderly. In 2015, "More than 19 million children's lives are threatened" due to "devastating floods, cyclones & other environmental disasters linked to climate change" (page 21). Children and especially elderly are incredibly vulnerable to diseases, ^{viruses} and infections which will increase due to climate change. Water borne diseases such as ~~malaria~~ & vector-^{borne} related diseases such as malaria, ticks and the West Nile virus will all increase as temperatures warm and the conditions allowing for the vectors to thrive.

In 2015, around 530000 children under the age of 5 died from diarrhoea. With sea levels rising, this will worsen the water quality in many developing nations such as Bangladesh, where cholera & dengue fever may increase, potentially increasing child mortality rates. Elderly are also incredibly vulnerable to diseases, viruses & infections. As shown in FIG #22, climate change has various impacts on the human health, with rising temperatures due to cause more heat-related illness & death, & cardiovascular failure due to extreme heat. With children, the ones in lower-income developing countries are typically more affected & are affected worse, as the government doesn't have adequate resources to help with improving hygiene & sanitation, ^{e.g. Bangladesh} whereas in wealthier countries such as the U.S. children & their families can access more services. This is not true for elderly. In 2003, 30000 people in France died from a heatwave, majority elderly over the age of 65 years old. France is a High Income, developed country, but this still the heat was

still had devastating impacts on the elderly.

small low-lying

From an economic perspective, as sea levels rise, coastal nations will be the worst affected, such as Kiribati, or Marshall Islands (part of U.S.). This is because many of these nations will simply be wiped out & will be completely underwater. With the increase in frequency & intensity of ENES, typically small coastal nations don't have the sufficient funds to deal with the impacts of the devastating ENES, however developed nations do. However, "all countries suffer economically by 2100" if we continue on our current path.

Outstanding Exemplar 2020

Subject	Geography		Standard	93401	Total score	20
Q	Grade score	Annotation				
1	8	A high level of sophistication is demonstrated consistently throughout. The candidate demonstrates insight by critically analysing how a range of interconnected cultural processes contribute to climate change, yet all stem from one main process, hence identifying the 'most significant process'. From the outset this most significant cultural process is outlined when setting up the argument. The candidate creates a strong argument, using convincing communication. The candidate uses evidence from the resource booklet effectively to support their argument and integrates original diagrams that are relevant.				
2	7	Another strong and convincing answer. The candidate effectively structures their answer through perspectives. They also demonstrate insight in breaking down the impacts from the use of fossil fuels on society into short and long-term effects. Evidence from the resource booklet again is used effectively to support their answer. Original diagrams are integrated, yet not as effectively as that in Question One (therefore a lower grade than for Question One). Another sophisticated response to meet the criteria for outstanding scholarship.				
3	5	The candidate demonstrates an excellent understanding of the question and uses insight to outline 'who' will be impacted depending on their chosen perspective. Evidence from the resource booklet supports their answer and original diagrams are integrated. This answer is convincing, displaying clear communication. Despite making a good start, the candidate ran out of time and therefore scored lower in this question, as the answer lacked depth.				
Overall		Overall, this script is completed to an outstanding scholarship level. This candidate demonstrates excellent geographic and literacy skills. A high level of sophistication is demonstrated throughout the script. Time management with the last question impacted the overall score. An outstanding performance nonetheless.				