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June 2016

GCE Geography 3 6GE03 01

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Introduction

This year's Unit 3 examination was similar in style to previous years. Candidates chose all of the Section A questions in reasonable numbers, with the rough percentage popularity shown below:

Question 1: Energy Security = 33 %

Question 2: Water Conflicts = 25%

Question 3: Biodiversity under Threat = 15%

Question 4: Bridging the Development Gap = 15%

Question 5: The Technological Fix? = 12%

Bridging the Development Gap and The Technological Fix? were a little more popular than in previous years, with slightly fewer candidates opting for the Water Conflicts question. Overall, the vast majority of candidates perform well on this examination paper. As in the past, timing issues were relatively uncommon. Most candidates produced full answers and there were many excellent responses.

SECTION A

Specific comments on Section A

As is always the case, there were some very high quality answers in Section A and the average quality of response was good. Many answers demonstrated a good command of physical, human and political geography and many candidates used contemporary events and changes to support their work, as well as well-known examples and case studies. There are some areas centres may wish to focus on when preparing for future assessments:

- In 10 mark data stimulus questions there is still a tendency to describe data rather than provide explanations; when explanations are provided there needs to be a range of these rather than a narrow focus on one aspect.
- There is still a tendency to rely too much on descriptive case study detail, rather than selection and application especially in the Water Conflicts question where some case studies are ill-chosen and weakly applied.
- Most questions in the 14-16 mark range require a supported judgement to be made; many candidates are happy to sit on the fence and 'fudge' a conclusion whereas the strongest answers have the confidence to stand by their case.
- Level 3 and Level 4 marks in the 15 mark questions are only accessible if candidates can show that they are assessing, examining or evaluating (depending on the command word). Failure to do this, i.e. by only describing and explaining, limits marks to a maximum of 8 in most cases. The development of evaluation skills and evaluative writing style is thus crucial to candidates aiming for a high grade.

Question 1: Energy Security

Question 1 (a)

This question asked candidates to study a table of data showing attitudes to four non-fossil fuel energy sources. Most candidates showed a good understanding of the data. One of the keys to a successful answer was to avoid getting bogged down in an attempt to explain each cell of data (potentially 12 cells) but rather to ensure coverage of all four energy sources and three attitudes by being selective. There was some evidence from stronger answers of data analysis, such as explaining a particular percentage agreement, but then moving on to explain why the percentage disagreement was likely to be quite high. Weaker answers tended to focus on the data for nuclear power and became side-tracked into long descriptions of nuclear accidents without recognising some positive aspects of nuclear power. Similarly, there is a tendency to over-state the impact of wind turbines on 'birds and bats' and understate its intermittent nature. Not all advantages and disadvantages of wind power are equally significant in terms of their impact on energy security. Biofuels were generally better understood than in the past with many candidates recognising their flexibility as a potential transport fuel but also acknowledging that they had ecological and food supply impacts. Occasionally, stronger candidates argued that lack of public understanding of biofuels may have affected the results shown. Overall, this question was answered successfully by many candidates.

This is a Level 3 answer to Question 1 (a).

Put a cross in the box indicating the first question you have chosen to answer ☒.
If you change your mind, put a line through the box ☒ and then put a cross in another box ☒.
You will be asked to indicate your second question choice on page 11.

Chosen question number: **Question 1** ☒ **Question 2** ☒
Question 3 ☒ **Question 4** ☒
Question 5 ☒

a) 55% of people consider hydroelectric power to be a reliable source of energy. Their attitude may be affected by knowledge of large hydroelectric dams and power plants such as the Three Gorges Dam in China. Hydroelectric power is generally considered to be environmentally friendly as it is a renewable source of energy and does not directly result in the emission of greenhouse gases, therefore it does not contribute to global warming. However only 73% consider hydroelectric power to be totally environmentally friendly, because large dams can result in subsidence and damage fish stocks as seen in the East China Sea due to the Three Gorge Dam. Many people also consider HEP to be a long term solution to future energy demands. This is likely to be because it is a renewable source which will diversify the energy mix of countries and reduce dangerous reliance on imports ~~from~~ of fossil fuels from unstable areas such as Russia and the Middle East. Despite this 36% do not agree that HEP is sustainable, possibly due to the displacement of people created

by the construction of dams, for example 1.2 million were displaced for the 3-Gorges Dam and 80,000 Kurds are expected to be displaced by Turkey's GAP project.

Nuclear power is regarded as equally reliable to HEP at 55%, as people understand that it is energy dense and is recyclable with fuel reprocessing. However Only 22% believe Nuclear power is environmentally friendly. This is largely because of the potential for Nuclear disasters such as Chernobyl 1986 and Fukushima 2011. People fear nuclear power's potential to leak radiation into the atmosphere and so it is not considered environmentally friendly. It is not considered to be an sustainably future option by many - only 41%. This is again due to safety worries but also the costs and the long time it takes to build and make plants safe. For example France currently relies on nuclear for 75% of its energy but aims to reduce this to 50% by 2050.

Wind power is considered the most environmentally friendly and sustainably with agreement of 81% and 68% respectively. This is because wind turbines are becoming increasingly efficient and do not emit greenhouse gases. They are more competitive against fossil fuels.

~~and are~~ However there are some NIMBY issues associated with noise of turbines and harm to landscapes and birds. However wind is considered to be quite unreliable. This is probably because people often see large turbines which are stationary. This is because they require 8-25mph winds. Many view wind power as an intermittent energy source therefore unreliable. However others may regard offshore wind as more reliable as higher windspeeds generate more electricity.

Biofuels ~~and~~ are the least trusted by people with only 42% agreeing on their reliability. This may be because much more research into the use of bio-fuels & generate alternatives to power cars is needed. Also bio-fuels are not compatible with engines which would need to be converted. In tems of environmental sustainability only 44% believe biofuel are because of the deforestation that occurs to clear land to grow the crops as is seen ~~not~~ in Indonesia where deforestation for biofuel production results in threat to the Orangutan and Black ~~R~~ Rhino. Only 45% considers biofuels a long term solution because many are set in their ways with traditional petrol and diesel and may fear increases in prices would result from biofuels.

To conclude the public see wind energy as the most environmentally friendly and acceptable future energy source with nuclear and bio-fuels being the less popular choice due to their potential risks and price complications.

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Examiner Comments

This answer scored full marks. It covers all four energy sources and the three different views. It is well supported by examples (such as biofuel plantations in Indonesia) so the explanations provided have additional depth. The answer is very focussed on the differences between the results for the four energy sources.

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Examiner Tip

When working on a figure like Figure 1, you need to try and comment on most of it, but don't waste time slavishly commenting on every cell of data in the table.

Question 1 (b)

This question focussed on developing fossil fuels in technically difficult and environmentally sensitive areas. A small number of answers focussed more generally on fossil fuels and used examples of conventional oil, coal and gas rather than unconventional sources and technically challenging environments.

A general weakness was to lump together 'technically difficult and environmentally sensitive'. Stronger answers often began by defining these two terms and then applying different examples to each. Deep sea oil was often used as an example of a technically difficult source, as were the Canadian tar sands. The Arctic was widely used as a sensitive environment. Better answers recognised that oil exploitation already takes place at Prudhoe Bay as well as being proposed in the ANWR area. A standard answer was to describe the impacts, in environmental and economic terms, of oil exploitation in the Arctic and Athabasca. Often this led to an overly descriptive answer that focussed more on the negative environmental impacts than the economic impacts. Many candidates needed to be much more selective in their approach and identify the relevant costs and benefits rather than list every cost and benefit. Often the economic issues with exploitation i.e. that it is viable at a relatively high oil price were over-looked or misunderstood. Answers that considered deep water oil such as the West of Shetland as well as the North American examples often had a greater range of evidence to draw on and therefore offered a more convincing conclusion.

This is a Level 4 answer to Question 1 (b).

b) Environmentally sensitive areas ~~in~~ are ecosystems that are delicate, and may be damaged severely should fossil fuels be extracted. Technically difficult sources of fossil fuels include ~~to~~ tar sands and deep sea oil reserves, which are costly to extract. However, the economic benefits gained from selling ~~ext~~ fossil fuels and supplying internal demand could be seen as outweighing the ~~co~~ environmental and economic costs of extracting fossil fuels.

Firstly, it could be argued that exploiting fossil fuels in environmentally sensitive areas carries a great ecological cost. This is because the threat of an oil spill disaster is great, putting many rare and endangered species at risk. A key example of this was the Exxon Valdez oil spill in Prince William Sound in Alaska, 1989. As a result of 11 million barrels of oil being spilt, local wildlife was decimated, killing 4,000 sea birds, and over 400 seals. The spill travelled 1000 miles down the coast, and was up to 6 feet ~~up~~ the shoreline in some places. Therefore it could be seen ~~as~~ that the costs of exploiting fossil fuels in environmentally sensitive areas are greater than the benefits, as any oil spill has the potential to wreck entire ecosystems.

Additionally, it could also be argued that the costs of exploiting technically difficult fossil fuel reserves outweigh the benefits. This is because extracting oil from tar sands is an incredibly energy intensive process, and for every barrel of oil produced, three barrels of water must be used up. Also, extracting oil from deep sea reserves requires greatly expensive specialist equipment, and also has the potential for causing severe environmental damage, such as in the case of the BP Deep water Horizon oil spill. Therefore it could be seen that the costs of exploiting technically diffical fossil fuel reserves outweigh the benefits. This is because the potential for environmental damage is huge, the process is economically costly, and a huge carbon footprint is created by the use of huge amounts of energy.

However, it could also be argued that the benefits of exploiting fossil fuels in environmentally sensitive areas outweigh the costs. This is because, as oil reserves are running low, companies are looking at different sources available. This would result in huge economic benefits, as the companies could continue supplying their customers, and make greater profits due to falling supplies. This can be seen in Alaska's Prudhoe Bay, which previously supplied most of America's oil, and reached its peak output in the 1980s. Attention are turning to the Arctic National Wildlife Reserve (ANWR) to replace this supply being lost. This would have environ-

mental costs to the area, which is a migration site for caribou, but would have greater economic benefits. Therefore it could be seen that the benefits outweigh the costs as much profit could be made, and can continue to supply the rising demand.

In conclusion, it can be seen that the costs of exploiting fossil fuels in technically difficult and environmentally sensitive areas are more important than the benefits. This is because, despite helping to supply demand and add to ~~economy~~ profits, the risk of damage to ecosystems is too great. Also, to some extent, the large carbon footprint caused by energy intensive ~~pro~~ extraction processes outweigh the benefits.

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Examiner Comments

This is a good quality answer. It is evaluative and considers a range of different costs and benefits and the examples used are relevant and include some specific details. It sees more than one side of the argument, although it needs to focus more on economic costs and benefits to achieve full marks.

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Examiner Tip

Phrases like 'technically difficult and environmentally sensitive' need to be broken down into their component parts, not treated as one phrase. Although some fossil unconventional fuel sources are both technically difficult and environmentally sensitive, not all are.

Question 2: Water Conflicts

Question 2 (a)

This was popular but proved challenging for some candidates. Figure 2 showed water costs in seven cities which vary a great deal. The highest cost was in Copenhagen. While no knowledge of Denmark was assumed by either the question or mark scheme it was disappointing to see occasional reference to Denmark as suffering from 'physical water scarcity' based on it being 'far from the equator'. Stronger answers were able to offer more realistic reasons such as high costs as a result of privatisation, ability to pay, and deliberately high costs being used as a way to reduce demand. There was usually some understanding that water costs from street vendors would be high as a result of middlemen taking a 'cut' and it was legitimate to argue that in Lagos and Nairobi physical factors i.e. climate could play a role. Subsidies and the need to make sure vast urban populations had some supply were often cited as the cause of water costs in Mumbai and Shanghai.

While many candidates did cover both cause and consequence this was often almost by accident. Many answers had more causes and came by some consequences such as disease and poor human wellbeing almost in passing. Causes were sometimes stated in very simple terms and explanations could have been developed further. Relatively rare were answers that argued that very low costs such as in Las Vegas could lead to wasteful and unsustainable consumption or that high costs could actually reduce demand and conserve scarce water resources in areas with growing populations. There were many good answers but there were also many which would have benefitted from a better understanding of 'cause' and 'consequence'.

This is a Level 2 answer to Question 2 (a).

a) Figure 2 shows that the highest drinking water costs are in Copenhagen at US$9·70 per cubic metre. This is well-ahead of the second highest, Nairobi at US$4·00 per m^3. Mumbai is at the lowest at US$0·01 per m^3.
Copenhagen's water costs may be so high because of water metres. If the water is piped into the house (as shown by figure 2) it is likely to be metred and for a developed country, they may like to see demand fall. This strategy worked in Singapore as they reduced reliance on a Malaysian pipeline by 50%. If costs are high, demand is likely to reduce. However, if the water price is also high in somewhere like Nairobi, the population may not be able to afford water so conflict could arise like it did in the water privatisation of Bolivia. Prices are likely to be at the top end in Kenya and Nigeria because of economic water scarcity due to development. If the water is held in a seller, it could as easily escape, making what there is expensive.

The countries that remain of the graph (London, Shanghi, Las Vegas and Mumbai) are megacities. Drinking water may therefore have low costs due to the sheer amount of people that require water.

However, this could have a negative consequence. Demand is increasing and it is largely due to ~~big~~ megacities. Cheap water won't encourage any form of attitudinal fix for the population. This is especially the case in Las Vegas where they extract 90% of water from the Colorado trans-boundary river. The Upper Basin is falling short by 10% yet Las Vegas' consumption is still at alarming rates. Low priced water can also mean poor quality and that could definitely be the case in Mumbai where there are slums derived from high amount of rural-urban migration. This could also be the case in Shanghai as 59.4% of Chinas groundwater is rated poor quality.

To conclude there are many causes and differing consequences for variable water costs.

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Examiner Comments

This is a typical answer to Question 2(a). Whilst it attempts to explain the causes of the differences in water cost, it has less to say about consequences. The causes covered such as conservation attempts, privatisation and economic water scarcity need to be explained a little more carefully and consequences need to be addressed.

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Examiner Tip

Look out for questions which have more than one key word such as 'causes and consequences' or 'economic and social' or 'local and global'. Your answer needs to cover both in a balanced way.

Question 2 (b)

This question focussed on future water demand. A problem encountered in the past has been a weak understanding of the difference between demand and supply and this was encountered again. The sense of the question was that demand is rising, and how can this be met? The answer can involve increasing supply but it can also involve making existing supply go further through water conservation. In addition the question asked how far sustainable strategies could help meet demand. Far too many answers took the 'it's sustainable' approach and simply claimed all of their described examples were sustainable without providing any definition of sustainability or criteria by which to judge this.

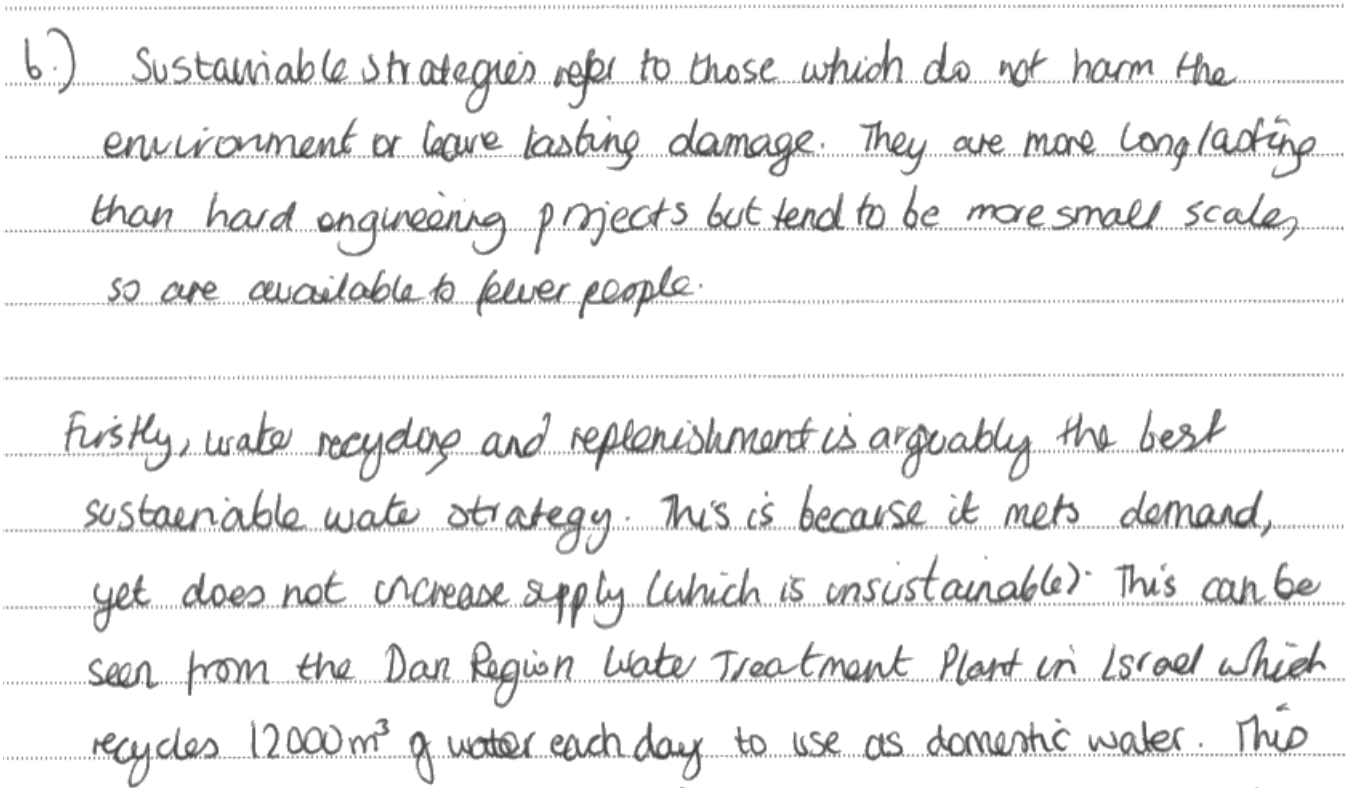
A long-term issue with this question has been the unselective use of case studies and this appeared again. It is very hard to argue that the restoration of the Aral Sea will help meet future water demand. Many candidates, as in the past, turned the question into one about water conflicts and rolled out their familiar case studies. Resolution of conflict over water supplies is one possible solution but not the only solution and to argue that it is, leads to a narrow perspective on a complex issue. All of the impacts of the Three Gorges Dam were not relevant to an answer to this question.

Nevertheless there were many good answers. These tended to:

- Define and make reference to sustainability in terms of water supply.
- Contrast water conservation measures with schemes to increase supply.
- Recognise that possible approaches in one place would not work everywhere.

There was often a good understanding that desalination was not on the face of it a sustainable option, but it was argued by some that it was the only option and that for some places at least it could be seen as economically and socially sustainable. Many recognised the importance of water conservation but also argued that the scale of future demand means that alone this will not be enough to provide water for everyone. The least successful answers tended to focus on two or three megaprojects such as the Aral Sea, Three Gorges Dam and South-North Transfer and simply described their impacts. The best answers were more wide-ranging in scope and much more selective in terms of the evidence they used.

This is a Level 4 answer to Question 2 (b).



b.) Sustainable strategies refer to those which do not harm the environment or leave lasting damage. They are more long lasting than hard engineering projects but tend to be more small scale, so are available to fewer people.

Firstly, water recycling and replenishment is arguably the best sustainable wate strategy. This is because it mets demand, yet does not increase supply (which is unsustainable). This can be seen from the Dan Region Wate Treatment Plant in Israel which recycles 12000m³ of water each day to use as domestic water. This

is important because Israel qualifies as one of the 33 most water insecure countries. By using recycled water, this strategy is sustainable because it does not require new sources of water supplies to be built, such as dams and reservoirs, and therefore is also cheaper. Furthermore, TNCs have recognised the importance of recycling water as now Coca-Cola report that 75% of water used in their finished products is recyclable. Other TNCs such as Nestlé are beginning to follow suit by investing in LEDCs, such as Gaza strip which are seriously water scarce, to create water recycling plants for their own products but also for the local population. This is important as currently, 90% of water in Gaza is unfit for human consumption. This strategy can also be used on a large global scale and is sustainable through meeting ~~supply~~ demand by not increasing the supply.

Additionally, fog harvesting in LEDCs has also proved success for local populations. This is because it provides an immediate source of water, at a very low cost. In Namibia, fog harvesting involves putting up large meshes in remote areas, and through solar radiation, water collects on the mesh and drips down into buckets. This has proved successful in Namibia as there are now over 1000 fog harvesting meshes that provide an immediate water source for local communities and 600 villages in Namibia. This is a sustainable, but local strategy to ~~reduce~~ meet water demand because it is using renewable technologies on a bottom up scale in order to increase water to areas that need it most. However, as this is a bottom up strategy, it only works on a local scale and does not supply water to mass population

Desalinisation plants are also an environmentally sustainable strategy to meeting water demand. This involves the process of converting sea water to potable water by removing excess salt. It has proved successful in many developed countries, especially Saudi Arabia and United Arab Emirates. These schemes are important because the middle East is home to 5% of the worlds population, but only 1% of its freshwater supply. Also, Saudi Arabia relies on water from 3 aquifers and the River Jordan, and the Jordan is expected to decline 50% by 2100. This is sustainable environmentally, as it is usually a renewable and natural resource: the oceans, which make up 70% of the earth's surface. This is evident as Dubai, in the UAE, gets 98% of its domestic water supply from desalinisation.

However, it can be argued that this scheme is not economically sustainable for the future as it is a very costly process, with 1/2 of production costs on energy. Furthermore, the desalinisation plant in Yuma, Arizona cost $20 million in 1992 so it is unlikely that LEDCs will develop this scheme. Although it is a sustainable strategy for MEDCs.

Finally, small-scale projects such as dry landscaping and terraced hillsides are sustainable strategies to meet water demand in the future as they focus on reducing demand rather than increasing supply. Dry landscaping in Phoenix, Arizona involves converting gardens away from grass and focus on crop farming rather than pasture and arable cultivation. This is important because currently, 80% of water extracted from the

Colorado River in USA is used for agriculture, and agriculture takes up 69% of the worlds freshwater supply. this is more sustainable on a local scale, as it is cheap yet effective and will continue to meet demands in the future. Furthermore, America has invested in fertigation, which involves combining water with pesticides, so that when irrigating crops, less water is used.

However, more unsustainable strategies such as dam building tend to meet water demand more quickly. This is evident from the Three Gorges Dam in China, which although cost $37 billion to build, it provides immediate water to 1/3 of China's population, roughly 400 million people. Whilst this has had some unsustainable impacts, such as threatening local biodiversity, such as the Yangtze River Dolphin, now a "living dead species," it also means the cost of water for consumers is cheaper and therefore could be argued to be economically sustainable in the long term, especially as The Three Gorges break even point is expected to be in 2022.

In conclusion, sustainable strategies to meet water demand in the future tend to be more localised, they can meet this demand in local areas, and on a lower economic scale. Water replenishment/recycling is the best for this, as it is cheap and is environmentally and economically sustainable by not harming the environment. ~~and already~~ ~~the~~. However, schemes such as dry landscaping also

are effective as they focus on reducing demand rather than increasing supply.

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Examiner Comments

This answer begins by defining sustainability. This is important as this sets up criteria by which to judge different ways of meeting future water demand. A range of different and contrasting ways of meeting demand are discussed with some specific detail and the whole answer is evaluative. There is a clear judgement in the conclusion at the end that addresses the 'to what extent' element of the question. The whole answer is well structured.

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Examiner Tip

The 15 mark Water Conflicts question does not always have 'conflict' as its main subject. This means that case studies illustrating conflict over supply are not always relevant.

Question 3: Biodiversity under Threat

Question 3 (a)

This was answered by a good number of candidates. In general Figure 3 was understood reasonably well with a number of responses recognising that it was effectively a version of the environmental Kuznets curve. An issue was that some answers failed to explain the majority of the curve. On closer inspection the curve has three parts to it: countries with high forest cover and low rates of deforestation e.g. the DRC; countries with higher incomes but less forest cover and rapid deforestation; countries which are afforesting. Many answers failed to address all three of these basic contrasts. There was most certainty about the NIC countries in the middle of Figure 3. Most answers could suggest reasons for the low forest cover and high rates of deforestation based on industrialising and urbanising NICs putting pressure of forests in terms of resource and land demand. Some good examples were used to support these arguments such as the development of palm oil plantations in Indonesia and agricultural land demand in Brazil. The position of the DRC was less well understood. Candidates needed to recognise its very low income and high forest cover to recognise that lack of development of forests would explain the relatively low deforestation rate. Some answers argued that deforestation was happening rapidly in the DRC, driven by attempts to develop, despite the data not supporting this view. Ecotourism was often suggested as an explanation for Costa Rica's position plus the idea that at higher incomes concern for the environment grows. Some very good answers differentiated between the NICs, for instance arguing that in Brazil concern for forests is growing as are areas of conservation – in contrast to Indonesia. Many answers offered fairly weak explanations for India with only a few arguing the quality of afforested areas could be low in terms of biodiversity, or linking to possible Indian concerns to be perceived as 'greener' due to its increasing international profile.

Question 3 (b)

Questions that focus on 'players' have appeared in the past within Unit 3. The key issue with this type of question is the extent to which candidates are prepared to provide specific examples or fall-back on generality such as 'local people' and governments'. There was also some confusion over place versus player. This is a recurring theme. In the past questions that have asked about 'conservation strategies' have often been answered simply by describing conservation in named places. This year, many answers described conservation in places such as Daintree but players and their role were mentioned only in passing if at all. The players that received the most specific coverage in terms of their role were often celebrities such as David Attenborough and international NGOs such as WWF. In these cases their role was often explained and sometimes evaluated. CITES and Ramsar, plus World Heritage Sites were often considered although in many cases the 'player' i.e. the UN / UNESCO for instance was not really identified so the focus was on the strategy. There was sometimes a drift into areas that were not well-focussed on biodiversity conservation such as the Kyoto Protocol. In many cases the 'government' and 'local council' were not named so answers tended to be rather generic. Some answers did focus on a range of named players and often contrasted local, hands-on conservation by NGOs with broader national or global players and their actions. These answers sometimes argued that both sets of players are important as they complement each other. Other commonly seen evaluations included the idea that local people were crucial as failure to get them 'on-board' often meant conservation efforts were unsuccessful.

This is a Level 4 answer to Question 3 (b).

b) Perhaps most significantly, the key player of local national parks can be seen to have the most effect regarding the conservation of biodiversity, as they have the co-operation of a multitude of players to effectively preserve our diminishing biodiversity. This can be seen locally through the 'Top Down' player of The Lake District, which preserves peatbogs, our wetlands and other lake areas in order to sustain endemic species such as local pike. The Lake District have worked effectively with other key players such as the 'RSPB' and 'Natural England' in order to maintain wetlands for birds, ie the Northern pygmy owl, and remove invasive species threats, ies the Japanese knotweed, which threatened to infiltrate peatbogs. This protected region of the Lake District demonstrates how conservation areas can be extremely effective, espeically on a local scale as it allows co-operation and understanding of the importance of preserving endemic species, and is perhaps the most effective form of conservation. Uluru biosphere further shows the effectiveness of protected areas, again combining local efforts and government through UNESCO, in Cameroon, Africa, and how protected areas locally are so important. Alternatively, global key players such as The Convention on Biological Distribution and (CBD) show how 'Top Down' key players are not greatly effective at conserving biodiversity through little initiative and lack of motive. The CBD contains 150 governments who pledged to internationally, reduce the threat to biodiversity through

reducing the amount of 'endangered' species and so forth. Yet, little action has actually been taken, and whilst the CBD promised to have effectively improved biological conservation by 2010, figures have become worse as for example, China's Yellow River has been regarded as 'ecologically dead'. In many ways, the CBD is too ideological, and this is seen in the Sustainable Development Goals, another international key player that is not only failing to preserve biodiversity, but has already done so through the failure of the Millenium Development Goals. These corporations have become too ideological, and while have good intentions, lack care through the priority of economic development. This exemplifies how having economically prosperous key players is not always effective, and it is only in rare cases such as Norway's 'Svalbard' seed bank, that biodiversity from international key players is taken seriously and done so sustainably.

Finally, the efforts for biodiversity conservation from celebrities and those with power can be seen as incredibly effective at inspiring and enforcing better conservation of our world's biodiversity. For example, Leonardo Dicaprio has recently been at the forefront of biological protection campaigns, even using his oscar speech in 2016 to show the need to protect our world's finite resources. The individual is also able to educate the future populations with

Social media, publicly showing the need to save iconic species e.g the endangered snow leopard, and keystone species, such as bees. Other key players include Emma Thompson, who in 2015 protested against Shell drilling in the Arctic, threatening the Arctic National Wildlife Refuge's biodiversity of herds of Caribou, reaching up to 12,000, and the fragile denning of polar bears when giving birth; working with 'greenpeace' to secure biodiversity. Barack Obama also has pledged to protect a further 6 million hectares of the ANWR, and it is the gravitas of these key players which makes them, perhaps the most influencial.

To conclude, it is clear that whilst international key players are important, their goals lack the reality of local parks such as the Lake District and Peak District in the UK. National parks globally work so well as efforts are concentrated in one area locally, whilst celebrity key players perhaps pave the future for biodiversity conservation.

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Examiner Comments

This is a well supported answer that considers a range of different players which are grounded within examples. It is evaluative, arguing that some players are more effective in conservation than others. There are some areas that are less relevant, such as reference to the MDG, but overall it is clearly written, supported and the final conclusion makes a clear judgement.

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Examiner Tip

When answering the 15 mark essay questions, a range of small examples usually produces a more thorough and evaluative answer than one which relies on one or two major case studies.

Question 4: Bridging the Development Gap

Question 4 (a)

This question presented candidates with a figure containing development indicator data for 3 countries across 4 different indicators. In many ways this proved a problematic question for some. The focus was on the value of the indicators as measures of level of development. Many answers focussed on what level of development the data indicated. This is not the same thing. These answers usually compared the development level of the three countries in a very descriptive way with no or very little focus on 'value'. In order to unlock the meaning of the question candidates did need to have some conceptual understanding that development is not purely economic in nature. Those that had this usually answered the question as intended. They often initially focussed on GDP as an economic measure and commented on its narrow, but universally understood, nature. Strong answers suggested alternatives such as PPP GDP or GNI. Some recognised that this valuable 'headline' indicator has nothing to say about income distribution therefore reducing its value.

It is worth noting that there is often a misunderstanding about the nature of percentage data. This was frequently seen with reference to education spending with some candidates arguing that Rwanda's data was unrepresentative because the Philippines would spend more on education because it is wealthier than Rwanda. This misunderstands the value of percentage data, as the absolute education spending for both countries is essentially meaningless as a comparator. Some good points were made about electricity consumption in terms of the data not revealing rural / urban divides or that some countries might not require as much electricity consumption as others due to economic sectors or even efforts at energy conservation. The value of data on gender equality was generally well understood. The strongest answers recognised that they had been provided with some social and economic data, but that some environmental or political data would be needed to complete the picture – or the use of an index such as HDI.

This is an example of a Level 2 answer to Question 4 (a).

Chosen question number: **Question 1** ☒ **Question 2** ☒ **Question 3** ☒ **Question 4** ☒ **Question 5** ☒

(a) Development indicators are measurements that can be used in order to examine the political, economic, environmental and social development of a country. Development is the advancing of a country over time.

An economic measurement of development is GDP. it is measured in dollars and shows the economic status of a country (the higher the better). Mexico have a GDP of 10,307 ~~me~~ indicating that they are developing at a faster rate than Rwanda

and the philippines. GDP can be a good measure of development as it is simplistic and measures economy, it also demonstrates the rise of the MINTs. However, a problem with ~~GP~~ GDP as a development indicator is it only takes into account economic development and not the other factors of development, such as social + environmental factors.

The proportion of total GDP ~~spend~~ spent on education may be a better development indicator. Although Mexico have the highest GDP, Rwanda are only 0.1% behind them with education spending. This suggests that Rwanda are spending their income more efficiently than Mexico. Improved education can lead to development as people get better jobs in terriary or quaternary industries instead of working in the primary industry. This brings in higher income which will in return improve the countries overall GDP. This indicator allows us to look at not only economic but also social development.

Electricity consumption could be a valuable measurement of the stage of development that a country is at. If a country consumes more electricity, it is possible that they are using this for infrastructure and/or industrial purposes. For example as the BRICs + MINTs develop they consume more electricity than other countries. We can support this as Mexico consume

2,092 kwhours perperson p/y. However, this could also indicate that environmental development is decreasing as more fossil fuels are being extracted in order to produce energy.

In order to effectively measure development a combined application of a range of economic indicators should be used to take into account all development factors.

ResultsPlus
Examiner Comments

This answer is good, but there are a number of issues that prevent it achieving a Level 3 mark. It only covers three of the four indicators shown on Figure 4. While it shows a good understanding of development and does focus on the 'value' of GDP as a measure of development, it gradually drifts away from this focus and later indicators are covered in a much more brief way.

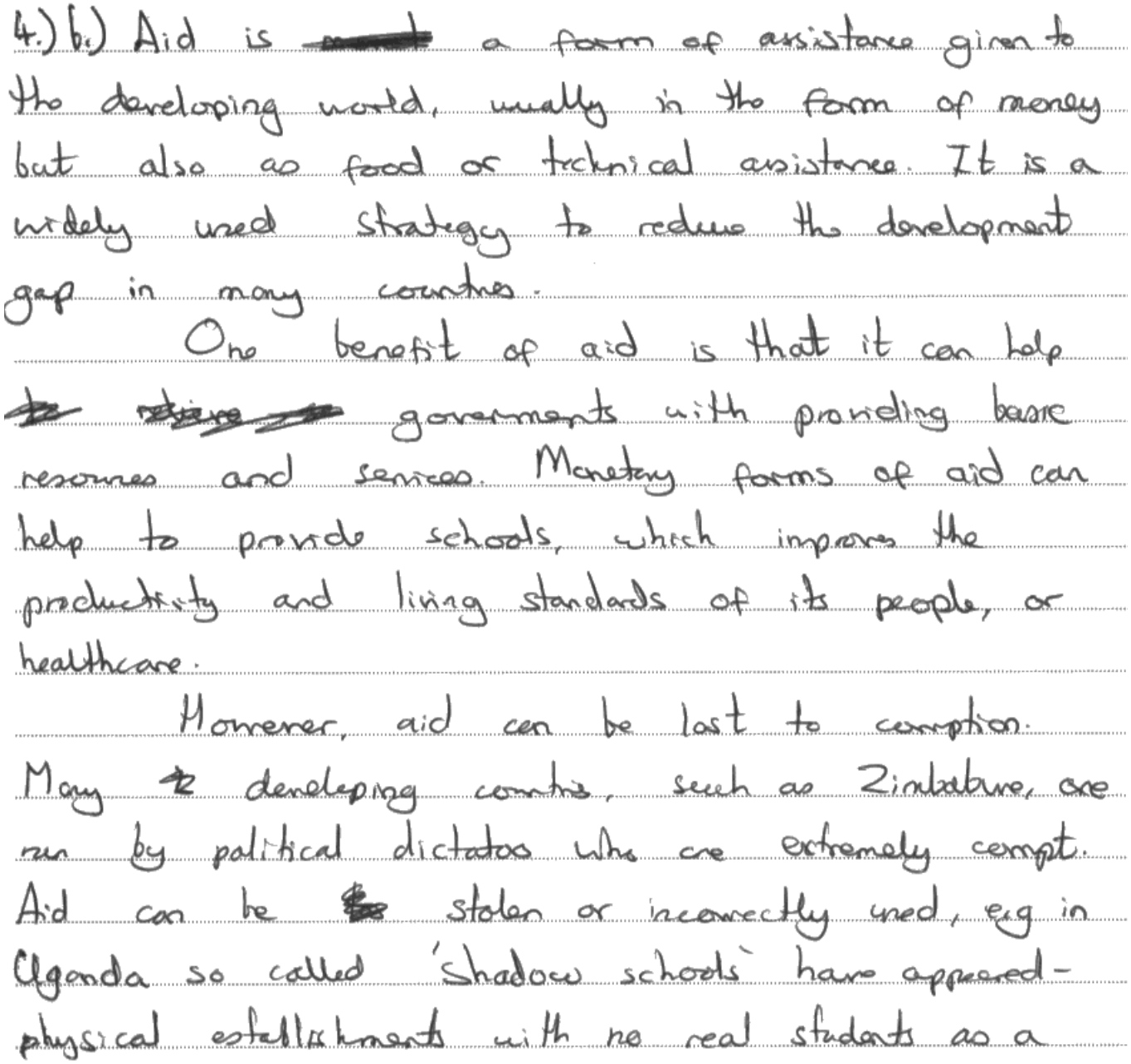
ResultsPlus
Examiner Tip

It is very important to build in some 'thinking time' to allow yourself the chance to roll the question around in your head and think about the meaning of all the key words and command words, before you start your answer.

Question 4 (b)

This question generally produced answers which were focussed on aid, although with variable detail. Most candidates knew of various types of aid such as bilateral and multilateral although the definitions of these were sometimes not very clear. Bilateral aid was often discussed in the context of tied aid. Often the case study of the Pergau Dam in Malaysia was used – now over 20 years old. The Akosombo Dam in Ghana was also used as an example of aid not reaching people in need and instead benefiting a small number of people and industries. It was constructed in 1965. These ageing case studies do date from a different age and may well be due for retirement. NGO aid, as well as emergency aid, usually elicited more detailed and up to date examples and many candidates considered its costs and benefits, with stronger answers directly linking to the idea of the development gap and whether such aid could help bridge it. Weaker answers tended not to make this link and were therefore not evaluative in the context of the question. Fair-trade was often included as a type of aid, which it is not. However, stronger answers used fair-trade, FDI and the MDG as alternative strategies to aid, often arguing that these were better ways to bridge the gap. There was generally good understanding of how multilateral aid could lead to debt, and how debt relief as a form of aid might help a country progress – although with some costs.

This is an example of a Level 3 answer to Question 4 (b).



4.) b.) Aid is [redacted] a form of assistance given to the developing world, usually in the form of money but also as food or technical assistance. It is a widely used strategy to reduce the development gap in many countries.

One benefit of aid is that it can help [redacted] governments with providing basic resources and services. Monetary forms of aid can help to provide schools, which improves the productivity and living standards of its people, or healthcare.

However, aid can be lost to corruption. Many developing countries, such as Zimbabwe, are run by political dictators who are extremely corrupt. Aid can be stolen or incorrectly used, eg in Uganda so called 'shadow schools' have appeared - physical establishments with no real students as a

way of hiding where money is really going.

Giving food aid does have benefits by reducing hunger. In 2002 Swaziland saw a devastating drought that reduced crop yields and put families at risk. In response, the World Food Organisation delivered food to 100,000 people in 2003. This improved the health of the local people to give the economy chance to recover.

In contrast however, the food aid had devastating effect on farmers. By providing free food, Swaziland's food prices fell, and farmers saw record low revenue and profit. Therefore while many benefited from this aid project, there was a large community that did not.

Another benefit of aid is that it can be used to relieve debt issues. The World Bank and IMF often give aid in the form of concessional loans, i.e very low interest rates, to help pay off previous debt. This reduces poor countries income being lost to debt repayments and can be spent on improving living standards in the country.

However, many such loans come tied with structural adjustment policies (SAPs) which must be enforced by the receiving county. Uganda was faced with such policies in the 1980s by the World Bank. Often these SAPs will require trade

liberalisation, forcing domestic firms to compete with rich ~~MEB~~ TNCs, as well as to reduce spending on healthcare and education. The World Bank considers its aid projects in Uganda a severe, with GDP per capita rising steadily, but it remains ~~one~~ an incredibly poor nation.

Another benefit of aid is that it provides large scale projects to countries who may never have been able to afford it otherwise. One example is the UK Water and Sanitation project in Sri Lanka run by the World Bank. The World Bank is an example of multilateral aid and operates in over 190 countries worldwide. Their project has enabled Sri-Lankan communities to build a pumpkin tank to improve water scarcity and improve sewage and water networks. Basic infrastructure like these are a necessity for any country to properly develop.

However, large scale projects may not benefit countries if they come in the form of tied aid. Tied aid refers to aid that comes with conditions attached. For example, the Pergau Dam was built in Malaysia by the UK department for development ~~in~~ in the early 2000s, costing £230 million However, Malaysia were required to ~~by~~ buy £1bn worth of fighter jets in return, reducing the net worth of the aid. The dam was poorly built

and bust due to improper maintenance.

To conclude, I do not believe aid to be a beneficial or sustainable solution to reducing the development gap. While there are definite advantages of programs, there are simply too many unknowns - will the money be used correctly, will it reach the poorest people etc. A more effective solution, which would also not lead to dependency as aid would, is to invest in FDI and trade links to enable the developing world to grow and sustain this growth.

ResultsPlus
Examiner Comments

This answer is well structured so reading it through, it has a logic and organisation. It covers a range of different types of aid including food aid, SAPs, NGO aid and intermediate technology and tied aid. Examples are used throughout so there is evidence to back up the evaluative points made. The costs and benefits of aid are clear, but the answer lacks a sustained link to the idea of reducing the development gap. It is mentioned in the conclusion but only really implied elsewhere.

ResultsPlus
Examiner Tip

15 mark essay questions always benefit from a brief introduction and a brief conclusion to 'top' and 'tail' the answer.

Question 5: The Technological Fix?

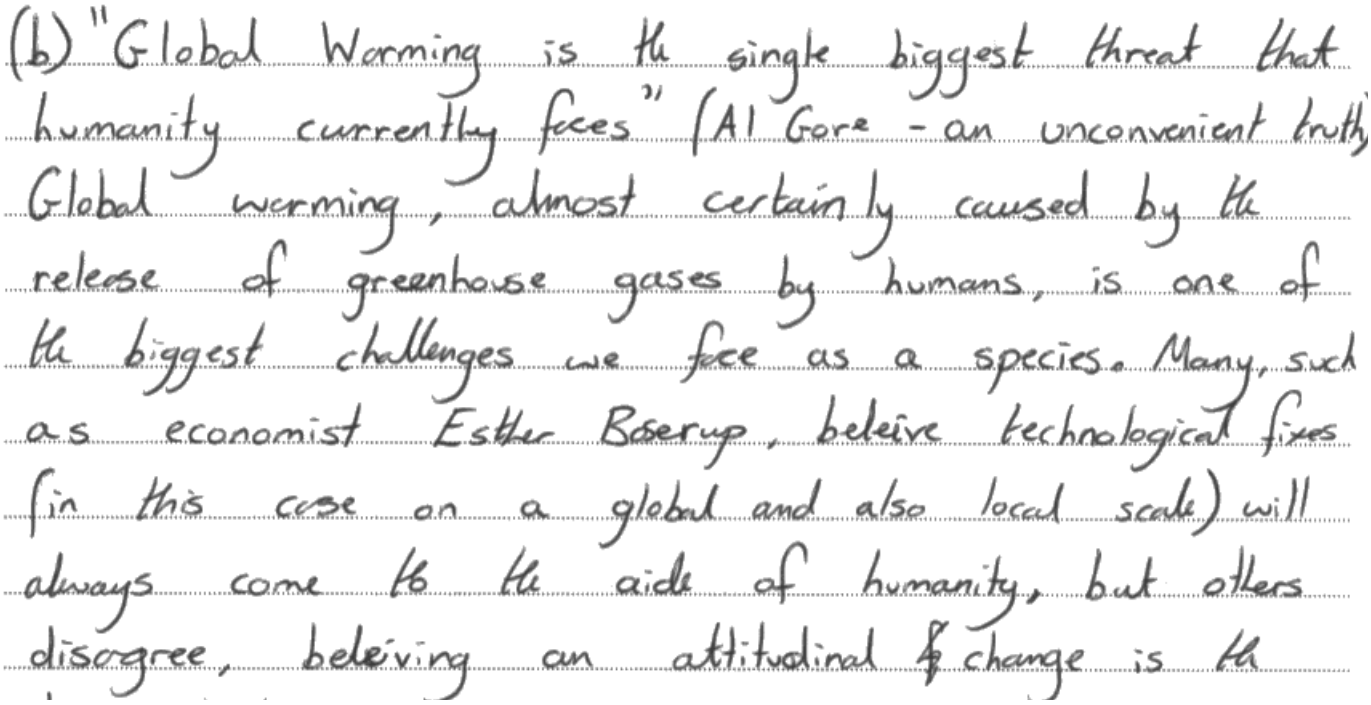
Question 5 (a)

As in the past, Question 5 tended to produce quite polarised responses. Figure 5 showed the relationship between internet use and income – income being the independent variable. A small number of candidates approached Figure 5 from the standpoint of internet access determining income. This could form part of the answer, but as the whole answer it was usually rather confused. Most candidates were able to explain how incomes could lead to increased internet use through buying power and ability to buy and use mobile phones and computers. Weak answers often failed to move beyond this and provide further possible explanations. Stronger answers suggested factors such as increased government investment and the fact that as countries develop urbanisation generates centres of population that can be relatively easily connected so percentage use can quickly grow. Political and physical limiting factors were sometimes mentioned as was the sectoral shift towards services causing an increased demand for internet infrastructure. A number of answers recognised that leapfrogging to mobile internet use could play a major role. Rare were answers that specifically considered some of the named countries, despite some of them being familiar.

Question 5 (b)

An issue here, which has been seen before, is the definition of 'technology'. A number of answers used policies and strategies such as the COP21 and Kyoto Protocols as part of their answer. These are not technologies but global agreements. Many answers focussed on geoengineering schemes (all of which are proposals) and often provided some good detail on these, although frequently without stating their global nature or providing any evaluation of them. Renewable energy was often mentioned as a method of mitigation and examples used. A small number of candidates risked turning their answer into one about energy, food or water security as their examples increasingly drifted away from the central focus of the threat from global warming. Local technologies often focussed on flood protection, or food production and water supply but often not in the context of 'adaptation' which was a little disappointing. Many answers would have benefited from a more careful structure and some were wholly focussed on global geoengineering with no local technologies at all. Stronger answers focussed on the idea of attitudinal versus technological fixes and came to a clear conclusion about which technologies were needed, where and when. These answers were relatively rare.

This is an example of a Level 3 answer to Question 5 (b).


(b) "Global Warming is the single biggest threat that humanity currently faces" (Al Gore - an unconvenient truth) Global warming, almost certainly caused by the release of greenhouse gases by humans, is one of the biggest challenges we face as a species. Many, such as economist Esther Boserup, believe technological fixes (in this case on a global and also local scale) will always come to the aide of humanity, but others disagree, believing an attitudinal change is the

best solution.

Geoengineering is the process of re-engineering the earth's climate to a 'pre-industrial' stage, where CO_2 was around 250 ppm. Now at 410 ppm, a combination of global 'mega projects' and bottoms up local schemes are needed to reduce the effect of this added greenhouse gas concentration.

'Space Mirrors' is a plan to launch hundreds of ~~thousands~~ millions of mirrors into space to shield the Earth from solar radiation, reducing the temperature of the atmosphere in the process. It is estimated 20 million rocket launches would be needed, totalling an estimated US$4 trillion (double the UK's GDP!) This scheme is hard to model, so there would likely be numerous unforseen negative externalities, mainly involving shifting climate regimes.

Ocean fertilisation is the process of 'dumping' iron particles into oceans to stimulate the growth of phytoplankton, which photosynthesise, sequestrating CO_2 from the atmosphere and trapping it in ocean sediment when the organisms die. It is estimated it would cost US$50 billion every 2 years (at $50 per tonne of iron) to sequestrate enough carbon. Again this mega project would have numerous negative externalities,

most likely changing the balance of all of the oceans ecosystems.

Releasing Sulphur dioxide particles into the upper atmosphere is another proposed geo engineering scheme. The particles would reflect solar radiation, decreasing the warming of the atmosphere and mitigating the effects of global warming. ~~Relatively cheap.~~ It is estimated it would cost US $100 million every month and has already been trialled when Weatherbird II released 2 tonnes of particles in 2007. Negative externalities include acid rain, a serious threat to ecosystems, and unforeseen changes to the global climate.

On a local scale afforestation schemes using community involvement and action could help to mitigate the effects of climate change. Planting trees increases the sequestration of CO_2, reducing its concentration but would also decrease the risk of local flooding which is predicted to be one of the damaging effects of global warming.

Artificial trees are potentially another local techno-fix; using limewater and other chemical processes to artificially remove CO_2 from the air. Dr Klauss Lackner, who invented one type of system envisages

a world with communities each having their own artificial tree, creating carbon neutral societies. On a larger scale an American company 'carbontech', is trying to build a mega project artificial tree, capable of removing 90,000 tonnes of CO_2 from the atmosphere each year (the equivalent of 15,000 cars).

In conclusion technofixes do have the capacity to reduce the effects of global warming, however the selection chosen must discount those with harmful externalities, such as sulphur particle distribution. I also believe that technology alone is not the answer, it must be coupled with attitudinal change if we as a society are going to achieve climate targets before a predicted 'tipping point' is reached. A 'point of no return' predicted to be 450 ppm of CO_2 in the atmosphere.

ResultsPlus
Examiner Comments

This answer begins well with an introductory paragraph that considers the issue of global warming and shows understanding of it. A range of global geo-engineering options are considered in the answer with some detail and support. However, there is very little that is 'local' in scale other than a mention of afforestation (and even this is in a global context). The conclusion provided is evaluative, but the lack of local scale technologies prevents the answer achieving a Level 4 mark.

ResultsPlus
Examiner Tip

Notice that the answer to Question 5(b) includes some numerical data. This 'stands out' when you glance at the answer. Data gives an answer a bit more 'weight' and makes the evidence use more concrete.

SECTION B

Overall comments on Section B Issues Analysis: 21st Century Superpowers: India and China?

This year's Issues Analysis was set in Asia. This is an area all candidates are familiar with. The overall quality and level of understanding was good and most candidates wrote three successful answers, with some outstanding answers. There was a tendency, especially in Question 6(a) to see the question as being about 'Chindia' rather than China and India as separate and very different entities. This undermined the idea of a comparison. Questions that include the word 'political' tend to be weak as candidates' understanding of this concept is very variable.

The pre-release is available for a long period of time, but candidates still need to make sure their preparation is thorough:

- Ensure candidates know the resource booklet well before they enter the exam; time should not be spent in the exam looking for the right resources to refer to.
- Use the resources provided; many answers this time studiously ignored some of the key data and resources and instead wrote answers without the data provided.
- Ensure candidates understand the sequence of the resource booklet; it is usually organised into sections either with sub-headings or by topic, and questions normally focus on one section (with links to others).
- Prepare synoptic ideas by researching using the websites provided (and others), thinking about the relevance of models, concepts and theories, considering parallel and contrasting examples from other parts of the world, and linking to concepts and content in other AS and A2 units.
- Consider the wider geography of the region in terms of development, physical features, culture etc.
- Do not try to anticipate questions.

Time spent planning, briefly, all three answers is time well spent. Some answers to Question 6(a) used data and resources from pages 4 and 5 in the booklet whereas the most relevant information was on the first two pages. Candidates who do this end up repeating themselves and worse, risk losing the thread of their answers.

Question 6 (a)

There was some evidence of candidates attempting to 'spot' the question here with some answers comparing the level of development of India and China rather than their economic strengths and weaknesses. Perhaps the key issue was that answers often lumped China and India together and discussed them as one. This rather undermined the idea of making a comparison. That said, most answers did focus on economic strengths and weaknesses and made some use of the resources provided. Less use was made of Figure 5 than might have been expected and in some cases candidates began to use the resources on the last two pages of the resource booklet. These focussed on the future and were therefore not relevant to this question which was about current strengths and weaknesses. There was evidence of good synopticity in terms of research into TNCs and FDI, although there was a tendency to assert that state owned enterprises were a weakness without attempting to explain why this might be. The best answers, as is usually the case, used the figures and data in the resource booklet thoroughly and selectively to build a case – usually that China's economic position is stronger than India's. A number of candidates still fail to make much use of the resources in the booklet in front of them; what is being tested is a candidates ability to interpret, select and use geographical information to make a case and this means 'off the top of the head' answers are unlikely to score well.

This answer scored Level 3 marks for Question 6 (a).

6 (a) Compare the **current** strengths and weaknesses of the Chinese and Indian economies.

external dependency industrial overcapacity infrastructure comparisons (14)

(b) To what extent do the political systems of India and China help explain the Social Progress Indicator scores in Figure 6?

(10)

(c) Study Figure 15.

What positions in the geopolitical power hierarchy are China and India likely to occupy by 2030 **and** 2050? Justify your answer.

(16)

6a) As countries develop economically they can move through the stages of Rostow's modernisation model which describes a transition from a traditional society to an era of high mass consumption. China and India which are part of the BRIC grouping present examples of the drive to maturity stage as consumption and economic growth increase greatly. However, there are economic strengths and weaknesses based on their dependence on global markets, growth rates and infrastructure capabilities that differentiate clearly between these two countries.

Dependency on external markets and global consumption is a dominating factor that highlights the differences between China and India's economies. China has developed using a "fixed asset investment" and a stimulus led growth which

was boosted by external investment from TNCs and through FDI. However, the fact that they are now the largest exporting nation in the world has created a number of weaknesses. They are very vulnerable to the volatility of global markets as figure 2 suggests by their rapidly changing GDP growth rates. The recent abrupt ~~decrease~~ depreciation of oil prices by 40% in one year has caused their growth rates to hit lowest levels in 20 years. They have very low internal domestic consumption to support the economy and so are extremely vulnerable to the ~~decrease~~ slow down in global consumption which was caused by the 2008 financial crisis. On the other hand, India is a ~~relatively~~ relatively closed economy and according to George Magnus presents "a model of economic growth". Their domestic market makes up 57% of their GDP ~~and 600~~ small business owners have been protected by the $60 billion worth of subsidies. This internal market protects them against external volatility and the low oil prices have helped to push growth rates even higher.

It is important to compare the current size of each economy and their growth rates, suggesting reasons as to why they are like this. China stands as the second largest economy in the world, and the largest in Asia currently at $11 trillion (2016). It dominates ~~the~~ 20% of global trade and is a member of many influential organisations such as the G20, Apec and the Shanghai Cooperation organisation

which give it a large ~~capa~~ leverage over global markets and the potential to grow as an economic superpower. India has a much smaller economy of $2 trillion and its output ~~a~~ is ~~b~~ a fifth of China's. Its GDP only makes up 2.5% of global GDP and it only ~~has~~ owns 8 of the Fortune 500 companies. However, China's wealth is very much state-owned and nominally their GDP is still below world average and their growth rate stagnated to 6.9% in 2015 which was lower than India's for the first time in decades. This data suggests that China is a global economic power and has huge potential to expand into its domestic markets and regional neighbours but it must overcome its industrial overcapacity and inequality in terms of where the wealth is held. India, although it has a smaller economy, has potential for growth but must improve its influence in terms of TNCs and world trade.

It is interesting to analyse the differences in their industries to compare their economies. China is heavily reliant on the manufacturing industry ~~in steel and coal~~ which can be seen from figure 3. The majority of their imports are raw materials whilst all of their exports are high tech equipment. India, ~~and~~ on the other hand, is still dependent on agriculture for 60% of its industry which highlights how, in terms of economic development, it is much further behind China.

Overall, China's rapid growth rates over the last two decades of an average of 10% highlight its ~~strength~~ economic strength in terms of the manufacturing industry. However, this growth rate is not sustainable and as it moves into stage 4 or 5 of Rostow's development model, its economy will face huge challenges. India, ~~on the other~~ meanwhile, has grown at a more sustainable rate and its current economy is healthy but the ~~in~~ poor infrastructure quality and high poverty levels must be addressed to keep the economy strong.

ResultsPlus
Examiner Comments

It uses the language of economic geography and contains some synoptic ideas as well as making good use of a range of data from the Resource Booklet as evidence to support the answer.

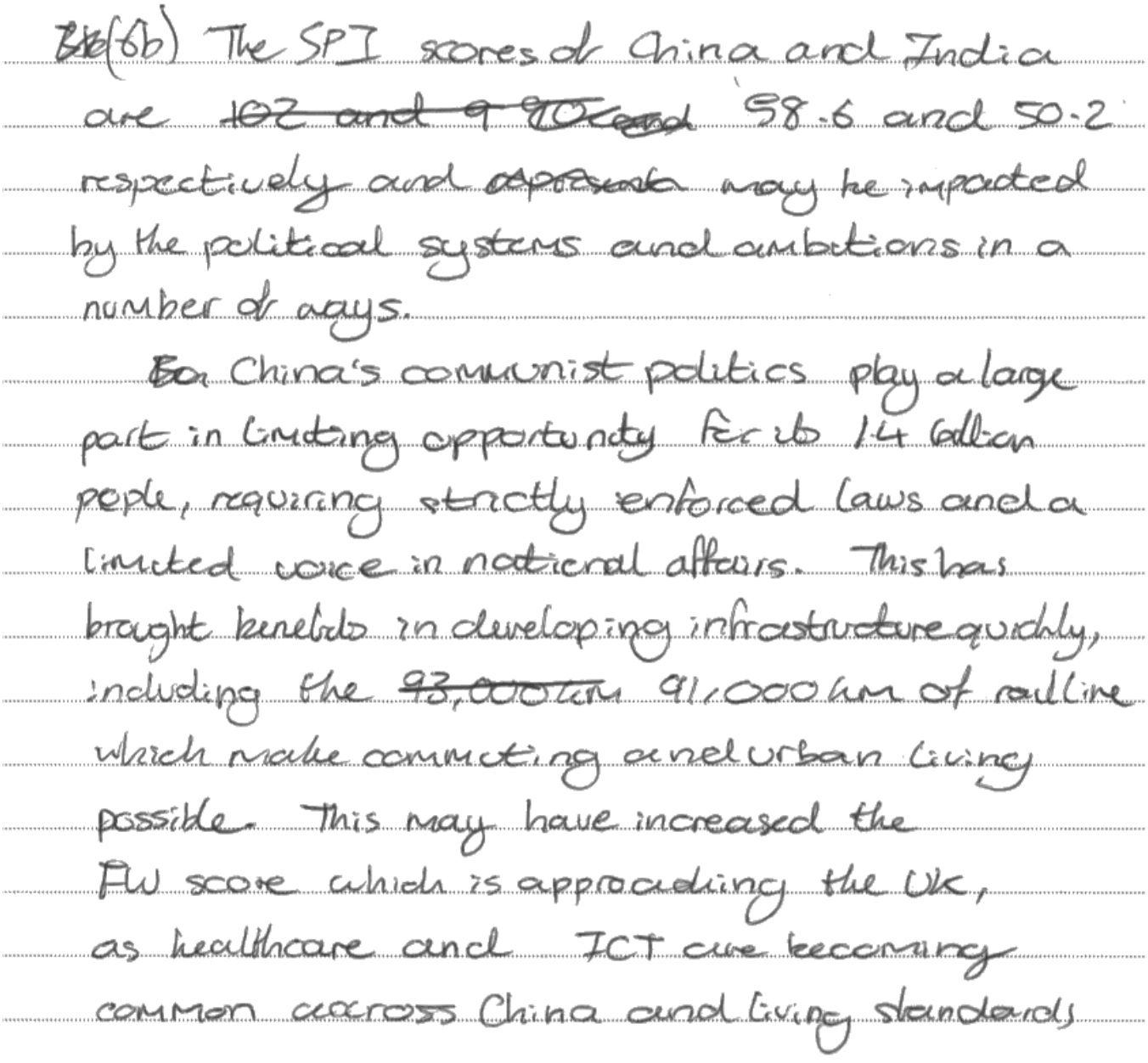
ResultsPlus
Examiner Tip

Be careful not to pre-judge the Issues Analysis questions. A number of answers to Question 6(a) focussed on the development level of China versus India whereas the actual question was focussed on economic strengths and weaknesses.

Question 6 (b)

This question had a political focus and as such it proved quite demanding. Focussed on Figure 6 it asked candidates to consider whether the political systems of China and India would help explain the Social Progress Index results shown. Answers tended to divide between those that provided a very descriptive comparison of the two sets of data with little in the way of explanation, versus those that attempted to link political management to the data. It was common to see arguments based on the idea that China's command economy and Five Year Plans had improved basic human needs by ensuring minimum standards for everyone. Stronger answers argued that this was as much to do with FDI and economic growth as it was with politics. Some stated that despite huge subsidies for the poor, India still failed to meet the basic human needs of many. Other common assertions were that opportunity was restricted in China because freedom of speech was limited, but also that in India the caste system restricted opportunity so that the two countries arrived at the same SPI score by different routes. It was very unusual for answers to make use of Figure 7 which showed democracy versus economic development although a small number engaged with the idea that some Asian NICs that are democracies today were not so when they industrialised. Other points included the idea of aid from the USA helping their initial development more than democracy. A stronger understanding of 'political' i.e. governance and management would have helped some candidates.

This is an example of an answer to Question 6 (b).



are greatly improved - if in China's own communist way. Educational spending is also rising to allow tertiary industry to develop.

On the other hand Chinese people are growing tired and this lack of personal freedom drives OP and FW scores down. With Pollution Fatigue and a rising middle class it becomes easy to see the social burden of its political system and how this degrades the SPI score.

~~India's democracy and large popul~~

India on the other hand is the world's largest democracy as shown by the eligability of 814 million to vote. This could be the enabler for its slightly higher OP score due to the access to jobs and an freedom, though this is impacted by factors such as the Caste System and rape culture surrounding women which endangers their opportunity in an abhorent way.

The reliance on pleasing the electorate to secure power may also slow progress through bureaucracy. This is evident through India's poor infrastructure for which Goldmann Sachs estimates will need $1 trillion in spending by 2020 to maintain its economic position. 42% will be on roads and also on basic amenities of life such as water

and power, both of which would currently downgrade its SPI score, which is significantly lower than communist China.

To conclude, I believe that China's system brings the most benefits to its SPI score through its spending and ability to provide opportunity through economic growth.

→ Japan Lost Decade. → Pollution

ResultsPlus
Examiner Comments

This is a Level 3 answer. It makes good use of the SPI data and refers to several different aspects of the SPI. The position of India and China are explained with reference to political systems, and wider issues such as the Indian caste system.

ResultsPlus
Examiner Tip

During the pre-release phase you need to carefully study new concepts – like the SPI – to make sure you fully understand their meaning before you go into the exam.

Question 6 (c)

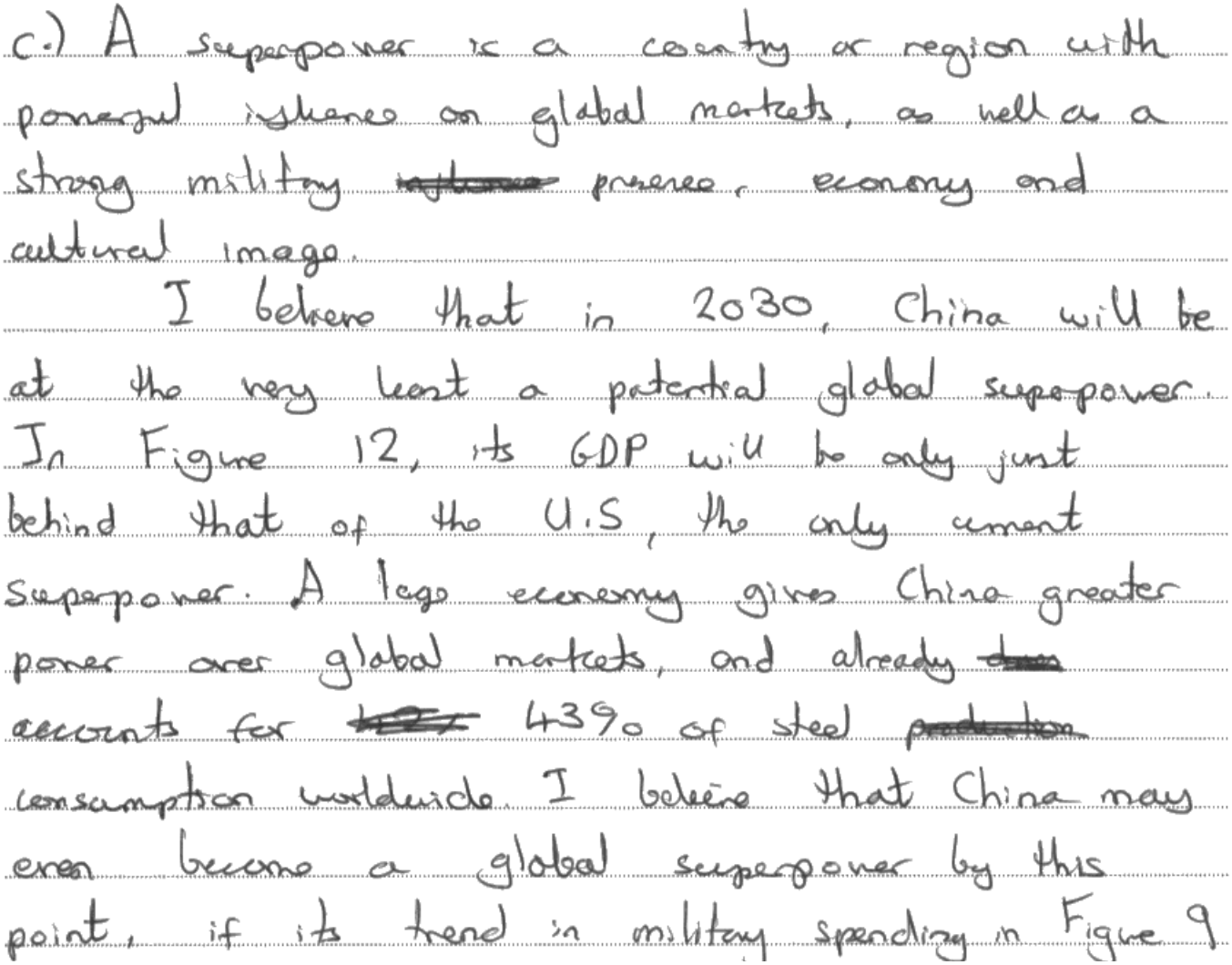
The final question was a large one, which asked for a consideration of China and India in 2030 and 2050.

The key differentiator for a successful answer was structure. There was a lot to consider and some organisation was essential. Many answers used the 'pillars' of superpower status to make a case. These answers tended to be synoptic although in a small number of cases such answers largely ignored the data in the booklet and went their own way (which ignores part of the test).

Figures 12, 13 and 14 concentrated on future resource demand and environmental risks which did need to be covered in a very good answer. These areas are not part of the 'pillars' so tended to be ignored. Good answers often made a case that India in particular faces resource and climate change issues which could derail it by 2050, when combined with its very large projected population increase.

Some answers focussed very heavily on a narrow idea. Most often this was the demographic future of the two countries and / or future GDP. Again, these answers tended not to engage with the full range of resources provided. A further issue was the failure to differentiate between 2030 and 2050. The resources provided could be used to argue that in 2050 China may be facing demographic problems, whereas India would be benefiting from a demographic dividend – but at the same time could be struggling to provide basic resources for its still growing population. These complex arguments required a careful, structured approach to the answers to minimise contradiction and make a strong case.

This is an example of an answer to Question 6 (c).



c.) A superpower is a country or region with powerful influence on global markets, as well as a strong military presence, economy and cultural image.

I believe that in 2030, China will be at the very least a potential global superpower. In Figure 12, its GDP will be only just behind that of the U.S, the only current superpower. A large economy gives China greater power over global markets, and already accounts for 43% of steel consumption worldwide. I believe that China may even become a global superpower by this point, if its trend in military spending in Figure 9

is set to continue. China has shown expansionist policies by building a blue water navy and expanding presence of the People's Liberation Army Navy & beyond the 1st Island chain.

However, I do not believe its superpower status is guaranteed in 2030 as it still must improve its social and cultural image. A low GINI coefficient and GDP per capita means the nation does not sit on the ~~USA~~ OECD, implying other nations do not view it with high regard in all areas.

By 2050, I believe ~~will that~~ China will have definitely become a superpower. It will have a GDP 12.5 trillion US$ higher than the US, making it the most important global power on world markets. Its population will have also fallen ~~by~~ by 88,000 between 2030 and 50, signifying a more sustainable growth. As GDP will exceed annual population growth, there should be a genuine rise in wealth per person. This wealth should enable China to invest in policies to improve ~~energy~~ water security ~~and~~ such as continuing with desalination plans. However, the most significant risk will be China's demographics. By 2050, 26.9% of China will be over 65, meaning an ageing population. However, due

to the recent '2 child policy'. This may not be too significant as the Chinese government is clearly aware of the issue and enacting management solutions.

India could see a very different future than China. By 2030, its ~~economic growth~~ economy will have tripled, but only to around US$11 trillion, (Fig 2) only a fragment of the US or China. This would suggest India is unlikely going to be a superpower, but remain as a regional power in south-east Asia. In June 2016, the US military expressed concern over China's increasing naval presence in the East and South China seas, as well as the Indian Ocean. The US has agreed to cooperate with the Indian Navy to expand its presence and improve military influence in the area. As ~~Trade~~ military is an important superpower characteristic, this may push India slightly up the hierarchy.

By 2050, it is clear that India's rapid growth will have become unsustainable. The population will see an increase of 24.9% between 2020 and 2050, (Fig 10) leading to pressure on resources. India is likely to see pressure on energy, water and food supplies. These will be coupled with over a 3.5% temperature increase in areas

of India (Fig 14), which will negatively impact crop yields and domestic water supplies. Unless India adopts a more trade liberalistic, globalisation approach, it could see serious problems. A potential global superpower should be able to cater for its population. As global food demand will increase by 70-100% by 2050, India will see it expensive to buy food abroad, and difficult to grow it domestically due to global warming. This puts China at a much more favourable position, with only around 1.5°C temperature increases by 2050. However, India will likely still stay a regional power due to the promising demographic and technological advancements that could allow it to grow as a major exporter in Asia.

To conclude, China's growth looks to be much more sustainable. While it will face the same problems as India, its economic growth and population puts it into a much more favourable position to solve them. Its position as a global superpower is very likely in 2050, if not 2030.

ResultsPlus
Examiner Comments

This is an excellent answer that gained full marks. It covers the future of both India and China in detail, and considers 2030 and 2050. It uses all of the relevant resources in the Resource Booklet and contains a range of synoptic points from wider research.

ResultsPlus
Examiner Tip

It is wise to plan answers to longer questions worth 14–16 marks to make sure you don't miss any key points of data from the Resource Booklet.

Paper Summary

There were many good answers to the questions on this summer's Unit 3 Contested Planet paper in both Section A and B. The lack of use of key data and resources to provide evidence for answers to the Issues Analysis by some candidates was noticeable. The following points might be considered going forward to 2017 and the final full-cohort exam.

- Although it is tempting to try and spot questions in Section B, this is a dangerous game that leads to confused candidates and weak answers.
- The Issues Analysis, first and foremost, is a geographical comprehension exercise and as such candidates need to select and apply evidence from the booklet to answer the questions.
- Command words such as 'assess', 'evaluate', 'discuss' and 'to what extent' require a judgement – sitting on the fence produces weak answers.
- The Water Conflicts question particularly continues to suffer from 'case study overload' i.e. unselective, write-all-I-know-about, poorly applied case studies. In the worse examples the case studies chosen are not relevant to the question at all. The question is usually not about 'conflict'.
- As has been said before, often a brief summative paragraph using evaluative language would be enough to lift some out of Level 2 and into Level 3 in the 15 mark part (b) questions in Section A.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

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