

# NATURAL ECONOMY

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Paper 0670/01

Paper 1

## General comments

The great majority of candidates coped well with this paper. Candidates were clearly familiar with the topics covered by the questions, and Centres had prepared their candidates well for the paper. At the top end of the range, there were some outstanding scripts, and only a small minority struggled with the questions.

## Comments on specific questions

### Question 1

- (a) This section required candidates to draw information from a map showing plate boundaries around the Pacific Ocean. Most were able to do so, though on **(a)(i)**, many did not use the key which provided the correct answers, choosing instead to use the terms 'constructive' and 'destructive' (correctly). In **(a)(ii)**, most were able to see the link with plate boundaries, though a mark was often lost because of a lack of detail; naming the relevant plates, for example.
- (b)(i)** Most candidates were aware of the link between earthquakes, volcanoes and plate boundaries, though relatively few gained the three marks available, as most failed to state clearly why plate boundaries give rise to earthquakes and volcanoes.
- (ii)** This was generally well-known and the three marks available were quite easily gained.
- (c)** Again, this was well-known, though there is still a tendency for some candidates to assume that developing countries tend to be more densely populated; which is far from the case.
- (d)** This was generally well-known.

### Question 2

- (a)** This part of the question required candidates to show understanding of a diagram showing the causes of a flood. Most were able to do this, though those who lost marks did so largely because they did not use the stimulus material, and looked for general causes of flooding.
- (b)(i)(ii)** These questions were quite well known and marks were readily gained.
- (iii)** This question was less well answered, with some candidates not very familiar with the many environmental objections to large dams.
- (c)** This question was generally well answered.

### Question 3

This question concerned the causes and consequences of the 'greenhouse effect'.

- (a)** This required candidates to explain the meaning of the 'greenhouse effect', which most were able to do. Almost all candidates were able to complete the bar chart accurately in **(ii)**, and **(iii)** and **(iv)** gave few problems.
- (b)(i)** Most candidates chose carbon dioxide, though a variety of other greenhouse gases did appear. Their release into the atmosphere was generally understood.
- (ii)** Most candidates were able to recognise the idea of global warming and some of its long-term consequences.

- (c) Almost all candidates were able to suggest strategies for reducing greenhouse gas emissions, though answers were often either sweeping or vague. Answers like 'reduce industries' or 'reduce motor vehicle usage' are worthy of some credit, but full marks cannot be gained without something more specific.

It is perhaps worth noting that a widespread confusion still exists between global warming and ozone layer depletion, which caused a significant number of candidates to score less well on this question.

#### Question 4

This question concerned soil erosion, and was possibly the most productive of marks. Almost all candidates understood the term 'soil erosion', and most were able to apply the idea successfully to the paragraph on Nepal.

Parts (b) and (c) were also answered quite successfully. Full marks were not uncommon for this question.

Paper 0670/02

Paper 2

#### General comments

The two questions proved to be of similar standard; if anything, there was a slight tendency for **Question 2** to yield the higher mark overall in some Centres. Both questions covered a range of subject content, to which good candidates responded with equal facility; however, weaker candidates were more likely to gain marks in blocks within each question, in those parts for which their knowledge and understanding were better. For example, some candidates were unable to separate readily temperature from precipitation, which led to a weak beginning in answers to **Question 1**. Likewise some appeared not to have the knowledge of weather instruments, which delayed the real accumulation of marks in **Question 2** until those parts of the question about aid, natural disasters and, in particular, water supply in Bangladesh were reached. Questions in this paper which posed special difficulties were few in number. **Question 1 (c)(iii)** and **(g)(iv)** received fewer correct answers than the questions which surrounded them; of the two mark questions, **Question 2 (e)(iii)** appeared to be the one that was the most difficult for candidates to lay claim to the second mark. One pleasing feature of the responses was the way in which candidates moved from one style of question to another apparently with equal facility. Another was the consistency with which candidates attempted to fill all the lines left for answering in the longer questions, which meant that a high proportion of the answers contained the breadth and depth of content expected in four mark questions.

Few parts of questions were left unattempted. Occasionally no attempt was made to answer **Question 1 (a)**, possibly because the form of the question meant that no lines for answering were required; this is a repeat of a problem highlighted in previous examination sessions. This time there was sometimes an adverse knock-on effect in **Question 1 (b)(ii)**, as candidates attempted to answer only from the partial plot of precipitation on the graph, and totally ignored the values written below for the other months. A continued improvement in describing from maps was witnessed in the majority of answers given to **Question 1 (d)**. With or without some help from knowledge of savanna, the majority of answers were based upon what could be taken from the map, even if some candidates gave non-locational answers by concentrating upon description of savanna vegetation instead of its distribution. Most understood the principles of a food chain in **Question 1 (e)(iv)**, although only about half completed the diagram with arrows leading in the correct direction upwards; whether or not candidates attempted to draw in arrows, which was a requirement for the third mark, tended to be somewhat Centre specific. The opportunity to draw a labelled diagram in **Question 2 (c)(i)** was taken up with some alacrity by many candidates, especially by those who used the rain gauge. Detail in the drawing and quality of labelling were often impressive. A majority of candidates recognised the difference between disaster aid, which is short term, and development aid, which is long term; this allowed them to give largely successful answers to **Question 2 (d)(ii)-(iv)**. Most candidates appreciated that more than one preventative measure needed to be outlined in order to play for all four marks when answering **Question 2 (f)(iii)**. The commonest choice of natural disaster was earthquake, for which answers revealed one widespread misunderstanding, namely that the time and strength of an earthquake occurrence can be predicted. The seismograph was often suggested as the instrument of prediction. **Question 2 (g)** posed few problems, although those answers to part (iv) in which candidates attempted to write out individual arguments from the point of view of village people were noticeably more successful than the type of answer which read more like a list of the advantages of tube wells and disadvantages of other methods.

## Comments on specific questions

### Question 1

Part **(a)** was the easy starter question to break candidates into the examination. Apart from those who carelessly missed out any attempt to answer, the overwhelming majority picked up all three marks. Part **(b)** was straightforward for those candidates who kept temperature and precipitation separate, but many showed uncertainty in answering and included mention of both weather elements in both parts. This did not always stop them from gaining all the marks, because irrelevant parts that did not contradict correct answers were simply ignored by Examiners. A few attempted to answer both parts without precise references to either values or months, which led to answers of little worth, because the two questions were repeated rather than answered.

In the most successful answers to **(b)(i)** the minimum value of 24°C was quoted, sometimes supported by comment about high temperatures throughout the year for the second mark; alternatively other temperature values were quoted in support, notably the range. Some tolerance over when the wet season began and ended was allowed in part **(b)(ii)**; many of the clearest answers came from candidates who began with the precise statement that no rain fell from November to February (or March).

Part **(c)(i)** was expected to be a more challenging question; sometimes knowing how to express the answer was as much of a problem as understanding what was needed. Candidates who recognised the two peaks, either explicitly or by implication, gained the mark. Others who stated fluctuations, typically in comparison with the almost level line in an Equatorial climate, did not show as high a level of understanding; because only one mark was available, the latter answer was not given credit. The next part, **(c)(ii)**, was easier for candidates and a majority correctly recognised the relationship between high precipitation and low temperatures.

The most common answer for the first mark in part **(d)** came down to 'in the tropics', although it was expressed in a multitude of different ways. For the second mark many candidates noted the great extent of savanna in Africa or gave a broader picture of the distribution among the continents. The minority of candidates who did not attempt to use the map tended to describe features of savanna vegetation.

For reasons that were not immediately clear, many candidates approached the answer to part **(e)(i)** by referring to the dry season first. This did not matter if they then moved on to the wet season as well; unfortunately for some, they never did reach the wet season and therefore gained no marks. Quite short, but relevant answers, gained the first three marks in part **(e)(ii)**; the fourth mark was reserved for those candidates who developed their explanations for one or more of the vegetation characteristics, usually in terms of adaptation to the dry season. Incorrect answers were few, but small leaves was the vegetation characteristic that was most likely to be wrongly explained either in terms of providing grazing for wild animals such as the giraffe, or for their presence on the trees during the dry season. The purpose behind the inclusion of part **(iii)** was to make it easier for candidates to answer the more important part **(iv)**. Provided that at least four of the seven animals named in the text were listed, the mark was awarded in **(iii)**. In part **(iv)** at least one of the herbivores was needed in the second box and at least one of the carnivores in the third box. The main mistake was to include domesticated animals such as cattle in a question about the food chain for wild animals. Inclusion of the arrows upwards discriminated well by identifying those candidates who well understood the food chain concept.

Fewer candidates left the graph in **(f)(i)** unattempted than had done so for the even easier part **(a)**; mistakes in plotting the graph were rare and were more common for the wrong date than for the wrong total population. Questions for parts **(f)(ii)-(iv)** covered a topic that was familiar to virtually all candidates; family planning, education and compulsory limitation on family size as in China were the ways used most frequently. There were also knowledgeable references to increased economic development and the place of women in society. Usually it was easy enough to distinguish two separate ways within candidates' answers, and many contained sufficient supporting explanation for all four marks to be earned. To gain the mark in part **(iii)** a candidate needed to realise that China's population had doubled, (or increased by 100%). Although it was often explicitly stated, some candidates began with the 2000 value for China, which made '50%' the most common incorrect answer. Part **(iv)** was less well answered than anticipated because in the majority of answers only one country (such as China) or one type of country (less developed or more developed) was used. The wording of the question suggested that for an effective answer two named countries or both more and less developed countries needed to be referred to. Too many candidates tried to answer this part of the question by repeating the same or a similar answer to the one given in part **(f)(ii)**, which rarely yielded more than one mark.

From part **(g)** the questions took a change in direction, but the high success rate in answering was largely maintained. The most common answer from weak candidates to part **(i)** was 'Tsavo'; just naming the largest park was clearly an inadequate answer. 'Near Nairobi' was also considered to be too imprecise to be credited. 'Along the border' was allowed after some discussion; obviously it would have been preferable if the large number of candidates giving this answer had specified the southern border. Tourists were included in most of the answers given to part **(ii)**, although a few only referred to wildlife protection, which was not an economic reason and which overlapped with the next part of the question. Then a significant proportion carried on with the economic question from **(ii)** into part **(iii)**, having totally missed or ignored 'environmentalists' in the question stem. Some of these candidates partially rescued the situation towards the end of their answers to part **(iii)**: totally irrelevant answers with references only to tourism, and the jobs and income generated by it, were by no means uncommon. On the other hand, those candidates who gave an answer well focused upon preservation of wildlife, natural vegetation, ecosystems and biodiversity scored the marks quickly. Candidates needed to select information from the passage in order to answer part **(iv)**; increase in elephant numbers and thousands of tourist visitors were acceptable answers. Those who did not go back into the information as requested by the question gave more general answers that could not be credited. The same information on page 8 provided the basis for answering the final part **(v)**. The answer to this part was marked upon the basis of quality of selection of information, effectiveness of organisation (whether one statement led into the next) and value of summary and explanatory comments. Those candidates who stuck closely to the information supplied gained one or two marks for selection and use, whereas three and four mark answers were characterised by good organisation and appropriate comment. There was a strong correlation between candidate performance on **Question 1** as a whole and size of mark awarded in part **(v)**.

Although some candidates made a slow start through part **(b)**, the majority scored marks consistently and regularly in the remaining parts. Able candidates maintained a high standard of performance throughout and lost no more than one or two marks, in those places where somewhat atypically the answers failed to satisfy full question requirements.

## Question 2

Part **(a)** was the easy opener for the second question. Candidates could not go far wrong, although a few reversed wind vane and anemometer. A wide range of answers were seen to part **(b)**, from the very complete with an attempt to describe fully before giving reasons, to the unsuccessful with an over-dependence on the use of generalisations in both parts, like 'outside an urban area', 'away from where people live' and 'a good place for measurement because there is sunlight, rainfall and wind'. In the latter type of answers there was a failure to focus upon the local scale and to explain the absence of trees, for example, in relation to taking accurate measurements for rainfall, sunlight and wind speed. In essence for marking purposes the two parts of this question were taken together, although as a general rule the more able the candidate, the more likely the two answers were discrete.

In **(c)(i)** there was a clear difference in answer quality between candidates with and without knowledge. Those with knowledge tended to choose either the rain gauge (with separate measuring cylinder) or a thermometer, and in a few cases the sunshine recorder with equal success; some magnificent, fully labelled diagrams were produced. Those without real knowledge most commonly drew the wind vane and anemometer together, as on the sketch of the weather station, without any label good enough to be credited. Those who drew the non-meteorological style of rain gauge, attached to a post well above the ground with measurements inside the collecting glass, tended to be self penalising because there was little that they could label and it was more difficult to answer **(c)(ii)** about taking an accurate reading. In line with the policy elsewhere when one mark is used to cover two separate parts of a question, the overall worth of the two parts were assessed and the mark distribution could be three for one part compared with one for the other, which meant that there was little penalty for those uncomfortable with drawing a labelled diagram.

Small size was the most common valid answer given to **(d)(i)**, although the many who suggested that the amount of rainfall varied a lot from place to place were not answering the question set. Parts **(d)(ii)-(iv)** shared the common theme of aid. The introductory information to **(d)(ii)** suggested short term, relief or disaster aid namely shelter, rescue, medical help and food aid. Many answers included these, although some candidates used different headings, such as financial aid, before elaborating upon how it could be used, such as for rescuing people or providing shelter. However, in a few cases it and others were applied to longer term projects, which meant that the candidate was drifting away from the question set. Medical aid was perhaps the most popular choice in **(iii)**, although those who used rescue aid found it easier to give a convincing explanation. In **(iv)** some candidates were unable to change direction in answering and continued to base the total answer upon relief aid; whilst the information in the question suggested that this was still needed, it also pointed to its lower importance, which is why four mark answers had to include elements of both short and long term aid. From those candidates who realised this there were some full and strong answers.

Candidates experienced few problems in giving the valid answers from the graph to **(e)(i)** and **(ii)**. The predominant answer to part **(iii)** was one that was superficial, when it was answered along the lines that the number and strength of natural disasters vary from year to year. This type of answer claimed only one of the two marks. Not many candidates managed to think more deeply about this question, for example by referring to earthquakes of different strength or whether a more or less developed country was hit by the disaster. Aspects like these had been covered in questions set in previous years and were well answered, but the form of the question apparently failed to trigger this type of response here.

For able candidates the first two parts of **(f)** were easy marks; less able candidates, however, were less likely to be able to separate out the different types of natural disasters to arrive at the correct ratio of 6:2. The most popular choice in **(f)(iii)** was earthquake, followed by high winds and floods; somewhat surprisingly few cyclone answers were seen. Successful earthquake answers were mainly based upon earthquake resistant buildings and the ways of doing this, which in the better responses were supported also by mention of emergency drills and rescue preparedness. As noted earlier, those who concentrated upon earthquake prediction, and then supported it with radio and TV warnings and building underground shelters, struggled to find anything that was relevant. For those candidates taking high winds and floods together, opportunities to refer to a variety of preventative measures were opened up, helpful in a four mark question.

Although the newspaper report in part **(g)** was long, the questions seemed to generate plenty of candidate interest, so that many ended the examination on a high note. The large number of possible answers to part **(i)** meant that only a few candidates failed to take both marks. Part **(ii)** was more of a challenge, but the majority were up to it. The expected answer was about 90%, although any percentage value between 80 and 95 was credited. Non-scoring candidates were as likely to go above the limit as to keep below it. A few tried to repeat the answer to part **(i)** in part **(iii)**, but in the main candidates found at least two reasons from the text and tended to explain their significance in line with question need. Part **(iv)** was the one which discriminated best among candidates. Again some tried to continue the answer from part **(i)** by extending the number of reasons why there were so many tube wells. This was given some credit according to how well it was done, but it was never going to meet full question needs. Others gave answers based upon the disadvantages of the alternatives, which led to broader responses. In all of the best answers, however, candidates set about writing down statements that could be seen to be arguments that village people might have used. The presence of four or five of these arguments usually gave the breadth necessary for all four marks to be claimed.

Some of the answers to **Question 2** were subject to an equally slow start, particularly in parts **(b)** and **(c)**. After this there seemed to be few major hurdles to be overcome in answering. Several full mark answers were seen, which demonstrated good examination technique supported by high levels of knowledge and understanding.

<p><b>Paper 0670/03</b> <b>Natural Economy</b></p>
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### **General comments**

This year's submissions all met the requirement of tackling local environmental issues. Candidates made good use of the processes taught them from the syllabus. The weakest area continues to be candidate performance in relation to **Assessment Objective C** and Centres could put more effort into preparing candidates for this part of the coursework. A number of candidates showed performance at a higher standard on the first two assessment objectives, but failed to maintain that standard in the third.

The reports were well produced, although we are still seeing too much packaging and the inclusion of superfluous material such as all the questionnaires.

Analysis of data for criterion 7 is being covered far more completely now than in previous years.

## **Comments on specific areas**

### **Assessment Objective A**

Candidates continue to do well here and with good choices of environmental problems this is an easy section on which to score well.

### **Assessment Objective B**

Candidates who carry out their own investigation show how much benefit they gain by the effort they put into collecting their data. Even Centres where candidates all carry out the same investigation show that individual candidates get fully involved in the work.

### **Assessment Objective C**

Most of the topics this year did lend themselves to discussions of sustainable development. However, many candidates seem to run out of steam when they got to this section. Candidates seem to find it difficult to realise that choices exist and that people have to make decisions about the best possible solution, which may well involve compromises.

<p><b>Paper 0670/04</b> <b>Alternative to Coursework</b></p>
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## **General comments**

The paper was based mainly in Mexico with a link to the UK at the end of the paper. Most candidates presented their answers clearly and were able to complete the paper in the time allowed. The majority of candidates seem to have read the source material at the beginning of each question carefully and selected important facts to help them answer the questions effectively. Tables and graphs were usually well presented.

## **Comments on specific questions**

### **Question 1**

- (a) The distance between Mexico City and San Cristobal was considered to be an easy start to the paper, surprisingly only a minority gave the correct answer of 800km.
- (b) A large table of rainfall and humidity data was given and candidates were asked to describe three differences between the two locations. There were many good answers which used the figures given to draw out the differences. Only comments about rainfall and humidity were expected. Some candidates assumed that one location would be hotter than another without any evidence; this was not given credit.

### **Question 2**

- (a) The table was nearly always correctly completed.
- (b)(i) The 'life form' of trees was usually given as the correct answer.
- (ii) The percentage (%) of plants which are trees was often calculated correctly with working shown as asked.

### **Question 3**

- (a) Discovery Z showed that the Indians had studied their environment in a scientific way, reasons involving biological groups completed their answers.
- (b) Discovery X showed that rainforests may have developed in a similar way, a reason similar to the source was expected.

- (c) Discovery Y could have been of greatest benefit to Chiapas State, but here candidates needed to provide their own reason. This proved a little difficult. A few scientists are not going to bring wealth to the state by visiting the rainforest.

#### Question 4

- (a) The candidates were asked to suggest equipment to be used to record information about the plants. There were many good answers involving quadrats, tapes, notebooks and other items. Only a minority of candidates described apparatus for soil sampling, which was not asked for.
- (b) Some candidates had not appreciated from the source material that only small samples could be taken, so 'trees' was not a valid answer.

#### Question 5

Two plans of an investigation were given at the start of the question

- (a) This asked the candidates to choose the best plan and give three reasons for their choice. Plan B was usually selected as the best plan and some good reasons related to the plan were often given.
- (b) The recording method for plan A or B, as stated in (a), should have been drawn on the map provided. Unfortunately some candidates seemed to ignore this question.

#### Question 6

- (a) Candidates were asked to draw a table and arrange the data in a better way so it can be more easily followed. Most tables had good headings and the data had been reorganised successfully.
- (b) Most graphs were accurately plotted and a key given. Some axes were not labelled which prevented the award of maximum marks.
- (c) Candidates were asked to describe the trends shown in the graph. Most successfully stated a decrease in trees over the years, whilst the trend for herbs was to fluctuate with no overall increase or decrease. Some candidates did not quite convey his idea in their answer.
- (d) Candidates often stated that the loss of trees supported the argument for not building the road, but less frequently stated that herbs do not seem to be affected by the road building.

#### Question 7

Candidates were asked to describe how a local person's way of life might change, either by being employed by the oil company, or remaining unemployed. There were many good clear answers which gained maximum marks; the answers given related well to the context of the question rather than general statements.

#### Question 8

- (a) The candidates were asked to suggest reasons why a plan to increase production of silver bromide might be an example of sustainable development. It was expected that candidates would realise from the source that the raw materials would last a very long time, that pollution dangers were minimal and road transport was reduced. Marks were also available for further development of ideas. Unfortunately many candidates seemed to think that an increase in profits meant that the development was sustainable; they needed to explain this line of thought to gain any marks.
- (b) Candidates found it easier to suggest how the development might help the people of Chiapas State, with frequent references to improved infrastructure, foreign revenues helping the state provide services and reduced unemployment.

## Question 9

This question asked candidates to think about rainforest being recreated in a large domed greenhouse.

- (a) Candidates did not find it easy in many cases to explain why a greenhouse in a quarry should face south, some candidates talked about the greenhouse being in the south of the country and others described its distance from the equator. Only straightforward answers involving increased heat and light were required.
- (b) Some advantages and disadvantages were clearly related to the quarry site for the greenhouses and gained credit. Unfortunately the word 'greenhouse' triggered some inappropriate responses about greenhouse gases and global warming.
- (c) The greenhouse project might help to conserve rainforests in a variety of ways and suggestions about preventing extinction of some species, ease of research, living gene banks and increasing awareness when people visit were common suggestions.
- (d)(i) Many candidates gave examples of charity work to raise funds or from tax revenue via government.
  - (ii) A range of sensible suggestions were given as an advantage of having more domes.
- (e) Candidates were asked to give two reasons why the scientists needed help to collect seeds for the domes. Some only seemed to attempt to give one reason, perhaps because it was the last question on the paper.

## Conclusion

Overall most candidates gave well presented answers that were easily read and understood.