ENVIRONMENTAL MANAGEMENT

Paper 0680/01

Paper 1

General comments

It was felt that the paper was somewhat easier than previous years, largely as a consequence of the accessibility of **Questions 2** and **5**. **Question 3** proved to be the most difficult with the inevitable confusion about the greenhouse effect, global warming and holes in the ozone layer.

Comments on specific questions

Question 1

This question proved to be a fairly easy starter to the paper, with most getting the correct responses for **a(i)** and **(ii)**. Part **(b)** proved satisfactory, in that many were able to name four correct diseases, but some got muddled between the two types.

In part **(c)** there were some good answers, although the inevitable muddling of what might be the likely contribution of local people and governments was seen. Some took a very broad view of sanitation, as opposed to the narrower intended linked with water supply and disposal.

Question 2

Part **a(i),** most were able to explain the meaning of the term volcano, although some answers were too vague and related to any incident caused by movement at plate boundaries. In **(ii)** the majority of answers related to the problems likely to have been suffered in pre-Christian times, but some candidates suffered by writing about the consequences of a volcanic eruption in modern times. There were some very good answers to **a(iii)**, with much detail and this seems to be a topic that is very well known and understood. Again, answers to part **(b)** were often impressive in the detail given, with a wide rage of possible strategies being discussed, from improvement in infrastructure through better provision for post eruption care and better education about actions to be taken during the incident.

Question 3

In (ai) about half of the candidates were able to draw a diagram that convinced the examiners they understood what was going on, but the other half were divided between those who unaccountably copied the diagram provided, to those who drew something totally different and not addressing the question at all. ii was answered only quite well at best by most (who made some mention of CFCs). Few were able to go on and state, however, that these gases have the effect of destroying the ozone in some chemical way (no great detail of this process was expected, although a few very good candidates did give it). Part **(iii)** was quite well answered in relation to the effects on humans, with many able to quote effects on the eyes, the skin and the immune system. When candidates came to talk about environmental effects, however, they would often quickly stray into a discussion of global warming, sea level rise and flooding etc.

In part **(b)**, the confusion about global warming continued, with discussions of many strategies to cut down the use of fossil fuels. About a quarter were able to begin, at least, a discussion of reduction of CFC use, and then some of these went into more detail about how this might be achieved.

Question 4

Parts **a(i)** and **(ii)** proved quite accessible to most, and because of the slightly confusing nature of the diagram, some latitude was included in the mark scheme. Part **(iii)** elicited many long and rambling descriptions rather than the simple, overall picture which had been the intention. The examiners did their best to give credit for such answers, within the confines of the mark scheme. What was not credited, however, were those answers which talked, often at length, about changes in population size.

The biggest problem for candidates in part **b(i)** was when they had not read the question carefully and discussed anything but environmental problems. This is a classic case of 'read the question' and could be used as such in future, in exam preparation lessons. Those who had appreciated that they had to discuss a particular kind of problem were usually able to gain 2 marks quite easily, with mention of deforestation, soil erosion and related events. Part **b(ii)** was well answered with many good discussions of family planning, contraception, one child policies, tax incentives and disincentives, education of women and many other viable strategies.

Question 5

Part **(a)**, in its entirety, of this question proved easy for most with 4 marks being the norm. Part **(v)** was a little more tricky but about three quarters of the entry were able to score 2.

Part **b(i)** was surprisingly discriminating with a good number suggesting a possible increase or some other incorrect variant, not supported by the graph. Part **b(ii)** was quite well answered, although a minority were able to gain the full 3 marks.

Question 6

A very large proportion of the entry were able to score 2 marks for a simple explanation of two of the terms, but failed to get either one or both of the other two by making no reference to the diagram at all, this is another 'read the question' example. Bizarrely, the candidate would often illustrate the explanation they had given with an example, but not based on the picture in the question! Part **(ii)** was very well answered by most.

In part **(b)** there was a very wide range of good suggestions given and an impressive number of candidates were able to score full marks here.

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Paper 0680/02

Paper 2

General comments

Performance in **Question 1** tended to be stronger than in **Question 2**, sometimes by a significant amount among candidates in the middle and lower mark ranges. The topic of natural disasters, the focus of **Question 1**, was well understood; marks were earned with some regularity throughout the different parts of the question. Maintaining performance levels throughout all parts of **Question 2**, however, was more of a problem for all except the more able candidates. The main questions for which large numbers of marks were lost were **2(a)** because of the absence of references to either continents, regions or countries, **2(b)** due to a lack of understanding of the process of salinisation and **2(c)(ii)** as a result of drawing sketches without labels, and sometimes with minimal reference to what was shown on the photograph.

Unanswered parts of questions were few and far between. Most candidates appeared to have adequate time to give full answers to all questions. Able candidates sometimes extended their answers into the spaces left below the lines, especially when answering **1(d)(vi)** and **2(c)(iii)**, the two questions with five marks attached for which fuller answers were expected. The most consistently good answers were given to parts **(a)** and (**b)** of **Question 1** from candidates of all ability levels. Only part **(c)(ii)** posed any real problems, apparently because of lack of knowledge and understanding of tropical storm formation. Within **Question 2,** candidates were most comfortable with part **(d)**; the significance of the information given about the village in India was well appreciated. It allowed the majority of candidates to finish strongly despite one or more hiccups in earlier parts of this second question. Reponses to questions which required the use of practical skills were mixed. Some, mainly weaker candidates, did not understand what was needed to complete the block graph in **1(a)(i)** and attempted to convert it into a bar graph. Quite unaccountably some failed to enter any numbers on the map in **1(c)(iv)**. All knew what was expected of them for completing the spider diagram in **1(d)(i)**. Instead of using the photograph as the basis for the sketch in **2(c)(ii)** some attempted to draw hypothetical plans either for a shanty town or the inside layout of an individual house. The worth of some well-drawn sketches was reduced by an absence of labels, or an over-reliance upon negative labels such as ‘no electricity’, ‘no water supply’ and ‘no sanitation’. Labels whether on maps, diagrams or photographs should always be positive in order to describe what is shown or what can be seen.

Successful candidates took notice of the stated number of marks for each part of the question and tailored the range and variety of points as well as depth of answering to the relative worth of the question. As ever, there were great differences between candidates, for the number of words needed before they began the real answer instead of merely repeating the question. The tendency observed previously, whereby candidates regarded a full answer as one, which filled up all the lines, was again in evidence. It contributed to one statement answers given to two mark questions and to partial answers to questions worth four and five marks. Sometimes it seemed to squeeze out the use of values that was essential for all marks to be awarded particularly in **2(d)(iv)**. It is always acceptable for candidates to continue answers in the empty spaces below the lines and on blank pages, provided, of course, that the number of the question being answered is made clear to the examiner. Consistently full answers were an important characteristic of high scoring scripts.

Comments on specific questions

Question 1

A large majority of candidates gained the first four marks in **(a)(i)**; once a candidate understood what was needed, it was difficult to lose marks other than for careless completion, such as 14% for human disasters, or for writing percentages in the key instead of using shading or symbols. Even so some of the technically correct solutions in terms of percentages shown were not terribly logical in their arrangement with values for individual human and other natural disasters spread around the graph instead of being shown in a block in adjacent boxes. Those who tried to convert the block graph into a vertical bar graph were mostly restricted to one mark for showing a correct key, although if they marked and used an even scale, a fall-back mark was allowed for a fully correct plot. Part **(a)(ii)** was well answered particularly by those who referred to examples of water related diseases in their answers, although doing this was not essential for full marks.

In **(b)(i)** it soon became clear that virtually all candidates knew basic difference between an earthquake and a volcano; only by concentrating too much either upon similar formation, or effects that were more appropriate for the next part, was there a shortfall in marks. Part **(b)(ii)** was characterised by good answers, many based around non-predictability of earthquakes and warning signs from volcanoes. Most of the strategies stated in (**b)(iii)** for preventing loss of life in earthquakes were valid, except for those, which placed reliance upon monitoring to predict earthquake arrival. The best answers to **(b)(iv)** not only referred to greater wealth and higher levels of technology and education in developed countries, but also to the reliability and efficiency with which strategies are implemented. The weakest answers went along the lines of developed countries are rich and developing countries are poor with little else in the way of explanation or application to the question.

Answers to **(c)(ii)** were a major disappointment. Valid answers about high sea temperatures at that time of year in the northern hemisphere, leading to rising air and the development of deep low pressure systems, tended to be restricted to candidates from certain Centres. There was a massive amount of confusion among candidates as to whether the seas were hot or cold, or whether the pressure was high or low, at this time of year. Marks in the three other parts of **(c)** were awarded with greater regularity, although it became clear that not all candidates understood what was meant by the word 'trend' in part **(v)**.

Most identified and used the four actions named in the information box about Cuba in **(d)(i)**. What was regarded as the best choice, evacuation was indeed the one selected by most candidates in **(d)(ii)**. From the explanations given it was evident that some candidates saw evacuation as the same as movement to hurricane shelters. Likewise not all candidates understood what a hurricane shelter was. Two mark answers for the other choices were more difficult to achieve, although storage of essential supplies of food and water was easy enough to explain for one mark. In part **(d)(iii)** candidates were asked to 'explain as fully as you can'; some of the weaker answers suffered from repetition of opposites of Cuba and Grenada in terms of preparation. Those candidates, who noticed in addition the difference in size of the islands, and the greater possibilities of evacuation in Cuba, were the ones most likely to gain all three marks. By the time part **(d)(v)** was reached some candidates had lost the question focus on urgent problems. Successful answers to this part needed to stress either the need for emergency/relief aid and/or the need for aid and assistance from other countries. Too many candidates jumped to the medium and longer term and gave answers, which overlapped with the main theme in part **(vi)**. Shallow answers to the final part went little beyond use of information provided in the question. However, there were many good answers that included coverage of both farming and tourism by discussing realistic possibilities for the next few years. In the best answers, the need for time for bush and tree crops to grow to sufficient size to produce again and, for the tourist infrastructure and reputation of Grenada to recover, were emphasised; this style of explanation was often rounded off with an appropriate summary comment.

Responses were generally consistent and strong in **Question 1**. A popular topic area was examined and the majority of candidates had the required knowledge and understanding to maintain momentum up to and including the final part of the question. Little of the candidate confusion for causes and effects between earthquakes and volcanoes, which had marred answers in some previous examinations, was observed this time.

Question 2

Deficiencies in technique for describing from the world map limited the number of marks awarded by many candidates in both parts of **(a)**. The clear answer of, 'no risk in developed countries', was expected in the first part, but some candidates felt too unsure about the location of developed countries to state this. They tended to hedge their answers with references to low risk as well, which nullified the effectiveness of their answers with naming places. The second part could not be answered without references to places because the full range of risk from low to high existed; yet many candidates, both strong and weak, stated the range without any attempt to identify continents, regions or countries. These were essential for the award of marks. Africa and India were the most commonly named examples of high risk; North Africa, Middle East and South America were the ones most commonly selected as examples of areas of low risk by those who approached answering in the manner expected. A good number of candidates included China within the developed world.

As was discovered in a previous examination, salinisation is a process not known and understood by large numbers of candidates. It was regularly confused with natural saltiness in immediate coastal locations, which led to coastal examples in **(b)(i)** and to reasons based upon invasion by sea water in **(b)(ii)**. Desert areas were a common choice of area, but without any reference to irrigation the answer could not be fully successful. The best answers this year were based upon examples from irrigated areas in Pakistan or India where over-use and mis-use of irrigation water in areas of high rates of evaporation were leading to increasingly saline soils. About half the candidates gave the correct answer of 'shortage of farmland' in **(b)(iii)**. This needed to be known; desertification was the most common choice for those who engaged in guesswork. The impossibility of stopping, and the difficulties of reducing, the effects of natural climatic hazards like droughts and floods were appreciated by most candidates in **(b)(iv)**, although the amount or depth of comment was not always sufficient for the second mark. Many questions related to soil erosion have been set in previous years on both this component and in others; it is a topic that is generally well-known. However, some selectivity was needed in answering the questions set in **(b)(v)** and **(b)(vi)**. It soon became clear that a lot of candidates saw deforestation as the only cause of soil erosion and reafforestation as the main method of soil conservation. However, the question limited candidate choice to areas of farmland and crop growing, which meant that these were relevant only if placed in an agricultural context. For example, both cutting down trees to extend the area of farmland and removal of trees from hedgerows were relevant in **(b)(v)**, while planting trees either as windbreaks or for agro-forestry were valid choices for flat lowland for area 2 in **(b)(vi)**. The two easy answers to part **(v)** were over-grazing and over-cultivation, although any example of poor farming practice was acceptable. The best choices in part **(vi)** for area 1 were contour ploughing and terraces (both of which were regularly used by candidates) and for area 2 were windbreaks and any dry farming technique. Although both of the latter were used often enough, it was unfortunate that many candidates reacted much more to the inclusion of 'with low rainfall' in the description of area 2; they concentrated on techniques of irrigation at the expense of the question theme of methods of soil conservation.

Only a few lost sight of the poverty theme in **(c)(i)**; it was easy enough for candidates to gain two or three marks provided that they linked different factors in their explanations. Variations in the quality of answers given to **(c)(ii)** were wider than for any other question. Some superb sketches were drawn, many of them packed with relevant positive labels both for the main features of the houses (especially when building materials were named) and for the overcrowded and haphazard layout of the area. They were worth many more than the maximum of four marks available. Often the candidate's sketch was focused on just one house, which was acceptable, although it made it more difficult for something related to layout to be labelled. The worth of some really well drawn sketches was reduced by poor negative labelling or even its total absence. The weakest answers of all were from those who attempted to draw plans for the shanty-town as a whole or the inside layout of one house; no use of the photograph was apparent. Only a minority of candidates demonstrated any knowledge of a named example in **(c)(iii)**, which effectively limited their answers to two or three marks. They lacked the specific content that only a case study reference could provide. This question attracted a lot of general and quite vague statements, some of which went well beyond the question brief to refer to improving shanty-town environments. The best known case studies were for either favelas in Rio or Sao Paulo in Brazil, or for certain large cities in the Indian sub-continent such as Chennai and Karachi. The frequent attempts to use Mumbai as the example did not receive any credit, as a named example until something related to the city was included beyond what could be deemed as likely from observation of the photograph.

Although answers with the direct and obvious link to farming were the only ones accepted in **(d)(i)**, correct statements about difference in size were allowed in **(d)(ii)** for other pieces of evidence chosen and used in **(i)**. Only a few candidates failed to state actual size difference or made a wrong calculation. Increased availability of water needed to be used as the main reason in **(d)(iii)** before some related comment about increased farm output allowed the second mark to be credited. Some candidates mentioned too many factors and failed to identify water as the main reason. An early reference to increased income improved the likelihood of gaining all the marks available in **(d)(iv)**. Although many candidates quoted values from the table, those who stated the difference in income per household between the two dates were the ones who made best use of the values to support their answers. All the evidence given pointed to an answer of 'yes' in the final question **(d)(v)**. Many of the best answers came from candidates who answered in terms of the changing relative strength of the push and pull factors of rural to urban migration. However, 'no' answers were equally acceptable; although few in number, some candidates successfully justified their view by stressing the attractions and greater wealth-making opportunities concentrated in big cities in the developing world compared with the countryside.

Answers to **Question 2** from the majority of candidates lacked consistency. They were unable to maintain levels of performance that were demonstrated in their answers to **Question 1**. The parts of the question which posed the greatest difficulties varied from candidate to candidate, but almost always included one or more parts from **(a)**, **(b)(i)** and **(ii)**, and **(d)(ii)**.

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Paper 0680/03

Paper 3

General comments

A good range of investigations was submitted demonstrating a real interest that the candidates have in their environment. They were, in general well researched and presented in clear and relevant fashion

Domain A

Most candidates demonstrated a firm grasp of the processes in the specification and reflected some excellent teaching of these issues. The candidates were generally good at relating their local problems to the broader aspects of the issue

Domain B

Most candidates performed well here carrying our surveys, observations, literature searches and many doing first hand practical work. However this range of techniques in necessary to achieve top marks here.

Weaker candidates failed to discuss the data they acquired, settling for presenting the data with little commentary.

Domain C

This continues to be the weakest area and discriminates between the more able and the weaker candidates. There were some excellent pieces of work where the candidate had put a lot of thought into how the issue could be managed in the most sustainable way. Others either failed to reflect on this or simply give a list of possible solutions with little discussion of pros and cons. Criterion 9 continues to prove to be the most problematical where a strategy is needed for sustainable development; this is often not presented as a whole but rather a set of disconnected choices with very little cohesion and without an analysis of advantages and disadvantages. There is also a need for an analysis of how different interested parties have varying reasons for supporting different strategies.

ENVIRONMENTAL MANAGEMENT

Paper 0680/04

Alternative to Coursework

General comments

The paper was set in a small Caribbean island and considered three different economic activities.

Most candidates clearly understood the context of the questions but sometimes did not make full use of the information presented in the questions. There was no evidence of candidates running out of time and nearly all candidates' answers were clearly presented.

Comments on specific questions

Section A

Question 1

(a) Candidates were asked to explain why the island would be such a good place for evaporation and there were many good answers worth three marks. Some candidates repeated statements from the source material without adding any of their own explanation; these answers could not be given credit.

(b) Many candidates appreciated the role of algae as producers.

(c) However the concept of energy flowing between each feeding level in a food chain was rarely explained. This concept is stated in the syllabus.

(d) Many candidates appreciated that salt extraction required no inputs from humans and that the supply of salt would never come to an end. They could also see that wildlife could continue to survive in this 'industrial' area. However many thought salt was bad for marine animals.

Question 2

(a) Candidates found it easy to suggest two ways to reduce further damage to the coastal waters.

(b) Completing the leaflet to help divers be environmentally responsible proved to be a little more demanding than the Examiners had intended, frequently one or two good points were made but answers worth three marks were not common.

(ii) The number of diving sites that cannot be reached by boat was usually correct but candidates often found it difficult to describe a fair sampling method in part **(iii)**.

(c) The data presented was often used to either identify the range of data for the two categories or work out average % damage.

(ii) There were many good reasons given for damage to the dive sites, depending on their ability to think about the situation they gained one, two or three marks.

(iii) There does not seem to be a very sound understanding of sampling, many candidates suggested sampling every dive site and others suggested a specific site number from the map.

(d (i) Candidates were rather more inclined to explain why method one and two were not scientifically sound, a good number realised that the methods did not measure undamaged corals so % could not be calculated.

(iii) The table was completed successfully by most candidates as was the % calculation in part **(iv).**

(e) Good comparisons were given from the table.

(f) The number of divers that had visited the dive sites was the expected answer; many others were given as well!

(g) Candidates found it hard to make two clear points for a management plan in each of the three areas as asked in the question. There seemed to be too much emphasis on putting tourists in prison or giving them large fines for environmental crimes.

Question 3

(a) Many candidates used the data presented to good effect; unfortunately a small number ignored the data completely but could still gain credit for describing the effects of wind erosion.

(b) Many candidates successfully completed the scale and indicated an east-west transect line. Some candidates did not attempt this question. Part **(iii)** was attempted to good effect. Most plotting was clearly correct, however, some keys and units on axes were incomplete.

(iv) The trends shown by the graph were often described correctly though some general statements without any reference to distance could not be given credit.

(c) The Examiners considered that measuring the crop by weight was going to be a sensible alternative to measuring height or length of leaves. In fact it was rarely suggested.

(d) Some candidates only described some other densities rather than presenting two other numerical answers in the style of the question.

(e) The consequences of high density planting were well understood by most candidates. References to irrigation were not given credit in this island context.