ENVIRONMENTAL MANAGEMENT

Paper 0680/11

Paper 11

Key Messages

Candidates should indicate clearly to the Examiner when responses are continued on extra paper or blank pages. It is advisable to look at the number of marks available for an answer and if, for example, there are four marks available try to make four different points. Candidates should thoroughly review all the specialist terms on the syllabus and learn their meaning.

General Comments

Overall, candidates showed a reasonable knowledge across most areas of the syllabus.

Candidates appeared to find **Question 4** the most challenging.

Comments on Specific Questions

Question 1

(a) A reasonable number of candidates named the locations correctly as an epicentre.

(b) (i) Some candidates clearly identified the plate boundaries, at Van or at Izmit. However, a significant minority did not carefully read the question and made no reference to the map provided at all.

(ii) Most candidates worked out the calculation correctly.

(iii) Many candidates did not ma,ke use of the information provided in the newspaper report. Partial credit was awarded for general points, but more detailed reference differences in time of day, magnitude and improvements in preparation for or response to earthquakes between 1999 and 2011 were needed for full credit.

Question 2

(a) (i) Very few candidates made mistakes completing the pie graph labels.

(ii) A number of candidates thought equatorial rainforest was a climate type. A small number gave the answer as monsoon, desert or savanna. Most candidates gained at least partial credit for identifying features of the climate.

(b) (i) Most candidates identified loss of forests as a disadvantage and the use of palm oil as a substitute for crude oil/petroleum as an advantage. Explaining a second advantage and disadvantage was often more challenging. Some wrote about oil palms being efficient oil produces, but this did not gain any marks.

(ii) Some good suggestions were made about how orangutans might be conserved. Establishing National Parks and (Biosphere) Reserves were popular answers. Zoos were often mentioned, but this suggestion needed to mention breeding to make it more convincing. A few candidates suggested putting orangutans on an endangered species list, but very few mentioned the organisations referred to on the syllabus.

Question 3

(a) (i) There were some excellent descriptions of the differences in the population and age structures between United Kingdom and India. Some candidates gave two separate accounts, which were less convincing and often confused. The clearest responses expressed themselves via a table comparing the two countries, but these were few.

(ii) Although there were some very good answers to this question about the different problems which result from population structures like those shown for the United Kingdom and India, some responses seemed confused.

(b) The majority of candidates demonstrated a sound understanding of how national policies can help to solve population problems.

Question 4

(a) (i) Although some candidates described how minerals come from the weathering of rock, a large number wrote about organic matter and gained no credit. A significant minority of candidates did not attempt this question.

(ii) Candidates who had written about organic matter in the previous question had problems answering this question. A significant number wrote about material/minerals derived from rocks. A significant minority of candidates did not attempt this question.

(b) (i) and (ii)

Some candidates seemed to have difficulty in identifying the methods of soil conservation shown in the sketches. Those that did, usually gained credit for explaining how either wind breaks, contour ploughing or terraces can help conserve the soil by preventing soil erosion. The names of the methods did not appear to be well known.

Question 5

(a) (i) Many candidates did not use the information shown on the map. Few recognised that both cyclones moved clockwise or described the tracks of the cyclones over Bangladesh with any clarity.

(ii) Some candidates explained that Bangladesh was a region very close to sea level.

(b) (i) A number of candidates confused the two cyclones, writing that the 1991 cyclone was the stronger and went through the middle of Bangladesh. More able candidates wrote about the improvements between 1991 and 2007 in forecasting using weather satellites, early warning systems, evacuation, emergency drills, education and cyclone shelters.

(ii) Most candidates wrote in some detail about how people continue to live in cyclone areas because their family and friends live there, they have always lived there, they are part of a community, they have job/investments there or cannot afford to move.

Question 6

(a) (i) Most candidates correctly identified two major fishing areas on the map. Labeling a warm current and a cold current proved more challenging.

(b) (i) There were many excellent, detailed responses that gained full credit.

(ii) Most candidates were able to describe at least one strategy that could be used for the sustainable harvesting of ocean fisheries. The most common responses were about quotas, closed seasons and restricted areas.

ENVIRONMENTAL MANAGEMENT

Paper 0680/12

Paper 12

Key Messages

Candidates should indicate clearly to the Examiner when responses are continued on extra paper or blank pages. It is advisable to look at the number of marks available for an answer and if, for example, there are four marks available try to make four different points. Candidates should thoroughly review all the specialist terms on the syllabus and learn their meaning.

General Comments

Overall, candidates showed a reasonable knowledge across most areas of the syllabus.

Comments on Specific Questions

Question 1

(a) (i) and (ii)
Most candidates were able to identify the correct rock layer and go on to identify it as sedimentary.

(iii) A good number of sensible suggestions of uses of rocks were seen.

(iv) A large number of candidates were able to give a good explanation of the formation of marble.

(b) (i) Coal formation was well understood by the majority of candidates.

(ii) Few candidates correctly achieved the comparative element of this question.

(iii) A good number of candidates were able to come up with sensible suggestions for the drop in coal use.

Question 2

(a) (i) Some candidates did not complete all the parts requested and therefore lost credit.

(ii) This question was answered correctly by majority of candidates.

(b) The use of pesticides and fertilisers were the most common correct responses. There were also a good number of candidates who were able to talk about high yielding varieties.

(c) There was much less success when talking about the problems of modern farming. Most candidates were able to quote the expense involved as a problem, but very few went beyond this. Many candidates simply listed the ways in which the farmer would incur expense and thus gained partial credit.

Question 3

(a) (i) and (ii)

These two parts of **Question 3** proved to be the hardest on the paper. Most candidates were unable to summarise the data in a succinct way and most ignored the fact that in each graph, bare and forested ground appeared. Few candidates seemed unclear about the benefits of contour ploughing.

(b) (i) and (ii)

Quite a few candidates made some good suggestions for part **(b)(i)**, but **(b)(ii)** was only answered correctly by the most able candidates.

Question 4

(a) A very large number of correct responses were seen.

(b) A majority of candidates were able to make some good suggestions here.

(c) This part was well answered by most.

Question 5

(a) (i) A large number of responses incorrectly named the biome zones.

(ii) The adaptations of desert plants was known by some candidates.

(b) Many responses were muddled in their answers to this question. Suggestions of deforestation and over-grazing were common, but how these lead to desertification was rarely clearly understood or explained.

Question 6

(a) (i) A large majority were able to work out the correct sequence.

(ii) Many candidates did not know how land could be restored after mining.

(b) (i) The majority of responses were correct.

(ii) The replacement of coal with other energy sources was commonly quoted, but most candidates were unable to go beyond this to discuss conservation measures and provide examples

ENVIRONMENTAL MANAGEMENT

Paper 0680/13

Paper 13

Key Messages

Candidates should indicate clearly to the Examiner when answers are continued on extra paper or blank pages. Candidates are advised to look at the number of marks available for a question and if for example there are four marks available, to make four different points. It is recommended that the meanings of specialist terms detailed on the syllabus are learnt.

General Comments

Many candidates showed a reasonable knowledge across most areas of the syllabus.

Comments on Specific Questions

Question 1

(a) (i) A large proportion of candidates were unable to answer this question correctly.

(ii) Partial credit was awarded to candidates who did not give a full description.

(iii) A confusion between pesticides and fertilisers meant that a large proportion of candidates did not gain full credit.

(b) Many candidates did not make the distinction between quantity and quality.

Question 2

(a) (i) The majority of candidates were able to transfer all the information correctly.

(ii) Many candidates made a suggestion that was not based on the report they had just read.

(iii) Many good suggestions were made in answer to this question.

(b) Very few candidates were familiar with the distinction between epicentre and focus.

(c) A large proportion of responses discussed magnitude differences and left little room for consideration of anything else.

Question 3

(a) (i) Most candidates were able to correctly plot the bars.

(ii) Few candidates gained credit for this question, with many calculations focusing on rainfall data.

(b) A large proportion of candidates misinterpreted this question and wrote about climate rather than the plants and so did not gain credit.

(c) A common error was to discuss the ways in which the machinery used might affect the soil. Few candidates clearly discussed the effect of forest tree roots and the protection to the soil afforded by trees.

Question 4

(a) (i) A significant proportion of responses gained full credit.

(ii) Most candidates gain credit for their description, but few named the process as irrigation.

(b) (i) Few candidates discussed what the gases did to buildings once dissolved in rainwater, or that they dissolved.

(ii) Few candidates gained credit for this question.

Question 5

(a) Many responses gave the correct order.

(b) (i) Although many candidates had some basic ideas about how cyclones might effect communities, few were able to write in enough depth to gain more than partial credit.

(ii) As in part **(b)(i)**, it was a lack of development, or the presentation of just one idea which limited the credit obtained.

Question 6

(a) (i) A significant majority of candidates were able to carry out these calculations correctly.

(ii) Many candidates wrote in general terms and did not compare Asia and Africa and spent a lot of time discussing the situation in Europe.

(b) (i) Although a reasonable proportion of candidates had some idea about the life cycle and transmission of the malaria parasite, many wrote vaguely about water based diseases with no creditworthy detail. Drinking of polluted water was a common incorrect response.

(ii) Many candidates were unable to suggest sensible strategies. A common incorrect response was to boil contaminated water.

ENVIRONMENTAL MANAGEMENT

Paper 0680/21

Paper 21

Key messages

More candidates than previously had spent time underlining key question words. This was time well spent. For example, candidates who underlined 'land based ecosystem' in **1(a)(iii)** and 'your chosen alternative energy source' in **2(d)(iii)** were more likely to give responses which directly met the question need.

Candidates are advised to pay attention to the number of marks given for the question. There were many instances of one example being given to two mark questions, such as **1(d)(i)**, **2(c)(iii)** and **2(c)(iv)**. A greater focus on the number of marks might have led the candidate to elaborate more fully or in greater detail.

Candidates should avoid beginning their response by repeating what is in the question. Sometimes this filled the first two or three lines of the answer, especially when background information was included as well.

General comments

The majority of candidates gained the first mark for an individual question, which showed their high comfort levels with the topics examined in this paper, even if answers were not then developed enough to gain full credit.

Question **1(a)(iii)** proved to be the hardest for candidates. Candidates appeared to be particularly comfortable with the questions on alternative energy sources in **2(d)**.

Comments on Specific Questions

Question 1

This question was generally well answered. Good familiarity with the topics examined was shown by virtually all candidates. The main controlling factor for variations in marks between candidates was consistency. Credit was lost when candidates failed to develop their answers in line with the number of marks available.

(a) (i) Partial credit was gained by most candidates.

(ii) Candidates who began their response with 'plants make their own food' (or similar) and explained briefly how they did this typically went onto gain full credit.

(iii) This part proved to be more challenging, not because of lack of understanding of the concept of food chain, but because the candidate needed to give a food chain specific to a chosen land based ecosystem. The majority of accurately completed food chains were given for the savanna lands of Africa; grass, zebra, lion and vulture was a common example used. Next in effectiveness were tropical rainforest examples. Much less effective were general food chains, unrelated to a named ecosystem, of the grass, rabbit and fox variety. Common incorrect examples were water based food chains.

(iv) The majority of candidates were precise and knew about the 90% reduction between each level in the food chain and correctly explained the losses.

(b) (i) A large number of candidates did not give both components. One was often replaced by water, or by an even more direct element of climate such as temperature or rainfall.

(ii) Biotic and abiotic were accurately separated by candidates who had named soils and animals.

(c) (i) Keeping the bars of equal width proved to be a greater challenge than correctly plotting the rainfall totals on the graph.

(ii) Describing the features of the vegetation shown on the cross section allowed candidates to gain partial credit. Additional information based on knowledge of the natural vegetation was mostly given for hot desert.

(iii) Most candidates agreed that rainfall variations were more responsible for vegetation changes in the tropics than temperature. This was explicitly stated in the best answers. It was followed by statements relating reductions in vegetation height and density from the coast moving inland to decreases in annual rainfall. Some candidates also commented on why temperature changes were less significant, along the lines that temperatures above 20ºC provide sufficient heat for plant growth. In weaker responses, the importance of rainfall for plant growth was described, but without any reference to this example. A few candidates chose temperature as being more important. The choice was justified by high tropical temperatures causing high rates of evaporation, most significant in hot deserts. This was an inferior choice, incapable of further development.

(d) (i) Partial credit was common for this question, with a lack of elaboration by many candidates.

(ii) Most divided bar graphs were accurately completed. A common misconception was to be show the tundra as four per cent instead of two, making the bar the equivalent of two squares in width.

(iii) Many candidates realised that differences in percentage losses between ecosystems were a reflection of how easy or not it was for people to make a living and also went onto give a balance in content between the tropical and polar parts of the question. Candidates who spent more time describing the size of the differences between ecosystems, rather than suggesting reasons for them gained less credit.

(e) (i) and (ii)

The choice of sustainable forest management strategy was critical to the success or otherwise of the response in **(ii)**. Of the strategies named in the syllabus, reforestation and selective logging (i.e. sustainable harvesting of hardwoods) were the most popular choices. Both allowed good opportunities for further description in the first part of the question and giving reasons to explain their limited use in the second part. Some candidates chose replanting in **(i)**, but then only gave one outline reason in **(ii)**, such as more costly or takes more time and gained partial credit.

Question 2

Within **Question 2**, part **(d)** was the best answered part.

(a) (i) Some candidates stopped the bars too short and did not draw them the same width as the ones already given.

(ii) Many candidates distinguished between the top three world regions (developed) and the rest (developing) by appropriate shading of the key

(iii) Most candidates chose the label ‘developing’ and explained on the basis of lower carbon dioxide emissions per person. A few chose ‘developed’ and explained on the basis of the presence of oil-rich countries within the Middle East. The level of explanation was key to gaining full credit.

(iv) The majority of responses were between 18,100 and 18,300 kilograms.

(v) Almost all candidates began to give the answer needed, often citing the greater numbers of fossil fuel burning industries and cars in the USA compared with Ethiopia. More able candidates also stated information for Ethiopia, about its lower level of economic development and greater rural population and the likely lower fossil use in a country where farming remains the dominant activity.

(b) (i) Sulfur dioxide was stated by some candidates, but its main importance is as a cause of acid rain.

(ii) This was well answered by most candidates. Some responses confused the greenhouse effect with the hole in the ozone layer. It was well known that greenhouse gases allow short-wave light radiation from the sun in and trap some of the long-wave heat radiation from going out, however this was not always stated in a precise way.

(iii) Many candidates correctly separated out physical evidence and effects from causes and attempts to reduce the effects.

(iv) Some candidates relied too heavily on using the statements in the box and added little in the way of comment to explain variations in concern between countries. Some successfully developed their answers around examples of countries likely to be most affected, notably Bangladesh and the Netherlands, and gave reasons about why they have more to worry about than large countries like the USA and Russia. Less able candidates gave responses which referred either to low lying countries at risk of flooding, but without naming examples, or to poor countries heavily reliant on farming, which are the ones most likely to be most affected by changes in weather and climate.

(c) (i) The best four sectors to shade on the pie graph were energy supply, manufacturing industry, transport, and heating and lighting buildings. One or more of these were frequently omitted, sometimes replaced by one that was non-applicable, such as forest clearance

(ii) Many candidates did not realise that the pie graph was already marked at ten per cent intervals, to help them and to avoid the need for calculations.

(iii) Forest clearances was the most popular choice. Candidates who described more fully, or looked for a second way in which greenhouses gases were emitted, were more likely to gain full credit.

(iv) Most candidates gained credit for reference to the dominant size of the total percentage in the graph. Few responses provided a supporting comment about their widespread, everyday or essential uses.

(d) (i) Virtually all candidates included the common characteristic of these alternative sources that they will not run out, usually by stating that they are ‘renewable’. Fewer candidates included the second, that they are all natural sources.

(ii) Most candidates gave two reasons, such as more expensive and limited availability; non-established usage or unreliable efficiency were also quite commonly included as one of the reasons.

(iii) Many good responses were given especially from candidates who referred to examples. This was done either by naming a dam for hydro-electric, or by naming countries with suitable natural conditions, such as Iceland for geothermal. A good level of knowledge about harnessing the energy source chosen was shown. A few candidates answered in relation to wind power; this did not gain credit as it was not one of those named in the diagram.

(iv) Responses needed to be specific for the source described in **(d)(iii)** and not just about alternative sources in general. For the resource that had been chosen, it did not matter whether the candidate’s view was optimistic or pessimistic; it was the appropriateness of their explanation that determined the mark. Some of the best responses in this part were related to solar power, especially from candidates who were aware that the price of solar panels is falling fast. It was easy to relate this to the universal availability of solar energy.

(v) This question was the opportunity for candidates to refer to alternative energy sources as a whole. The typical response included references to the finite nature of fossil fuels and the growing pressure on governments to limit emissions to reduce climate change and global warming. Those candidates who went further and included another element, such as research and development likely to lead to new technology and cheaper alternative sources of energy often gained full credit.

ENVIRONMENTAL MANAGEMENT

Paper 0680/22

Paper 22

Key messages

More candidates than previously had spent time underlining key question words. This was time well spent. For example, candidates who identified the command word 'Describe' by underlining in **1(b)(i)** were more likely to concentrate only on stating what the three estimates showed.

Candidates are advised to pay attention to the number of marks given for the question.

Candidates should avoid beginning their response by repeating what is in the question. Sometimes this filled the first two or three lines of the answer, especially when background information was included as well.

General comments

Candidates seemed to find little difference in overall level of difficulty between the **Questions 1** and **2**.

In general, candidates were more comfortable describing from the graphs, such as the world population graphs in **1(a)(ii)** and **1(b)(i)**, than with suggesting reasons as in **1(b)(ii)** and **1(c)(ii)** and **(iii)**. The three parts of **2(c)** proved to be more challenging than parts **(a)**, **(b)** and **(d)**. Often candidates took insufficient account of that part of the question 'for the people referred to in box P' in **2(c)(i)**, which led to answers of a more general nature about the economic costs of dam building for a country. Environmental problems in **2(c)(ii)** were often directed towards the farmland abandoned (without apparently recognising that it was all under water) instead of for the increase in farming on the higher slopes and its consequences. In **2(c)(iii)** the loss of dam usefulness was viewed by many in terms of replacement by other energy or water sources, instead of siltation leading to reduced water holding capacity. In **2(e)(i)**, some candidates were well into the question before they clearly recognised that referring to squatter settlements (or slums / shanty towns) was the key to answering. Able candidates were usually the ones with a good knowledge of a slum clearance scheme in a city in Pakistan, India, Brazil or Egypt in **2(e)(ii)**.

Comments on Specific Questions

Question 1

This was well answered, as candidates showed that they were familiar with the topics examined. Credit was lost when candidates' responses were not directly focused on what was being.

(a) (i) A common incorrect response was 1700, from candidates who did not look at the scale carefully enough; the great majority gave the correct answer 1800.

(ii) Almost all candidates noted the differences in speed of growth before 1900 compared with that after the turn of the century. Use of supporting values enabled candidates to obtain full credit. Some candidates incorrectly quoted population totals at different dates, directly from the graph, without any accompanying description of population growth.

(b) (i) Full credit was obtained by candidates who noted what the total population was expected to be in 2010. Some candidates gave full description without mention of population totals and these gained partial credit. Some responses contained brief description, without references to totals or dates. These also gained only partial credit.

(ii) Some candidates gave general responses about the problems of making population predictions; others chose one theme throughout (such as birth control) and tried to apply it individually to each of the three estimates. Both had varying degrees of success. In general, the most productive approach was to take each one separately and refer to a mixture of reasons, especially availability of birth control measures, pressure on the Earth's resources and new technology.

(iii) Full credit was awarded to candidates who explained more broadly, or referred to an example.

(c) (i) Most candidates correctly identified 40 years.

(ii) Candidates who selected one reason only for differences in life expectancy were more likely to obtain full credit. The most common response was medical; however wealth and clean water were also accepted.

(iii) Many responses were a continuation of what was included in **(ii)** and these tended to lack any references to reasons that could explain the really low life expectancies, such as wars and particular diseases like HIV/AIDS. Afghanistan, South Africa and Sub-Saharan Africa named in the life expectancy graph were included as a trigger for these. Full credit was obtained by candidates who were focused more tightly on one reason in **(ii)**, such as medical, and referred to at least two totally different reasons in **(iii)**, such as wars, natural disasters or clean water supplies.

(d) (i) Candidates who used comparative terms such as broader base for Nigeria and taller pyramid for Japan were likely to gain full credit. The overall shape for Nigeria (more of a pure pyramid) was easier to describe than the more irregular, upright shape for Japan. A common incorrect approach was to answering by comparing percentages.

(ii) Occasionally whole bars or parts of bars for the under 15s and/or above 65s were left unshaded on the pyramids. However, the vast majority of candidates gained credit.

(iii) This question was answered equally well by candidates who focused on the 15-64 age group as the working population and independent, and by those who concentrated on the other two groups as dependent non-workers. The relatively few unsuccessful responses were given by those who stayed with the pyramids and did no more than compare relative sizes of these age groups between Nigeria and Japan.

(iv) A common incorrect response was 22%,.

(v) Virtually every candidate followed the question instruction to look for both advantages and disadvantages. The most successful responses gave a range and a reasonable balanced between the two.

(vi) Candidates who chose disadvantages seemed to find it easier to develop their answers towards full credit, particularly if they made reference to pressure on resources.

(e) (i) **C**andidates needed to include the idea of an increasing percentage or large numbers of old people in a country. Many of the attempts were too static to gain credit and not entirely correct such as 'more old people than young people' or 'it refers to people aged 65 and older'.

(ii) The main errors were from candidates who attempted to plot the three age groups by starting all of them from the base of the country's bar, so that they were superimposed and unreadable.

(iii) The award of full credit depended on the amount of detail given by candidates. Mention of pensions, medical provision or care homes, with comment about the elderly retired costing money as the tax base is reduced, was the most direct route to three marks.

(iv) Many candidates found this question difficult. The poor choice of UK could lead to only partial credit, based on the UK's smaller percentage of working population in 2010. The choice of Japan, tended to refer only to the working population becoming more elderly in future. Full credit was gained by those who incorporated references to fertility data as well. A lot of candidates failed to use all the population information available in the table.

Question 2

Within **Question 2**, candidates showed that they were much more comfortable with the questions that formed parts **(a)**, **(b)** and **(d)**. These were consistently better answered than those in parts **(c)** and **(e)**.

(a) (i) Most candidates gained partial credit for correctly naming the water cycle processes in the boxes. Percolation in **F**, groundwater flow in **G** and surface run-off in **H** were more likely to be incorrect than condensation in **D**, precipitation in **E**, transpiration in **J** and evaporation in K.

(ii) There was generally good understanding about the water table and its importance for clean well water supplies, as well as for irrigation in dry areas..

(iii) The majority of candidates correctly gave rainfall or precipitation.

(iv) Many responses know that the mountain location was important, but candidates struggled to state exactly how. Precise statements, such as steep sided mountain valley, steep slopes around it for fast run-off and higher precipitation in mountain areas, were the common ones.

(b) (i) Some candidates used an example of a dam in their own country; others relied upon one of the world's well known large dams, notably Aswan High Dam in Egypt, or Three Gorges Dam in China, or Hoover Dam in the USA. Nearly everyone who gave a name, also attempted to state a location.

(ii) Some candidates took note of 'for people living in the area around it' part of the question. Two of the most common answers of electricity supply and irrigation, were of little relevance to people living around the edges of the reservoir.

(iii) Virtually all candidates recognised that electricity was made at **M** on the diagram.

(iv) Most candidates realised that the water was being used for irrigation, even if only a limited number described the network of channels or canals shown.

(c) (i) Candidates needed to take note of 'for the people referred to in box **P**' in the question. This stopped them from concentrating their responses on the high costs of dam building for developing countries. Those who focused their answers on local people from the beginning typically gained more credit. Most candidates also included both social and economic problems. The issues were well known, when the correct route to answering was followed.

(ii) Successful responses focused on farming on higher slopes being the trigger for references about the greater likelihood of soil erosion on steep slopes, leading to increased run-off, and leaching of minerals into the reservoir. With this approach, full credit was common. Less able candidates did not establish the correct context, as all their comment was directed towards what would happen to the abandoned farmland, without any realisation that it would all be under water.

(iii) Better responses focused on sediment accumulation, leading to reduced water capacity. Some candidates missed the point of the question by referring to a greater preference for other energy sources, or by suggesting reasons why water supplies to the dam might be reduced.

(d) (i) The best responses were from candidates who clearly kept the environmental problems separate from the economic ones. This meant that the environmental was covered in adequate detail so that the overall answer was well balanced between the two and not over-dominated by economic problems.

(ii) Many candidates correctly made reference to population decrease.

(iii) Push factors needed to dominate in candidates' responses. These also needed to include a comment about their relative strength in order to claim full credit. This was sometimes achieved by reference to likely pull factors of urban areas.

(iv) Some candidates continued their answers from the previous part, referring to deteriorating soils or falling water supplies, and typically gained partial credit. Full credit was awarded if candidates then commented on the likely limited sustainability of the new activities (catching crabs and collecting firewood). A few also correctly expressed the view that the present resources may now be adequate to support the remaining population after so many had already left and gained full credit.

(e) (i) Some candidates did not realise that the key to answering this part was to refer to squatter settlements. This led to general responses which relied heavily on terms such as congestion, lack of electricity and sanitation and tended to gain partial credit. Candidates who began by mentioning slums, and referring to building materials, lay out, inferior locations or poor services were more likely to be awarded full credit. The most common award of credit was for reference to easy spread of disease, which was included in a variety of different contexts.

(ii) Some excellent responses were given by candidates with a clear knowledge of an example of a scheme for improving slum housing in a developing world city. The most popular choices were Karachi, Mumbai, Chennai and Cairo. Other candidates referred to community self-help schemes or slum clearance into apartments in a more general way and gained partial credit. A few candidates incorrectly named developed world cities such as New York and Tokyo.

ENVIRONMENTAL MANAGEMENT

Paper 0680/23

Paper 23

Key messages

Candidates who spent time underlining key question words, were less likely to miss key words, phrases and statements in the question. Credit was lost by candidates who failed to take sufficient account of 'how many times' in **1(c)(i)**, 'line graph' in **1(e)(i)** and 'since 1990' in **2(c)(ii**).

When asked to describe what a graph shows, candidates should always quote supporting values, even when they are not directly asked in the question. Candidates should also look at the number of marks for the question.

It is advised that candidates should not begin by repeating what is in the question, as this can fill the first two or three lines of the response space, especially when background information is included as well.

General comments

Candidates seemed to find **Question 1** slightly easier than **Question 2**.

Within **Question 1**, the main weakness was not providing sufficiently detailed answer to gain full credit, especially in the longer questions worth four or five marks. Questions such as **1(d)(iii)**, **1(e)(iii)** and **1(e)(iv)** suffered from candidate responses which stopped before the full breadth of the question had been covered.

Within **Question 2**, what seemed to be most unfamiliar to candidates was the world map of ocean currents and major ocean fisheries in **2(a)**. Many candidates were not able to distinguish between warm and cold ocean currents. Further into the question, candidates showed themselves much more familiar with overfishing and its causes.

Comments on Specific Questions

Question 1

(a) (i) Only a few candidates chose the correct answer of 0.039 in **(a)(i)**.

(ii) The majority of candidates gained partial credit for naming photosynthesis and trapping the Earth's heat. Those candidates who were awarded full credit were more likely to give supporting details for trapping the heat, particularly in terms of stopping the Earth becoming too cold for life. Supporting details about photosynthesis were given less frequently.

(b) (i) Many candidates found it difficult to state that there was no difference in heat gain from sunlight between the two dates.

(ii) The majority of candidates correctly answered this question.

(iii) This question was also answered well.

(iv) Many candidates showed that they understood outgoing heat being trapped better than incoming sunlight being allowed to pass through. Common incorrect responses indicated that the hole in the ozone layer was most responsible for the greenhouse effect.

(c) (i) The most common incorrect response was 800 years, instead of five times longer. Having worked out the difference as 800, some candidates ended up with the answer of four times longer. These

candidates were using the difference, instead of the value of 1000 years on the graph to relate to the 200 years for carbon dioxide in the graph.

(ii) This question was well answered by those candidates who quoted percentages from the graphs. The majority of candidates made sufficient reference to the graphs but without full coverage, and the support of an adequate amount of comment, were only awarded partial credit.

(d) (i) Candidates were very familiar with carbon dioxide emissions from burning fossil fuels and car engines running on petrol. Some candidates knew the sources of CFCs (refrigeration and aerosols) from study of the hole in the ozone layer.

(ii) Deforestation was the response required, but not always given. Instead, one of the human sources from the previous question was frequently entered.

(iii) Most candidates agreed with the statement. Many candidates elaborated upon some of the everyday activities related to cooking, work and transport which led to greenhouse gas emissions from all and gained partial credit. More able candidates followed this up by pointing out how variations in emissions per head between countries were of great importance, and tried to explain why.

(iv) Some candidates incorrectly explained that the hole in the ozone layer increases global warming.

(v) The link between an increasing amount of UV light reaching the surface and increases in skin cancer was widely known.

(e) (i) The majority of candidates provided correct graphs. If there was a mistake in plotting, it was most likely to be among the first three plots up to 1900. A few incorrectly drew bar graphs.

(ii) Some candidate only described the overall increase, from 40 in 1860 to 380 in 2000 and so gained partial credit.

(iii) The most common response was to state the advantages of using fossil fuels and compare these with the problems associated with the use of alternatives and were awarded partial credit. Broader coverage was required for full credit. This was often done with comment about the difficulties of reaching any international agreements and implementing them or by referring to developing countries and explaining how their priorities are different.

(iv) The best responses were given by candidates who were able to use named examples of countries and places. Comparisons were made between countries with long low lying coastlines, including some cities known to be at high risk of sea flooding such as Venice, and those that were landlocked such as Bolivia. Without these specific references, responses gained partial credit.

Question 2

(a) (i) Some candidates correctly identified which were the warm currents in the key. Some candidates referred to them as hot currents.

(ii) The current most likely to be identified and named was the Peruvian (Humboldt) current. Some candidates, labelled it El Nino, the climatic effect rather than the current.

(iii) Only a few candidates accurately marked letters A and B at the meeting of warm and cold currents off Labrador and north east of Japan. Instead, where the cold Peruvian current ended and the warm Equatorial current began was a frequently chosen point.

(iv) Partial credit was gained my many candidates for ocean currents carrying nutrients and mentioning upwelling of nutrients in cold currents (as off the coast of Peru). The mixing of different nutrients where warm and cold ocean currents meet was little mentioned.

(v) Some candidates continued to refer to ocean currents, which were ruled out in the question. Candidates who searched for reasons that were totally different achieved more credit. They were most likely to refer to high levels of economic development of many countries towards the north of the northern hemisphere, which enables the use of the latest fishing technologies. Few candidates referred to the wide expanses of continental shelves and extensive shallow areas of coastal water.

(b) (i) The majority of candidates plotted the pie graph correctly. However, some candidates calculated degrees for each of the sectors, despite 10 per cent intervals being marked on the graph.

(ii) Good use of the percentages to come to the conclusion that 80% of the world's ocean fisheries were fished up to or beyond their fishing potential (or that only 20% were fished below what fish numbers could take) was required. This pointed to a clear conclusion that there was little room for further expansion. Many candidates took the unlikely optimistic view, that there was still plenty of future ocean fishing opportunities, since only 20% were currently overfished. This did not fit well with what was to follow in the next part of the question.

(c) (i) The majority of candidates noticed the dramatic decrease in Newfoundland cod fish stocks between 1960 and 1990. Full credit was obtained by many candidates, who also described the variations between these dates, particularly if their descriptive answers were supported by the use of values.

(ii) The **c**andidates who suggested reasons, such as overfishing to the point of non-recovery, that stocks had fallen below the limits needed for breeding and possible continuing effects of illegal fishing were able to gain full credit. Irrelevant responses included suggestions for the big decrease before 1900.

(iii) Candidates who noted the increase since 1994 often went onto discuss how the measures introduced were having an effect, even if stocks had not yet recovered to levels previously seen in the early 1960s. Some candidates came to the conclusion that compared with Newfoundland cod, the Georges Bank haddock had been saved in time. These responses gained full credit.

(iv) This question was one of the best answered on the paper. Quotas and net limits were the two most popular choices. Naming the method was almost always supported by adequate description, so that full credit was regularly seen.

(d) (i) and (ii)

Many candidates noted the general decrease from 1960 and the somewhat larger decrease between 2000 and 2005. A response along these lines increased the chances of the candidate gaining full credit in **(d)(ii)**. This was because they were more likely to suggest that from 2000 there was a real threat of tuna being overfished. Other candidates who gave answers of 'not much change / remained the same in' **(i)**, were less likely to see any risk of overfishing when answering **(ii)**.

(e) (i) Candidates drew and labelled a wide variety of diagram types. Partial credit was awarded to most candidates for any partly complete food chain relating to this example, such as plankton to anchovies, or sardines to tuna. Further credit was obtained for a more complete food chain, such as plankton, then to herring and then to cod. Full credit was reserved for diagrams showing more intricate food chains, including more of the species named in the article.

(ii) The most common response was to agree and then explain that fishermen catching more sardines would relieve the pressure on other types of fish, giving cod and tuna stocks more time to recover. Less common responses, but equally valid, disagreed with the view. Only the more able candidates argued along the lines that loss of sardines would reduce food stocks for larger predator fish, taking out another layer in the food chain, thereby contributing to the over-use of marine resources.

(f) (i) and (ii)

Two of the most popular example choices were the Gulf War from Iraq's invasion of Kuwait, and much more recent, the BP well disaster in the Gulf of Mexico. These choices gave plentiful opportunities for gaining full credit in **(f)(ii)**, provided that candidates included sufficient specific information about their causes and impacts. Some other candidates chose badly littered stretches of coast; this was a less good choice if the focus was on the beach, rather than coastal waters. A few chose examples of pollution, which were more river than coast. If no example was named, only partial credit could be awarded in **(f)(ii)**, for general statements about marine pollution.

ENVIRONMENTAL MANAGEMENT

Paper 0680/03

Coursework

General comments

A good range of environmental issues continue to be chosen by candidates.

Many candidates plan the collection of their data well and present their material in a professional way. However, there is often less thought given to how the issue is to be resolved, using an analysis of choices available, with a detailed assessment of the pros and cons of each. Candidates frequently do release that the final conclusion of their investigation is the most important part of the investigation

Most Centres continue to provide excellent comments to support their marking.

Comments on specific questions

Domain A

Domain A continues to be an area where candidates gain most credit. This indicated some excellent teaching of the processes stated in the specification.

Domain B

Opportunities for experimental work were not always taken up by candidates. However, there was some very thorough survey and questionnaire work. In some instances, sample sizes were too small to be of much use and too narrow in their selected population. Interviews tended to be well analyzed by some candidates, but others lacked detailed post-interview commentary. Secondary data, such as newspaper articles, were well used by most candidates.

Domain C

This important aspect of the coursework remains an area were candidates gain less credit. The main concern is a lack of a thorough consideration of possible choices. An evaluation of the consequences of each process is important, so that a plan of action can be formulated which includes a consideration of its impact.

ENVIRONMENTAL MANAGEMENT

Paper 0680/41

Paper 41

Key messages

Centres are encouraged to work through past papers to help candidates improve on their exam technique and make the best use of the information given for each question.

General comments

This paper invited candidates to consider environmental issues and methods of gathering and interpreting data in the context of one country, Peru. Many candidates understood and made good use of the source material and their written responses were sufficiently clearly expressed. The mathematical and graphical questions did pose some difficulties for a minority of candidates.

Candidates had no problems completing the paper in the time available.

Comments on specific questions

Question 1

(a) The advantages of improved trade links were well understood. Most candidates wrote about increase in foreign currency and some developed their ideas about jobs and standard of living

(b) (i) Most candidates suggested valid ways in which the ecosystem would be altered by the introduction of a new species of fish. Eating the carache fish and competition between species were the most common ideas. However, some discussed the impact of fishing and ignored the idea of ecosystems.

(ii) The most common answers were 'to compare' and 'accuracy'.

(iii) This was correctly answered by most candidates, although some incorrectly said it was to keep it fresh for eating.

(iv) This graph plotting exercise revealed a common mistake of omitting the labelling of the axis. The plotting of data was correctly carried out.

(v) Candidates found reading correct values from a graph. A large number of errors were seen, many candidates incorrectly wrote 320 and 120.

(vi) Most candidates attempted to describe the relationship between mercury and fish length. However, few were awarded full credit. There were frequent suggestions that mercury helps fish grow and some got it the wrong way round, saying that smaller fish have higher mercury concentration.

(c) Many candidates gained credit by quoting figures, but few wrote about the pattern of decreasing downstream.

(d) (i) Most candidates realised that if the scientist bought frogs it would simply add to the problem of declining frog numbers.

(ii) There were some suggestions that were too vague to gain credit and some candidates were clearly not describing sampling in a market.

(iii) Most candidates produced a sensible table and gained maximum credit.

(e) (i) There were more combinations given as answers than should have been the case.

(ii) Nearly all candidates presented correct answers.

(iii) Many different answers were presented. The difficulty seemed to be that they could not focus on one figure as the anomaly, or they tried to describe the quadrat. Another mistake was quoting number 6.

(iv) The most frequent answer was that adults were caught for sale, the alternative was that they had just reproduced.

(v) A great many clearly stated answers were seen.

(vi) Many candidates re-visited the market idea, rather than extending any field survey. Only a minority of candidates made valid suggestions.

(f) (i) Most candidates made sensible suggestions about breeding in captivity.

(ii) Candidates made sensible suggestions about conservation of endangered species.

Question 2

(a) (i) Nearly all candidates correctly stated the percentage of other types of waste.

(ii) Those who chose organic waste found it difficult to discuss how it was recycled. The best responses chose tins or plastic and discussed the idea of it melting.

(iii) Many candidates stated less pollution as an environmental advantage. The idea of using less resource to manufacture a product was also given in many cases.

(b) (i) If newspaper was chosen as the least profitable material, candidates frequently went onto gain full credit. Some candidates found it hard to identify the profitability of the different materials.

(ii) Many picked up on the idea of profitability for iron and plastic waste, but rarely developed their answer further.

(c) (i) Many wrote rather lengthy answers, usually they gained credit, but a minority of answers remained too vague.

(ii) The candidates that understood tally charts gave the correct response. A significant minority gave the wrong answer of 51, by adding up the answers.

(d) (i) Some candidates correctly tallied the number of waste collectors.

(ii) There were a wide range of computations, only some of which provided the correct answers. There are always calculations in this examination to test data handling skills.

(e)(i) Most candidates appreciated that there would be less waste around the city.

(ii) Some answers discussed taxing or charging local inhabitants, rather than selling the waste collected.

(iii) There were many answers about improving health that gained credit. Although some candidates mentioned tourism, this was often not developed enough.

(iv) Nearly all candidates commented on the idea of lack of profit and loss of jobs.

(v) Very few candidates mentioned limiting the number of visitors and only noted the idea of ecotourism. There was much discussion about sport fishing, boats, and piped water supply.

ENVIRONMENTAL MANAGEMENT

Paper 0680/42

Paper 42

Key messages

Centres are encouraged to work through past papers to help candidates improve on their exam technique and make the best use of the information given for each question.

General comments

This paper invited candidates to consider environmental issues and methods of gathering and interpreting data in the context of one country, Pakistan. Many candidates understood and made good use of the source material and their written responses were sufficiently clearly expressed. The mathematical and graphical questions did pose some difficulties for a minority of candidates.

Candidates had no problems completing the paper in the time available.

Comments on specific questions

Question 1

(a) (i) The problems of frequent power cuts were well described by nearly all candidates.

(ii) and **(iii)**
Most candidates found the process of identifying the largest and smallest decrease demanding and gave incorrect answers. The reasons given to support their selection were often too vague to gain credit. Overall this question proved very difficult for candidates.

(b) (i) Nearly all candidates gave good reasons for the increase in the price of milk. All the expected answers were seen regularly.

(ii) The table was nearly always completed correctly.

(iii) Most candidates gave sensible reasons to explain why some farmers could not start the 50 animal project.

(iv) Most candidates plotted very clear graphs. Only a small number failed to provide any form of key to distinguish the cow and buffalo plot. Some axes were not clearly labelled.

(v) The changes in milk output were correctly described by nearly all candidates.

(vi) This question was meant to be more demanding, only a small number of candidates suggested the idea that there had been improvement in milk output by cross breeding.

(c) (i) The uses of the land shown in the photograph were generally well described and the majority attempted to describe three different uses.

(ii) Many candidates found it difficult to put themselves in the position of the urban dairy farmer. There were surprisingly few candidates who mentioned the advantage of being close to a large market for their milk or being able to supply very fresh milk.

(iii) There were many excellent descriptions of the risks during heavy rains. All the expected marking points were seen regularly.

(iv) The majority of candidates suggested why dung was used as a fuel.

(v) Nearly all the candidates understood that dung can be used as a fertiliser or a fuel, but not both.

(d) (i) Many candidates did not seem to appreciate the risks to the people carrying out the cooking inside buildings. Instead there were inappropriate suggestions about global warming and acid rain.

(ii) There was a wide range of answers, many clearly demonstrating an understanding of sustainable activities. Answers that relied on the bullet points given in the question, without any further ideas of their own, did not gain credit.

Question 2

(a) (i) Nearly all candidates correctly suggested at least one advantage of building new power stations.

(ii) Most candidates inspected the table of data and correctly identified a sequence of villages in the table.

(iii) Many candidates had a clear understanding of the causes of poor growth in children.

(iv) This question required careful consideration of the data presented. Most candidates correctly suggested there was no link between these diseases and the coal mine. Supporting reasons, that used the data, were given by a good number of candidates.

(v) Some candidates suggested the need for blood samples, with was not necessary. All the expected answers were seen regularly.

(b) (i) Candidates often suggested the quantity of coal dust must be kept the same. Some answers were repetitions of the method points described, these were not correct.

(ii) There were a large number of well constructed answers to correctly describe what the experimenter found out.

(iii) There was a wide range of sensible suggestions as to what else could have been measured.

(iv) Most candidates clearly understood that the coal dust would reduce the absorption of light and therefore the rate of photosynthesis.

(c) (i) Most candidates correctly suggested coal dust reduces the number of tree species.

(ii) Few candidates gained credit for this question. Although some correctly realised the explanation hinged around wind directions.

(d) There were many thoughtful responses that gained maximum credit. Most candidates did explain different points of view to provide a balanced response.

ENVIRONMENTAL MANAGEMENT

Paper 0680/43

Paper 43

Key messages

Centres are encouraged to work through past papers to help candidates improve on their exam technique and make the best use of the information given for each question.

General comments

This paper invited candidates to consider environmental issues and methods of gathering and interpreting data in the context of one country, Peru. Many candidates understood and made good use of the source material and their written responses were sufficiently clearly expressed. The mathematical and graphical questions did pose some difficulties for a minority of candidates.

Candidates had no problems completing the paper in the time available.

Comments on specific questions

Question 1

(a) (i) The value of anchovy fishing to the economy of the country was not always well expressed. Some candidates only repeated information given in the introduction, without adding any of their own words.

(ii) Most candidates found this calculation demanding. In many cases, they selected correct figures from the graph but then carried out the wrong process.

(iii) Candidates often produced more complicated sketch lines than were required. A significant minority did not clearly indicate the El Nino events as asked.

(iv) The effect of El Nino on fishing was often partially described. To give a complete answer, a candidate needed to make it clear that the fish recovered again.

(b) (i) The need to license fishing boats was well understood.

(ii) Most candidates did not seem to grasp the idea that an old boat would have to come out of active fishing before any new license could be granted.

(iii) The measures to control the total catch were generally well understood. However, some ideas were not clearly explained. Candidates needed to be careful about their claims for net size and mesh size of the net.

(iv) Most candidates were able to describe effective enforcement measures used to control fisheries.

(c) (i) The problems caused by the 'race for fish' were generally well described by candidates.

(ii) Many candidates found it difficult to answer this question clearly. They seemed to appreciate that some fish could be caught illegally but did not suggest it would be impossible to check every landing during the 'race for fish'.

(iii) Most candidates could explain the advantages of changing the boats allowed to fish each day. An idea needed to be developed further to gain maximum credit.

(d) (i) Candidates that inspected the flow chart carefully often gave a correct answer. A minority of candidates seemed to not appreciate the answer was presented on the flow chart.

(ii) Many candidates did not seem to appreciate that the surveys determined when fishing would be stopped. There were many vague answers that did not gain credit.

(iii) Some candidates failed to fill in the blank boxes on the flow chart and in other cases the answers were incorrect. However, a good many candidates realised both boxes must have the same entry.

(e) (i) Candidates appreciated the dangers of fishing every day and there were many good answers gaining maximum credit.

(ii) Many candidates found this question demanding, as they did not address the long term advantage of controlled fishing to the fishermen.

(iii) The table was nearly always completed correctly.

(iv) The computations to find out the boat with the highest and lowest pay were usually carried out correctly.

(v) Candidates were asked to explain why the anchovy was now being fished in a sustainable manner. Nearly all candidates gained partial credit.

Question 2

(a) (i) Nearly all candidates correctly suggested a way in which eating fish improves health.

(ii) Those who chose organic waste found it difficult to discuss how it was recycled. The best answers came from those who chose tins or plastic and discussed the idea of it melting.

(iii) Many candidates gained mark from their suggested benefits of the fish promotion. A minority went on to develop their answer, usually considering the longer term effect of the promotion.

(b) A significant minority of candidates tried answering the question without any regard to the data given. Some candidates often took the incorrect view that people face severe climatic difficulties.

(c) (i) Many candidates did not gain maximum credit as they needed to expand their ideas in their own words, rather than relying heavily on the statements given in the question.

(ii) As in part **(c)(i)** there were some very good questions presented by thoughtful candidates.

(iii) There were many clear answers that gained maximum credit.

(iv) The graphs were nearly always clearly plotted and labelled.

(v) A significant minority of candidates suggested valid answers.