ENVIRONMENTAL MANAGEMENT

Paper 0680/11

Paper 1

Key Messages

Candidates should:

- look carefully at the command words
- take into consideration the number of marks and writing space available
- give accurate data when describing graphs.

General Comments

Most candidates had no problems completing the paper within the required time. Many candidates demonstrated a good knowledge and understanding of the syllabus. Some candidates demonstrated the skills required to analyse data. Weaker candidates wrote rather vaguely about topics and their answers tended to contain repetition.

Comments on Specific Questions

Question 1

(a) Most candidates performed well on this question.

(b) (i) Some weaker candidates lost marks for not matching their shading to the key.

(ii) The most successful answers explained how deforestation would increase carbon dioxide emissions as trees remove carbon dioxide from the atmosphere via photosynthesis.

(iii) Most candidates wrote about global warming. Other environmental problems most often mentioned were climate change, melting ice caps and glaciers, rising sea-levels and floods. Some confused the greenhouse effect with ozone depletion.

Question 2

(a) (i) Most candidates performed well on this question.

(ii) The majority of candidates were able to gain credit for describing how fertilisers add nutrients/minerals to the soil and pesticides remove the pests which damage or eat crops.

(b) Candidates should be reminded to show working in calculations such as these. In some cases this allows partial credit to be awarded if the working is clear.

(c) Some candidate's answers were too vague for credit. A few candidates offered the same advantage for each, which was limiting.

Question 3

(a) (i) Weaker candidates focussed on an explanation about the Equator being closer to the Sun than the poles. This should be addressed wherever possible.

(ii) A number of weaker candidates wrote about the whole of the map instead of the temperatures along the line.

(b) (i) Most candidates could name two alternative energy sources other than energy from the Sun. A number wrote 'energy from water' when they needed to be more precise and name hydro-electric power, wave power or tidal power for credit. A significant proportion of weaker candidates quoted solar, suggesting that they had not read the question carefully enough.

(ii) Many candidates suggested the use of solar panels. Stronger candidates made it clear that their suggestion was a local one and gave a small-scale example.

Question 4

(a) Some candidates limited their answer to describing places on the map where major ocean fisheries are found, with no explanation. There were some competent explanations from the stronger candidates.

(b) (i) Few candidates were able define the word sustainable clearly.

(ii) Most candidates started their answers by agreeing with the statement from the book but less supported their view with evidence and calculations from the pie graph information.

(iii) Answers describing strategies for the sustainable harvesting of ocean fisheries were mostly successful. There were some detailed answers about closed seasons, quotas and restricted areas. A number of candidates confused net size and mesh size in their descriptions.

Question 5

(a) (i) Stronger candidates made use of the direction arrow on the map. Some weaker candidates wrote about types of plate boundaries instead of answering the question as set.

(ii) Few candidates could explain why earthquakes were frequent in the area. There was some mention of movement and pressure in answers. Few candidates included the idea of friction.

(b) (i) This was answered successfully by many of the candidates. However, the weakest candidates appeared to be attempting to add up all or some of the figures instead of stating the range of the numbers of deaths.

(ii) Most answers described how some areas of the world/countries/cities were better prepared than others with regard to earthquake-resistant buildings, rescue teams, training and educating people. Few answers considered population density or time of day.

(c) Some explanations were confined to how volcanoes can be monitored and predicted but earthquakes cannot. A number of candidates appeared to confuse the words predict and prevent in their answers. It was quite rare for these answers to refer to volcanoes being remote or the effects of eruptions being more localised.

Question 6

(a) (i) Most candidates obtained the majority of the credit available in this question.

(ii) Most candidates gained at least partial credit for one example of a human activity that might affect an ecosystem.

(b) (i) Many candidates successfully explained how deforestation causes soil erosion.

(ii) The better answers described how large-scale tree planting and windbreaks conserve soil. The concepts of contour ploughing and terracing often lacked clear descriptions when offered.

ENVIRONMENTAL MANAGEMENT

Paper 0680/12

Paper 1

Key Messages

Candidates should:

- look carefully at the command words
- take into consideration the number of marks and writing space available
- give accurate data when describing graphs.

General Comments

Most candidates had no problems completing the paper within the required time. Many candidates demonstrated a good knowledge and understanding of the syllabus. Some candidates demonstrated the skills required to analyse data. Weaker candidates wrote rather vaguely about topics and their answers tended to contain repetition.

Comments on Specific Questions

Question 1

(a) (i) Some answers contained confusion between the two types of factor. Stronger answers contained clear examples for each.

(ii) Many candidates were unable to write convincingly about these lifestyles, all three of which are mentioned on the syllabus.

(b) (i) Although a large number of candidates answered this question well, a significant minority wrote about the effects of deforestation rather than its causes.

(ii) This was quite well answered but a significant proportion of candidates wrote about increasing timber production or sustainable harvesting.

Question 2

(a) (i) Many candidates limited themselves to partial credit when answering this question by confusing key terms in their explanations.

(ii) There was frequent success when attempting to suggest reasons for the lack of deaths. Weaker candidates could have used the stimulus material more to their advantage in this question.

(b) (i) This calculation was well done by the majority of candidates.

(ii) A wide range of possible suggestions were credited here. Some candidates limited themselves by providing only one reason.

(iii) Reasons for living near to volcanoes were well known by many candidates and clear explanations showed that they were understood by the majority.

Question 3

(a) (i) A number of candidates displayed a lack of familiarity with this type of graph. A common problem was to attempt to plot all data from the 0% mark.

(ii) Most candidates performed well on this question.

(b) (i) Many candidates were able to suggest suitable methods for the measurement of both parameters.

(ii) Most candidates were able to suggest two reasons but four reasons were only seen in the best answers.

Question 4

(a) (i) This question was well answered by almost all candidates.

(ii) Many candidates knew that methane is a greenhouse gas and most went on to explain what this means in terms of the environment.

(iii) Descriptions were good in many answers to this question but explanations were weaker. In this case, the scaffolding of the question meant that both were attempted by most candidates but to limited success for some.

(b) (i) Many candidates answered correctly.

(ii) Only a minority of answers to this question were clear.

Question 5

(a) (i) Most candidates selected correctly.

(ii) The effects of sewage on water bodies in terms of eutrophication were well understood by most candidates.

(iii) The collecting together of plastics in these regions was not well understood by many candidates.

(b) (i) This was correctly answered by most candidates.

(ii) The management of raw sewage was not well known by many candidates.

Question 6

(a) (i) One substance was common in answers. Candidates typically struggled to supply two.

(ii) This question was not very well answered. The idea of the same crop was not often picked up so answers were just in terms of improving crop growth in general terms.

(b) (i) This calculation question was very well answered.

(ii) Some good suggestions were made but the principles did not seem to be well applied by some.

ENVIRONMENTAL MANAGEMENT

Paper 0680/13

Paper 1

Key Messages

Candidates should:

- look carefully at the command words
- take into consideration the number of marks and writing space available
- give accurate data when describing graphs.

General Comments

Most candidates had no problems completing the paper within the required time. Many candidates demonstrated a good knowledge and understanding of the syllabus. Some candidates demonstrated the skills required to analyse data. Weaker candidates wrote rather vaguely about topics and their answers tended to contain repetition.

Comments on Specific Questions

Question 1

(a) This was an accessible opening question for most candidates.

(b) It was unusual for candidates to show a clear knowledge of this material. An annotated diagram of a tundra tree with its features labelled and their adaptive significance shown would make a very useful teaching and learning aid to help with this material.

(c) Knowledge of the various types of conservation strategies and organisations was fragmentary. The best answers mentioned sustainable harvesting of wild plant and animal species, wildlife reserves, world biosphere reserves and gene banks.

Question 2

(a) (i) This question was generally well answered.

(ii) The idea of current reversal and its effects on fishing was not well understood by many candidates. The question related to a specific example. Most marks were gained for statements about changes in temperature, nutrients and oxygen level.

(b) Causes of overfishing are usually quite well known but this presented difficulty for some candidates.

Question 3

(a) (i) Very few candidates had issues with this.

(ii) Most candidates could come up with one reason for the location of high populations near a volcano but many struggled to think of a second idea.

(b) Most candidates were able to suggest some ideas but few could expand on this.

(c) Most answers clearly gave one reason but far fewer could suggest two.

Question 4

(a) (i) Only about half were able to state this name.

(ii) Many candidates achieved partial credit on this question by applying their knowledge.

(b) (i) Those who began with the idea of large cities having many energy-consuming people, factories or vehicles were able to go on and suggest some consequences. However, candidates who did not start with this notion struggled to gain credit.

(ii) Some candidates showed their lack of knowledge about housing problems in urban settings by missing this question out. Those who attempted the question typically scored well.

Question 5

(a) (i) This was well answered by most candidates.

(ii) The calculation was less well done than the table but still yielded credit for most candidates.

(b) A reasonable number were able to suggest one factor but few could state two.

(c) (i) Weaker answers were about how global warming occurs, rather than what problems it causes.

(ii) Many candidates found it hard to imagine global warming as an advantage.

Question 6

(a) (i) Most were able to obtain credit here.

(ii) This simple calculation proved difficult for some.

(iii) This was a question which some candidates were unable to attempt. Of those who did have a go, credit tended to come easily by simply quoting what they saw in the graphs. Candidates should try to attempt each question.

(b) (i) Some candidates gave responses that suggested they did not note the word ‘crude’ in the stem.

(ii) This question differentiated well with only the best candidates explaining two problems fully.

ENVIRONMENTAL MANAGEMENT

Paper 0680/21

Paper 2

Key Messages

Candidates should ensure that specialist terms contained within the syllabus are used accurately. Similarly, the accurate use of language by candidates when giving explanations is a suggested area for future focus.

Candidates should use the number of marks allocated to a question as an indication of the depth and range of response that is required.

General Comments

Most candidates engaged well with the paper, with a good demonstration of knowledge across most areas.

Each question contained at least one extended writing question. Some candidates missed opportunities to fully develop their thoughts here by resorting to a list.

Comments on Specific Questions

Question 1

(a) (i) Most candidates were able to correctly interpret the data to name the most widely used energy source.

(ii) Most candidates used the markings on the outside of the circle to arrive correct answer.

(iii) Most candidates supplied a comparison, for example with nuclear power, as well as merely a ranking or citation of a specific figure from the table. Many candidates were successful in this approach.

(b) (i) The descriptive skills required for this question proved challenging for some candidates. The best responses typically included the fact that there is not even distribution of coal reserves around the world and described the overall distribution.

(ii) The best answers contain the need for a source material, heat and pressure and an indication of the timescale.

(iii) Most candidates who attempted the question correctly plotted the values for the three fuels. The most common loss of credit was due to a lack of accurate labelling.

(c) (i) Successful responses to this question utilised the diagram to good effect. There was some confusion evident over the roles and operation of the turbine and the generator.

(ii) The majority of candidates did well here. Some responses were quite generic in terms of their statements and thus missed the opportunity to gain full credit. While candidates focused on issues relating to pollution issues from named gases, few described issues relating to the siting of the power station itself.

(d) (i) Most candidates were able to name two continents. Some simply stated ‘America’.

(ii) A more challenging question than part **(i)**, fewer candidates were able to give a valid reason for their choice.

(iii) Strong candidates were able to give a full description, citing the gases involved and their origin as well as the processes happening in the atmosphere.

(iv) Few good, full answers were seen. Many responses contained repetition of the same point and time would have been better spent citing new material.

(e) This was attempted well by most of the candidates. Quality of responses varied greatly. Better responses gave a balanced view across a range of issues. Those focussing on one aspect were more limiting.

Question 2

(a) (i) The majority of candidates attempted this question, utilising the markings on the pie graph effectively.

(ii) Few candidates cited the seasonal issues relating to working a clay soil, i.e. before it becomes too hard and dry, or too wet which will have an impact on structure.

(b) (i) Most candidates had some success with this question, although few gave sufficient breadth to achieve full credit.

(ii) Some candidates limited their answer and did not give a description of the impact or result of the issue they stated, e.g. removal of trees causes habitat loss.

(c) (i) Only the stronger answers identified that the banks, by slowing the rate of water flow, increase the potential for infiltration.

(ii) Some candidates were able to describe the impact of contour ploughing. Fewer answers understood the role of land reform or rural development programmes.

(d) (i) Most candidates correctly completed this question.

(ii) Similarly, there were few difficulties with this question.

(iii) This question required candidates to describe the overall trend rather than a section by section evaluation of the yield. The stronger answers described the overall trend, using data appropriately.

(iv) A minority of candidates did not read the scales accurately to the centre of each cross, allowance was made in the following question if this occurred.

(v) This was a fairly straightforward calculation, allowing any error carried forward from the previous question and most candidates performed well.

(vi) Most answers identified that there was a correlation. Strong responses also backed up observations with carefully selected data.

(e) Most candidates attempted this question, although there was sometimes a focus on genetically modified organisms (GMOs), rather than the impact of the Green Revolution on the population and the economy.

(f) Most candidates obtained at least some credit, often responses focused on only one aspect. Some factual inaccuracies and sweeping statements expressed in absolute terms about fertilisers limited a few answers. There were some excellent answers seen by examiners.

ENVIRONMENTAL MANAGEMENT

Paper 0680/22

Paper 2

Key Messages

Most candidates attempted all questions, although there were some omissions through failure to read the question accurately where the instruction was to plot data on a graph for example.

Technical terms were used appropriately, although it was apparent from some responses that the definition of the term was less well understood.

General Comments

Candidates were typically well prepared and were able to address the requirements of the range of question styles.

Additional focus to the longer responses, typically the last parts of each question, could yield more credit for some candidates. These evaluate an understanding of the broader concept being assessed.

Comments on Specific Questions

Question 1

(a) This was answered correctly in most cases.

(b) (i) Utilising the diagram provided, candidates needed to identify specific plate boundaries. Most candidates were successful. The most common error was attempting to name the type of boundary.

(ii) This was a more complex descriptive question, which some candidates found challenging. Many answers described specific locations but were weaker on describing overall distribution.

(iii) Most candidates made good use of the diagram in their descriptions, although some did misinterpret the diagram and concluded that the plates were moving apart.

(c) (i) Using the photograph, most candidates were able to identify that these conditions favoured farming due to the fertility of the soils.

(ii) Many candidates were able to name causes of problems but stopped short of explaining the issue as requested in the question.

(iii) Wide ranges of responses were credited as candidates provided a number of solutions to the issue.

(d) (i) Most candidates made good use of the diagram and performed well.

(ii) Candidates were able to agree or disagree with the statement. Relatively few gave pros and cons. Most candidates identified that there were four marks available so gave a good number of reasons. In weaker answers, these were simply re-statements of previous points made.

(e) (i) Utilising the passage, most candidates were able to find three causes of the flooding. This showed good exam technique.

(ii) Again, using information from the text, most candidates were able to provide a correct answer to this question.

(iii) There was lack of clarity in responses to this question, with few answers identifying that urbanisation will increase the number of impermeable surfaces and thus increase surface run-off.

(f) Most agreed with the statement, citing issues such as poor education or the availability of technology. Few candidates covered a wide range of reasons, rather focussing on one or two aspects.

Question 2

(a) (i) Using the map, most candidates were able to identify the relationship between hot deserts and their proximity to the Equator and the tropics.

(ii) Some candidates did not read the question and did not complete the rainfall graph. Those that attempted this question usually did so successfully.

(iii) Many identified the months with the highest rainfall. Relatively few identified that overall annual rainfall was low. Data use was required to obtain full credit.

(iv) Most candidates performed well on this question.

(v) This relatively simple calculation caused few issues.

(vi) Most candidates were able to see the relationship between the temperature and rainfall and state this clearly to obtain credit.

(b) (i) Most candidates had few problems identifying a producer and a consumer from the food web.

(ii) The majority of candidates understood the implications of a change to the food web for other species. There were a wide range of scenarios often resulting in credit.

(c) (i) Despite clear instructions in the question and emboldening of the word ‘before’ a number of responses did not answer the question but compared the scenario with the ‘after’ picture. Another common error was failure to focus on the adaptions to vegetation. Full credit required the candidate to describe and to explain these.

(ii) Most candidates were able to pick up the cues from the pictures to attempt a reasonable answer to identify the impact of solar panels.

(iii) Some candidates found challenge in looking at the issue on a governmental level, citing instead benefits to individuals rather than those of national importance. However, some good responses by the stronger candidates were seen.

(iv) Most answers focused on the challenges of poor weather, although few described issues relating to the space needed and the impact this might have on the population.

(d) (i) Some candidates had difficulty giving an accurate definition of this term.

(ii) The most common error here was to represent the blowing away of soil too early in the process. Other candidates tended to perform well.

(iii) This question was quite poorly answered. Few candidates provided explanations although they identified some impacts.

(e) Most candidates made a good attempt at the question, although the focus of some responses was very narrow. There was some confusion over the use of fertilisers.

ENVIRONMENTAL MANAGEMENT

Paper 0680/23

Paper 2

Key Messages

Candidates typically attempted all questions, although there were some omissions.

Technical terms were used appropriately, although it was apparent from some responses that the definition of the term was less well understood.

General Comments

There was good candidate engagement with the paper and a strong demonstration of knowledge across most of the assessed subject areas was seen.

Graphs were completed accurately but credit was often lost in the completion of associated headings, scales and axes.

Part of each question series is often a longer question. Some candidates missed opportunities to develop their thoughts further.

Comments on Specific Questions

Question 1

(a) (i) Most candidates were able to match the rock with its descriptor.

(ii) Some candidates lost marks for failure to label axes or failure to use a correct scale.

(iii) The requirements were to describe both how rocks are extracted and processed. Full credit was not achieved if the second aspect was not covered.

(b) (i) Most candidates were able to identify the town with little problem.

(ii) This proved a greater challenge for some candidates who were inaccurate in determining the width of the arrow.

(iii) With error in previous questions allowed for, most candidates performed this simple calculation well.

(iv) The most common responses included concepts such as employment in the quarry and supply of services to the workers. Relatively few candidates identified the availability of the raw materials for their own use.

(v) A broad range different issues were identified, some clearly from personal experience and many candidates performed well.

(c) A minority of candidates did not read the question and attempted to answer what was wrong in the picture. The majority were able to name some of the opportunities for the population.

(d) (i) This was well understood. The majority of candidates gave two good reasons.

(ii) Most candidates cited the issue of litter, fewer considered the broader implications of the infrastructure needed to support such tourism.

(iii) The word 'eutrophication' was commonly used, although there appeared to be less understanding of the process relating to it. Simplistic answers simply identified the area as being 'poisoned', which was quite vague.

(e) (i) The addition of a bar to the graph was achieved correctly by the majority of candidates.

(ii) Few candidates had difficulty in putting the different sources of pollution into rank order.

(iii) Most candidates were well prepared for this topic, but some responses lacked sufficient detail. Responses generally required more depth for the large amount of credit available.

Question 2

(a) (i) Using the diagram the majority of candidates were able to identify suitable outputs. Most achieved full credit in this question.

(ii) Weaker responses were focused on either parent rock or decaying vegetation. Two ways were required for full credit.

(iii) Candidates were able to put a case forward for either soil type, receiving credit for valid reasons. There seemed some confusion over the properties of clay soils.

(iv) There were very few issues with completing the pie graph. Correct shading was needed for full credit.

(b) (i) Generally, there was clarity within the definitions of subsistence and commercial agriculture. There were many different ways of expressing the concepts.

(ii) Most responses showed an understanding of the map and were able to describe the location of irrigated land with a degree of clarity sufficient for full credit.

(iii) While the concept of salinisation was known by a large proportion of the candidates, there were differences in the way the word was understood and described. Other impacts of too much irrigation were less commonly mentioned.

(iv) This was fairly well understood. An actual description of the process was required and some weaker candidates limited themselves to keywords only.

(c) (i) Trends were identified well. The use of specific figures to illustrate the point was required for full credit, although a range of values could be used.

(ii) Candidates were able to use the photograph to help inform their decisions. A wide range of different issues were credit-worthy.

(iii) Most candidates were able to provide some reasons. The range of content was typically narrow. A broader consideration was needed by many candidates.

(d) (i) Some candidates found this calculation challenging. Credit could be given for the method only if clearly expressed.

(ii) Common responses focused on the death of the individual. Stronger answers also included the impact on the family due to lack of income or costs of medication and the longer-term impact on children forced to leave education early to provide for the family.

(iii) This provided opportunities for candidates to demonstrate their knowledge across a generally well-known topic. Broader responses, showing a comprehensive understanding of the issue obtained more credit than those with a narrower choice of strategies.

ENVIRONMENTAL MANAGEMENT

Paper 0680/03

Coursework

Key Messages

- Domain C continues to be the weakest element in many pieces of work.
- There is evidence of some detailed investigations being carried out. The enjoyment that this brings the candidates is evident.
- Most Centres provide detailed comments and this assists in the moderation process.

Comments on Assessment Criteria

Domain A

Marks continue to be strong in **Domain A**, indicating some excellent teaching of the syllabus.

Domain B

There was some excellent, thorough research carried out by many candidates.

Interviews tended to be well carried out but the analysis could have been more evaluative in some cases. Secondary data, such as newspaper articles, were well used by most candidates.

Domain C

It is often advisable for **Domain C** to have a higher profile in the planning stage to enable the investigation to have more focus on sustainability.

ENVIRONMENTAL MANAGEMENT

Paper 0680/41
Alternative to Coursework

General Comments

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

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

Candidates should:

- remember to label the axes of graphs
- read questions carefully and identify the command word, e.g. describe, explain
- take into account the marks for each question.

Comments on Specific Questions

Question 1

(a) The question asked why there was an increase in demand for agricultural products. Candidates often commented on the increase in population and food exports. However, a significant minority of candidates repeated the information given without any additional comment.

(b) Most candidates managed to describe two or three differences in climate between the wet and the dry zone.

(c) (i) Few candidates explained that there would be sufficient rainfall for seeds to germinate or for the growth of plants. Some candidates only stated the rainfall data given in the table.

(ii) Most answers lacked the detail needed.

(iii) There were some good, clear and logical answers to explain why there would be little soil erosion between April and August. However, many answers lacked the detail needed to gain full credit.

(iv) Many comments were too vague to be an explanation of a sustainable method of farming.

(d) (i) Many candidates could perform the first part of this calculation. A minority of candidates were able to calculate the final answer in a second step.

(ii) Most candidates suggested that increased demand increased the value of milk. Some candidates also mentioned the volume of the milk.

(iii) Most candidates selected the correct year. Only some candidates could suggest possible reasons.

(e) (i) Nearly all the candidates plotted the data. However, a key or a label on the *y*-axis was not provided in a significant number of cases.

(ii) The patterns on the graph were usually well described.

(iii) Candidates generally found it difficult to suggest more than one reason for the changes in the quantity of maize produced.

(f) Most candidates were able to clearly explain how each measure stated in the question would help Sri Lanka become self-sufficient in milk production. The breeding of imported cows with local cows to improve the milk yield was only suggested occasionally.

Question 2

(a) (i) Most candidates completed a correct calculation.

(ii) Many candidates appreciated the meaning of the term 'related jobs' but some candidates could not go on to give appropriate examples.

(iii) There was a wide range of credit-worthy answers given.

(b) (i) A minority of candidates tried to describe the impact of rocks on the marine environment.

(ii) A minority of candidates identified the idea of saving on transport costs or time as well as the idea that the sand would have to be dumped elsewhere if it was not used.

(c) (i) Most candidates provided a workable key and showed three schools and two green spaces on their plan. However, some candidates did not provide services on their plan.

(ii) Candidates gave a range of ideas about building or servicing the city to reduce pollution. Only a small number of candidates gave enough examples to gain full credit.

(d) Most candidates appreciated that the increased cost of the loan would reduce the investment in new jobs.

(e) (i) Only some candidates identified that the researcher could fill in the questionnaires for illiterate people.

(ii) Many candidates did not give a clear answer to show they understood methods of representative sampling.

(iii) Some candidates did not give a clear answer to show how to summarise data from questionnaires.

(iv) Most candidates read carefully the information given and presented suitable questions that could have been used in the questionnaire.

ENVIRONMENTAL MANAGEMENT

Paper 0680/42
Alternative to Coursework

General Comments

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

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

Candidates should:

- remember to label the axes of graphs
- read questions carefully and identify the command word, e.g. describe, explain
- take into account the marks for each question.

Comments on Specific Questions

Question 1

(a) (i) Most candidates gained at least one mark for suggesting that protein can improve the health and nutrition of Sri Lanka's population. Vitamins and energy were also mentioned.

(ii) Many candidates suggested that weak immune systems were the cause of respiratory conditions and diarrhoea being serious conditions in young children, and that these could be fatal. A number of candidates wrote about environmental pollution in Sri Lanka and water-related diseases.

(iii) Most candidates suggested that the diet of mothers could be a cause of low birth weight. Smoking by the mother and premature birth were also suggested as causes.

(iv) A large number of candidates gave malnutrition as a cause of children being underweight. Others wrote about lack of protein.

(v) About half the candidates correctly completed the table with calculations and correct rounding and categories given in many cases.

(vi) Some answers made good use of the information in the table.

(b) (i) Some candidates suggested that plans two and three would be better instead of answering the question by pointing out that plan one only involved visiting one family.

(ii) Many candidates identified that weighing the eggs was better than counting them. Others wrote vague answers.

(iii) Most candidates completed the table accurately.

(iv) Nearly all the candidates who gained the mark suggested random sampling with a few proposing systematic sampling

(v) There were some answers to this question that were too vague for credit to be awarded. Other candidates answered well.

(c) A significant number of candidates wrote that feeding chickens on household waste was not sustainable arguing that it made the chickens a source of infection/disease that could be transmitted to people.

(d) (i) Some candidates performed the calculation to work out the chicks that did not survive to lay eggs. The missing step in this method was to subtract this number from the original 900 000 chicks to arrive at the correct answer.

(ii) Many candidates suggested that the chickens would die.

(e) (i) There was a tendency to copy out information from the factsheet without any added comments from some candidates.

(ii) Some answers described how the villagers were asleep when some predators were active. There were thoughtful answers about the lack of huts and enclosures and there being too many chickens, chicks and eggs for the villagers to monitor.

(iii) There were many relevant references to reduction in the gene pool, loss of biodiversity and the local male bird becoming extinct. Some candidates suggested that as the improved hens would take little care of their chicks many more eggs and chicks would be taken by predators.

Question 2

(a) There were some confused answers from some candidates who did not seem to appreciate that the new tax did not apply to maize grown in Sri Lanka. Many candidates wrote that the farmers would begin to grow maize.

(b) (i) Over half the candidates calculated the correct percentages of dead weevils.

(ii) Temperature was often suggested as a factor the scientist should have controlled in the experiment.

(c) (i) Many candidates wrote that the 0.0 g of powder used on one maize cob was as a control by the scientist or described how it was a way to see if weevils died without the use of leaf powder.

(ii) Nearly all the candidates gained some credit for plotting the graph, with many gaining full credit. The plots were usually correct with some mistakes made with the axes, either not labelling both or mislabelling them.

(iii) Only some candidates correctly described the pattern on the graph in sufficient detail.

(iv) Some candidates did not draw a line on the graph to show the likely effect of using 10.0 g of leaf powder. Those that did were generally successful.

(d) (i) Most candidates positioned the sample locations correctly on the plan.

(ii) There were a few strange answers to this question. These included quadrat, quadrant and scattered.

(iii) Most candidates calculated the percentage of dead weevils correctly.

(iv) Few candidates were able to suggest that wind and rain in the maize field meant fewer weevils died or similar.

(v) Few candidates suggested that the leaf powder could not be used as a natural pesticide because it is expensive or might kill beneficial insects.

(e) (i) The list of equipment inspired some interesting experiments to find out if leaf powder could reduce the wastage of stored maize. The time set in the question was frequently ignored in the proposed method.

(ii) The tables designed to record the result of the experiments described in part **(i)** sometimes did not cover the six weeks of the experiment.

ENVIRONMENTAL MANAGEMENT

Paper 0680/43
Alternative to Coursework

General Comments

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

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

Candidates should:

- remember to label the axes of graphs
- read questions carefully and identify the command word, e.g. describe, explain
- take into account the marks for each question.

Comments on Specific Questions

Question 1

(a) (i) Only a minority of candidates suggested that, as 85% of the sand was returned, the environment was not being destroyed.

(ii) Many candidates gave two sensible reasons to show that beach mining could help everyone in Andhra Pradesh.

(b) (i) Most calculations were correct.

(ii) Many candidates correctly stated the range.

(iii) The sample was frequently identified correctly.

(iv) A wide range of reasons as to why this sample did not fit the pattern were suggested. Many answers showed an appreciation of possible experimental errors.

(v) This question proved difficult for candidates. Changes in the method of extraction of ilmenite were the key here.

(c) (i) This complex question asked for possible reasons for the changes in response between 2010 and 2015. All the ideas stated in the mark scheme were seen regularly. However, only discerning candidates gained full credit.

(ii) The possible methods for collecting the data given in the table were not usually clearly described by candidates.

(d) (i) Many candidates appreciated that the mass of the truck driver must be accounted for so that the actual mass of the delivered sand would be correct. It often proved difficult for weaker candidates to explain their ideas.

(ii) Some candidates could not make the link to inflation.

(e) (i) Most graphs were plotted correctly. The *y*-axis label was not given by a significant minority of candidates.

(ii) The pattern of the graph was usually described adequately.

(iii) The idea of mechanisation, or similar, as the reason for reduced employment was suggested by the best candidates.

(f) Only a small number of candidates gave sufficient details to gain full credit in this question.

Question 2

(a) (i) The average was correctly calculated by all but a few candidates.

(ii) The horizontal line was nearly always correctly drawn.

(iii) The strongest candidates calculated the correct values.

(iv) Few candidates appreciated that there was no pattern to the results of the survey. Some candidates suggested that where there were more nests there would be more eggs.

(b) (i) Most candidates gained full credit in this question.

(ii) Few candidates had secure knowledge of CITES.

(c) There were many good answers about the change in male to female ratio leading to changes in the population. Some candidates simply suggested extinction.

(d) (i) Most candidates completed this question well.

(ii) Nearly all candidates completed the table correctly.

(iii) The calculations needed to find the answer for this table proved to be challenging. The strongest candidates explained clearly with supporting calculations.

(iv) Most candidates gave credible answers to this question.

(v) Many candidates failed to recognise that long-term records can be used to find out if the conservation method leads to an increase in the turtle population.

(e) (i) Some candidates did not consider fixing the flap down as a method of catching all the fish.

(ii) Many candidates gave at least one method of enforcing the use of TSDs.

(f) A range of methods for controlling human activity were suggested. However, only the strongest candidates suggested sufficiently different methods to secure maximum credit.