



National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TĀEA

2008

External Assessment Resource

Subject Reference: **Education for Sustainability 2.5**

Assessment resource reference number:
EfS/2/5_A1

Example of External Assessment

Supports assessment for:

Achievement Standard: 90814

Describe aspects of sustainability in relation to a sustainable future

Credits: 4

Date version published:

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**Ministry of Education
quality assurance status**

For use from 2008

Example of External Assessment Task

NAME _____

Subject Reference: Education for Sustainability 2.5

Supports internal assessment for:

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Describe aspects of sustainability in relation to a sustainable future.

Credits: 4

Student Instructions Sheet

Instructions:

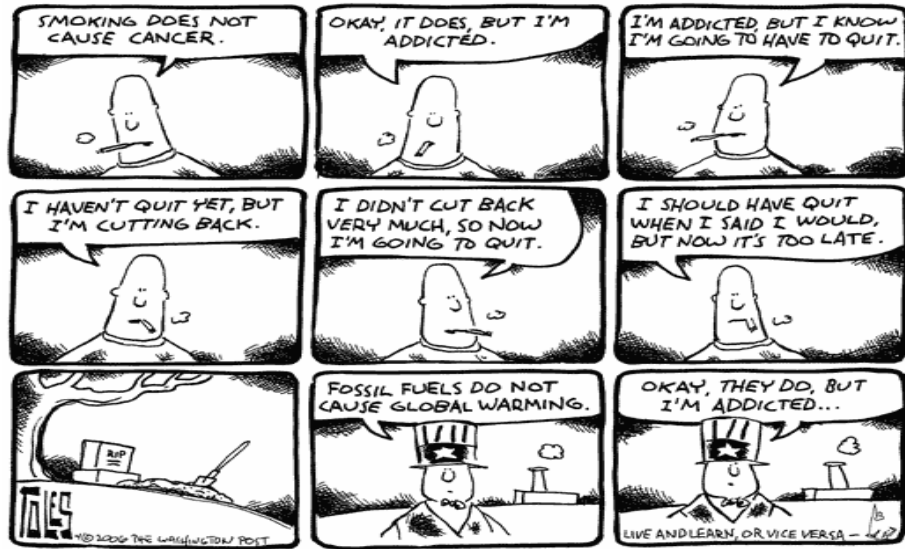
- Read questions 1 to 4 carefully. Select **TWO** questions to answer

Tick the two boxes of the questions you are answering			
1. <input type="checkbox"/>	2. <input type="checkbox"/>	3. <input type="checkbox"/>	4. <input type="checkbox"/>

- Check that this booklet has pages 2 – 10 in the correct order and that none of these pages is blank. A planning page is provided and could be assessed if more evidence is required.
- If you need more space for any answer, use the page provided at the back of the booklet and clearly number the question.
- **YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THIS TASK.**
- You are advised to spend 40 – 45 minutes answering the questions in this booklet.

For Assessors use only					
Achievement Criteria:					
Achievement		Achievement with Merit		Achievement with Excellence	
Describe aspects of sustainability in relation to a sustainable future	<input type="checkbox"/>	Explain aspects of sustainability in relation to a sustainable future	<input type="checkbox"/>	Discuss aspects of sustainability in relation to a sustainable future	<input type="checkbox"/>
Overall Level of Performance:					

Question 1



Read the cartoon above. The cartoonist is commenting on the reliance of the US on fossil fuels. Using 3 of the concepts from the list below, discuss the cartoonist's message in relation to a sustainable future. Give reasons for the links between different aspects of sustainability (environmental, social, economic and cultural). In your discussion you may include making judgments, stating opinions, relating or considering implications, projecting future impacts, evaluating options, comparing and contrasting, analysing or suggesting alternatives.

You may use examples of your own to support your answer

Concept list:

- Embracing change/new ways of thinking and acting
- Resource depletion
- Social and personal responsibility for action
- Resource management
- Maintenance of ecological systems

Question 2:

Global rush to energy crops threatens to bring food shortages and increase poverty, says UN



Biofuels can be used in place of petrol and diesel and can play a part in reducing emissions.

A UN report points to crops like palm oil, maize, sugar cane, soya and Jatropha that rich countries want to see extensively grown for fuel as a way to reduce their own emissions. Their production could help stabilise the price of oil, open up new markets but lead to higher commodity prices for the poor. The UN urges governments to

beware their human and environmental impacts, some of which could have irreversible consequences. Global production of energy crops is doubling every few years, and 17 countries have so far committed themselves to growing the crops on a large scale. Last year more than a third of the entire US maize crop went to ethanol for fuel, a 48% increase on 2005, and Brazil and China grew the crops on nearly 50m acres of land. The EU has said that 10% of all fuel must come from biofuels by 2020.

The report also says the crops are not guaranteed to reduce greenhouse gas emissions. Producing and using biofuels results in some reductions in emissions compared to petroleum fuels, but this is provided there is no clearing of forest or peat that store centuries of carbon.

“Bioenergy provides us with an extraordinary opportunity to address climate change, energy security and rural development. [But] investments need to be planned carefully to avoid generating new environmental and social problems,” said Achim Steiner, executive director of UN Environment programme yesterday.

“Climate change is the most serious issue, but you cannot fight climate change by large scale deforestation,” said Jan van Aken, of Greenpeace International

Use the information above and your own knowledge to discuss the possible environmental, economic, social and cultural impacts associated with changing to growing plants for biofuels. In your discussion you may include making judgments, stating opinions, relating or considering implications, projecting future impacts, evaluating options, comparing and contrasting, analysing or suggesting alternatives.

Question 3

Effects of Climate Change –

The most important consequence of global climate change for coastal systems will be sea level rise. Along coastlines in a more or less natural state, new areas of marshland habitat will be created by sea level rise. However, along most New Zealand coastlines, intensive development of the land close to marshes and estuaries means it is unlikely that people will allow new areas of marshland or estuary to form. Prevention of sea-level changes through barriers, drainage and the like seems the most probable outcome.

NIWA scientists have conducted a series of experiments that involved depositing artificial slugs of sediment to determine the effect of the slug on the underlying flora and fauna and how recovery occurs.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

Estuarine systems are likely to be subject to heavier impacts because they are currently under a great deal of stress through human settlement and as the ultimate repository of the sediment created by land use changes in the waterways that feed them. They will be affected by warmer sea-surface temperatures, and by rising sea levels.

Linkages Between Climate Change and Biodiversity in New Zealand
Matt McGlone Landcare Research

Discuss the possible consequences of a 1°C to 2°C rise in temperature and a sea level rise of up to 50cm on a named New Zealand coastal area. Include likely environmental, cultural, social and economic impacts on the sustainable future of the estuary, marshlands or beach. In your discussion you may include making judgments, stating opinions, relating or considering implications, projecting future impacts, evaluating options, comparing and contrasting, analysing or suggesting alternatives.

Assessment Schedule

Evidence for Achieved	Evidence for Merit	Evidence for Excellence
<p>An account or characteristics of at least two aspects of sustainability are described in relation a sustainable future in the issue or item in both questions.</p>	<p>Achieved plus: Reasons are provided as to how or why at least two aspects of sustainability relate to a sustainable future in the issue or example provided for one question.</p>	<p>Merit plus: At least two aspects of sustainability related to the issue or item are fully discussed and links between different aspects of sustainability are given with reasons for one question. Answer may include making judgments, stating opinions, relating or considering implications, projecting future impacts, evaluating options, comparing and contrasting, analysing or suggesting alternatives.</p>

Appendix - Excerpts from possible student Answers

<p>Growing single species crops in large areas is bad for soil. It also means that diseases can spread faster.</p> <p>Small, poor communities are going to be disadvantaged when they lose land for crops.</p>	<p>Growing single species crops in large areas is bad for soil because the same minerals are being taken out. This means artificial fertilisers will need to be added. It also means that diseases can spread faster so the crops are in danger of being lost unless herbicides and pesticides are used.</p> <p>Small, poor communities are going to be disadvantaged when they lose land for crops. If they are unable to feed themselves, young people will need to leave the community to find jobs.</p>	<p>Growing single species crops in large areas is bad for soil because the same minerals are being taken out. This means artificial fertilisers will need to be added. Many food chains in the region will be lost because the herbivores cannot eat the crop plants. Other insects will come to feed off the crops and these could prey on other plants or carry disease. This is a greater problem if native forests are cut down to plant crops. These support a diverse range of plants and animals which sequester large amounts of carbon. The small herbivorous plants being planted will not take up as much so the net result is a gain in atmospheric CO₂. It also means that diseases can spread faster so the crops are in danger of being lost unless herbicides and pesticides are used.</p> <p>Small, poor communities are going to be disadvantaged when they lose land for crops. If they are unable to feed themselves, young people will need to leave the community to find jobs.</p>
<p>Pauanui is a coastal resort where many houses are less than two metres above sea level. A lot of houses are built on man made canals. A rise in sea level of 50cms will bring high tide up their lawns. Tides already come inland during storms. They will</p>	<p>Pauanui is a coastal resort where many houses are less than two metres above sea level. A lot of houses are built on man made canals. A rise in sea level of 50cms will bring high tide up their lawns. Many of these houses are occupied by retired people who will be unable to build</p>	<p>Pauanui is a coastal resort where many houses are less than two metres above sea level. A lot of houses are built on man made canals. A rise in sea level of 50cms will bring high tide up their lawns. Many of these houses are occupied by retired people who will be unable to build retaining walls or change structures in place. Tides already come inland during storms. They will flood houses if the water is already</p>

<p>flood houses if the water is already higher. The road into town is beside the river and floods at least twice a year now. The local council will need to raise long sections of this road to ensure the community is not cut off.</p>	<p>retaining walls or change structures in place. Tides already come inland during storms. They will flood houses if the water level is already higher. This will place added economic costs onto the residents and council. The road into town is beside the river and floods at least twice a year now. Higher temperatures will mean more mangroves will grow in the estuary and tributary rivers, furthering leading to flooding. The local council will need to raise long sections of this road to ensure the community is not cut off.</p>	<p>higher. Will the government or insurance companies be expected to pay for remedial work? This community relies on being able to walk on the flat roads to the shops and medical centre.</p>
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