WRAPP teaching and learning unit – Stage 4 Geography
The changing nature of the world and responses to these changes – mobile phones

This Stage 4 unit allows Geography students to investigate, using the Sustainability Action Process an example of *The Changing Nature of the World and Responses to these Changes*. As part of their leaning in this unit, students investigate issues about the production, and recycling of mobile phones. This provides an engaging example of the Sustainability Action Process relevant to young people in our modern society.

Focus Area 4G3 Global Change: The changing nature of the world

Outcomes

A student:

4.1 identifies and gathers geographical information
4.2 organises and interprets geographical information
4.3 uses a range of written, oral and graphic forms to communicate geographical information
4.4 uses a range of geographical tools
4.5 demonstrates a sense of place about global environments
4.7 identifies and discusses geographical issues from a range of perspectives
4.9 describes differences in life opportunities throughout the world
4.10 explains how geographical knowledge, understanding and skills combine with knowledge of civics to contribute to informed citizenship.

Geographical tools

Maps ✓ use an atlas ✓ identify and use elements of maps, including legend, direction, title, scale, border ✓ distinguish between different types of map projection × measure distances on a map using linear scale × identify scale as written, linear or representative fraction × construct a sketch map	*Graphs and Statistics* ✓ identify and calculate maximum, total, range, rank and average ✓ construct and interpret bar column, line, climatic and proportional graphs *Photographs* ✓ distinguish between oblique, aerial, ground-level photographs and satellite imagery ✓ collect and interpret photographic images

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What is the Sustainability Action Process?

"Learning for sustainability seeks to enable and empower students to make decisions and take actions that contribute to creating a sustainable society and ecosystem. Sustainability action is both a preferred pedagogical approach for teaching sustainability and an essential set of knowledge and skills for students to learn." (DET, Environmental education Unit, Climate clever Energy Savers Support materials, p 2. 2009)

Put simply, sustainability action projects which are embedded into the curriculum are more meaningful and enable authentic and transferrable learning.

The five steps of the **sustainability action process** are:

- Making the case for change
- Defining the scope of the action
- Developing the proposal for action
- Implementing the proposal
- Evaluating and reflecting

Sustainability Action Process: Scaffolded questions	**Syllabus links**	**Teaching and learning strategies**	**Resources**
MAKING THE CASE FOR CHANGE •**Exploring concepts relating to globalisation** What is globalisation? What has influenced globalisation?	Students learn about: • globalisation: - the globalisation process - changes in technology Students learn to: • outline the process of globalisation • recognise the role of technology in the	**What is globalisation?** Introduce the concept of globalisation by explaining that as Australians we are not just one country on its own but are connected to the rest of the world: we buy from, sell to and trade with other countries. Define the term 'globalisation'. *Students write the definition of globalisation*. To emphasise globalisation, ask the students to empty their pencil cases and identify where each object is made. Record the countries represented. **What has influenced globalisation?** Explain to the students the reasons we are now more global, ie, advances in transport and technology and hence communication. Ask the students to identify changes in technology that have influenced globalisation, eg, computers, Internet, satellites, mobile phones. *Students write the factors influencing globalisation.*	**TaLe – Going Global** Code: X00ZK http://www.tale.edu.au/tale/components/includes/trap.html?uid=NjYyOEBUYUxFXzIwMDVfREVUTFJNX1Yy *Your Global Connections: Activity 1* - View the photo showing where typical household objects are made

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	globalisation process		
What are the economic and cultural impacts of globalisaton?	Students learn about: • globalisation: - impacts of globalisation Students learn to: • identify examples of economic and cultural factors that are part of globalisation • identify the impact of globalisation at an individual, local, national and global scale	**What are the economic and cultural impacts of globalisation?** <u>Impacts on culture</u> Show the students *images of McDonalds restaurants* in a range of countries. Ask the students who have travelled out of Australia what other stores they saw overseas that were in Australia or common to several countries. Show the students the *cartoon of an island with Disney characters* taking over it. Use this to emphasise that the big multinational companies are taking over us, changing our cultures, making cultures more similar and creating a global culture. Eg, we're all eating McDonalds, wearing Nike shoes, talking on Apple iPhones. *The students write their interpretation of the cartoon, ie what it means and what it is representing.* <u>Global citizenship</u> - ask the students to identify the countries their favourite TV shows are from. List TV shows that are aired in a range of countries, eg, Australia/Britain/America/Russia's Got Talent, Big Brother, Idol. Show the *image of Kelly, Global Citizen (Appendix A)* and/or the TaLe image of an African carrying an oversized hamburger and discuss their meaning. Discuss the positive and negative impacts of a global culture, eg, eroding indigenous cultures, disappearance of local cultures. *Students write the impacts of a global culture.* <u>Impacts on trade</u> Explain that due to advances in technology, we now have the ability to trade globally. Refer to online stores such as Amazon and EBay as a	**Google images - McDonalds stores** in variety of countries **Cartoon** - island with Disney characters taking over it - http://cffsocialstudies.blogspot.com/2009/04/2009-globalization-and-you.html **-** or as *PDF* - http://www.y-project.info/yggdrasil/tasks/globalisation_teaching_material/D-Bad-Toelz/Globalization-teaching%20unit-Bad-Toelz.pdf **Image –** Kelly, a global citizen **Image** - African carrying oversized hamburger - TaLe *Going Global Code:* X00ZK *Our Changing World: Think about* http://www.tale.edu.au/tale/components/includes/trap.html?uid=NjYyOEBUYUxFXzIwMDVfREVUTFJNX1Yy **Fact sheet** - *Australian trade* http://www.dfat.gov.au/geo/fs/aust.pdf

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		personal example. Explain that as we are a global economy we rely on imports as they are often the cheapest products to buy. *Referring to the Australian trade fact sheet, students list Australian imports and exports.* Transnational Corporations (TNCs) – define the term and explain that they are on the rise. Identify examples of TNCs, eg, Nike, Nokia. Students write the definition of a TNC. *Students list the 20 largest companies in the world and the location of their national headquarters.*	**Book -** *Exporting for the Future: Global Connections* – pp29-30 http://www.austrade.gov.au/Student-and-teacher-resources/default.aspx **List –** *Global 500* **–** *Annual ranking of the world's largest corporations* - http://money.cnn.com/magazines/fortune/global500/2010/ **Map** – location of Top 50 headquarters - http://money.cnn.com/magazines/fortune/global500/2010/maps/top50.html
•**Investigating concepts and ideas relating to mobile phone production and sustainability** What are the impacts globally of the production of mobile phones?	Students learn about: • changing global relationships - business - nations - organisations Students learn to: • describe ways in which global relationships are changing as a result of globalisation	**What are the global impacts of the production of mobile phones?** - **Case study of a mobile phone TNC** Select a large transnational mobile phone company, eg, Nokia, Apple. What are their products? Where are they made? Where are their national headquarters? What are the components of their products? What's in a mobile phone? Mobile phone dissection – students, working in groups, remove the covers of an old mobile phone to look at its components and the materials it is made from. *Students draw a diagram of the mobile phone and label the materials it is made from – that they can identify.* Distribute the *pie graph, What's in a Mobile Phone*, showing the materials used in a mobile phone *(Appendix B)*. *Students interpret the graph and list the components.* Mining - Where do the minerals and metals in a mobile phone come from? How are the raw materials extracted?	**Old mobile phones** - for 'dissection' **Pie graph -** *What's in a Mobile Phone?* Pie graph and info on pp.6-7 of *Earth Calling* http://www.forumforthefuture.org/files/earthcalling.pdf **Google Maps/Earth** – Satellite

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		Explain that the metals and minerals are mined. Show the *satellite image* of the open-cut gold mine at Cadia near Orange, NSW. Also show the brief *video of open cut gold mining* in Africa. Explain that precious metals can also be recovered from old mobile phones. *On a map of the world (Appendix C), students map where these mobile phone materials are mined: nickel, iron, copper, lead, tantalum, gold, palladium, antimony, beryllium. (These cause the greatest environmental concern.)* <u>Coltan</u> – draw the students' attention to tantalum, commonly known as coltan (columbite tantalite). Use the *SMH article, Out of Africa*, *(Appendix D)* to explain where it is mined: Australia and the Democratic Republic of Congo. Locate DRC and the Kahuzi Biega National Park on a satellite image of Africa. Discuss why the Australian coltan mines have been wound down and it is being sourced from Africa, eg, cheaper labour and fewer environmental controls. *Students draw a graphic flowchart or cartoon showing the relationship between the transnational mobile phone company and raw material extraction. (Cartoon example - Appendix D[a])* For example, Apple is US owned – sells expensive products, products manufactured in China cheaply, China purchases raw materials from Africa very, very cheaply. <u>Child Exploitation</u> – show the *TaLe video of children mining* in Africa. Select *Hotspot 8* on the Hotspots map. (Alternatively, locate Shenzhen, China on a world map – millions of mobile phones are manufactured there.) Ask the students: 1. What is your reaction to the video clip? 2. What do you think is the link between the extraction of copper and cobalt in Zambia and places like Shenzhen in China? *(Source:* TaLe – *Going Global: Hotspots of Globilisation* – Hotspot 8)	image of Cadia NSW open cut gold mine. **Video -** *Gold Mining in Africa* http://www.youtube.com/watch?v=yFrpSwbSzB4 **Article -** *Out of Africa: the blood tantalum in your mobile phone* http://www.smh.com.au/articles/2009/05/08/1241289162634.html **Google Maps/Earth** – satellite image of DRC **Globalisations Cartoon -** http://msl4m1socialstudies.blogspot.com/2009/04/another-cartoon-on-globalisation.html **TaLe – *Going Global*** Code: X00ZK http://www.tale.edu.au/tale/components/includes/trap.html?uid=NjYyOEBUYUxFXzIwMDVfREVUTFJNX1Yy *Hotspots of Globilisation – Video 6 & Hotspot 8* **Article -** *Stats & Facts on Child*

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•**Stating the case for what needs to change and why**		Discuss why children are used for mining, eg, cheap, small, income for family, expendable(?). List the impacts on the children, eg, dangerous conditions, high accidental death rate, high risk of injury, exposure to toxic chemicals and dust, no education, no childhood. *Students write a diary entry, based on the video clip, as one of the child miners.* <u>Habitat destruction</u> – play the *Congo Connection video*. *Students create a Consequences Chart (Appendix E) of the environmental and cultural impacts of coltan mining*. For example, habitat destruction leads to loss of gorilla habitat and erosion; erosion leads to sedimentation and pollution; area has changed to a cash economy: from agricultural to mining resulting in food shortages, which can lead to hunting of gorillas for bush meat. *Students read the article Why We Need to Change and answer the set of questions (Appendix F).*	*Labour in Mines & Quarries* - http://www.globalmarch.org/events/facts-wdacl.php3 **Article** - *Dutch labour party wants coltan ban to stop child-slavery in Congo* - http://www.digitaljournal.com/article/263036#ixzz0zYyCKsiA **Article** - *Child Labour: the Congo's Big Sin: Two Million Congolese Children Dead From Hard Work* - http://www.suite101.com/content/child-labour-the-congos-big-sin-a47763#ixzz0zZ1ubTrC **Video** – *Congo Connection* http://www.youtube.com/watch?v=7gCuLuwoovk **Video** – *Coltan Mining in the Congo* http://www.youtube.com/watch?v=mCUtElvg0F4 **Article** – Congo's Coltan Rush http://news.bbc.co.uk/2/hi/africa/1468772.stm (2001) **Article** – *Why We Need to Change* http://weeeman.org/html/what/change.html
DEFINING THE SCOPE OF THE ACTION •**Exploring**		**Actions to reduce impacts** <u>Corporate responsibilities</u> - What are the big companies doing to reduce or manage the impacts of coltan mining? Show the students the *Greenpeace chart* rating companies on their product recycling and toxic materials	**Graph** – *Greenpeace's Guide to Greener Electronics: How the Companies Line Up* – http://www.greenpeace.org/intern

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options for making a change What can corporations do to reduce impacts? What can individuals do to reduce impacts?		policies. *Students interpret the chart, determining most improved/least improved, etc*. (The notes below the chart explain the ratings per company.) Read Nokia's statement of corporate responsibility and discuss what it really means. (Government responsibilities – What are governments doing to reduce or manage impacts? – optional activity) Individuals' responsibilities – What can we do as individuals at school to reduce the mining impacts? Students brainstorm suggestions. Show the video *The Secret Life of Cell Phones*. If not suggested by the students, introduce the idea of mobile phone recycling at school.	ational/campaigns/toxics/electronics/how-the-companies-line-up/ **Statement** - Nokia's Corporate Responsibility re coltan http://www.nokia.com/corporate-responsibility/supply-chain/substance-management/origin-of-raw-materials **Video** – *The Secret Life of Cell Phones* - http://www.youtube.com/watch?v=xQkTTtm8Ah0&feature=related **Video** – *How Stuff Works: Cell Phone Recycling* - http://www.youtube.com/watch?v=sCU4o_Ce9PM&feature=related
•**Identifying available resources and constraints** •**Developing the statement describing an agreed direction for action**		Research task – What mobile phone recycling schemes are available to us for implementation in our school? *Students complete the following research task (Appendix G)*: 1. Comparison table. List the organizations which operate mobile phone recycling for schools in your area. For each organization: a. Identify any costs to the school for recycling b. Explain what they do with the mobile phones collected c. Identify any charity or cause they are aligned with. 2. Evaluate the options. Write a statement explaining which mobile phone recycling scheme you recommend the school adopts. Justify your choice. This is a good *assessment opportunity.*	**Mobile phone recycling:** *Mobile Muster* - http://www.mobilemuster.com.au *They're Calling on You* - http://www.taronga.org.au/tcsa/environment/take-action/they're-calling-on-you.aspx **Article** - *AMTA again corrects zoo's misleading coltan claims* - http://www.mobilemuster.com.au/articles/AMTA.again.corrects.zoos.misleading.coltan.claims **Article** - *Gorilla warfare over recycling, says newspaper* - http://www.amta.org.au/articles/amta/Gorilla.warfare.over.recycling.says.newspaper

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DEVELOPING THE PROPOSAL FOR ACTION • **Generating and selecting ideas for action** • **Preparing the proposal and gaining agreement** • **Communicating the proposal** • **Communicating the process**		**Which recycling scheme to choose?** List the schemes evaluated by the students in their research task. Count how many students recommended each scheme in their "evaluating the options" statement. *Students briefly present the reasons for their choices, ensuring each scheme is covered.* PMI (Plus Minus Interesting) – *students construct a PMI for each option (Appendix H)*. Conduct a class vote to select the preferred scheme. **Action plan** What do we need to do to make this happen in our school? As a class create an action plan with strategies and timeframe. Allocate roles, eg, speaking on assembly, newsletter article, collection. *Using a publishing program, students design a poster advertising the mobile phone recycling scheme.* Display the posters around the school. **Product Road Map – Mobile Phone** Product Road Maps are used by industry to analyse, communicate and improve the sustainability of parts of their production cycle. As a visual communication tool they can be used to record and describe your work. Create a power point presentation for a Product Road Map Go to the Product Road Map link to the left. Choose one of the four Product Road Maps to investigate and describe in more detail. Start a power point presentation with a: • title slide (include your name and class) • second slide – construct the whole Product Road map diagram • a slide with a description of the process and some of the sustainability considerations for each step	**Article** - *Reduce, Reuse, Recycle* http://weeeman.org/html/do/personal/reduce.html **Poster** - *Mobile phone life cycle* (and others) - http://www.mobilemuster.com.au/downloads **Poster** - *Life Cycle of a Cell phone* - http://www.epa.gov/wastes/education/pdfs/life-cell.pdf **Product Road Maps** Four product road maps – paper, clothing, potato and building are at: http://www.curriculumsupport.education.nsw.gov.au/env_ed/teaching/focus/prm.htm YouTube Mobile phone http://www.youtube.com/watch?v=XevKzpgNyfk http://www.youtube.com/watch?v=SAlsbgJGyD4&NR=1

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		• a description of how your school or community could contribute to increased sustainability for this chosen Product. Mobile Phone Product Road Map Create your own product road map for a mobile phone. You may need to source or take your own images for different parts of the production, manufacturing, use and recycling. Write a description of the step or process Describe management or production considerations to increase the sustainability of a mobile phone. You can create your Product Road Map for a mobile phone on your laptop or Interactive white Board. Share your Product Road Map with your class	Mobile phone recycling see above resources.
IMPLEMENT THE PROPOSAL •**Receive the Principal's agreement and support** •**Implement the proposal**		**Implement the recycling scheme** Gain approval - a few students meet with the Principal to outline the scheme and gain approval. Implement the action - if there are several classes in the year, select a couple of students per class to collect on a roster basis. Students could go around roll call classes to collect old phones and a box could be located in the office.	
EVALUATING & REFLECTING •**Evaluating the sustainability action** •**Reflecting on the processes used and our learning**		**Evaluation and reflection** Did we make a difference? Count how many mobile phones were collected for recycling. Play the Nokia video showing what happens to collected phones (may not be relevant to the scheme chosen). If any rewards are available from the recycling organisation, provide those. Reflect on the action process What worked well? What could be changed next time? Reward students	**Video** – *Nokia We Recycle: The Recycling Process in Action* - http://www.youtube.com/watch?v=6yfh9xY28l4&feature=related **Diagram** - *Lifecycle of a Mobile Phone* http://www.epa.gov/epawaste/partnerships/plugin/cellphone/lc-image.htm

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		Acknowledge the students' contribution as informed global citizens. Award citizenship certificates/awards if appropriate.	

Additional resources:

- *Down to Earth* TaLe Code X03EU – metals matter – select the phone for the quantity of metals needed for countries http://www.tale.edu.au/tale/components/includes/trap.html?uid=aHR0cDovL3RsZi5kbHIuZGV0Lm5zdy5lZHUuYXUvbGVhcm5pbmdvYmplY3RzL0NvbnRlbnQvTDkyNy9pbXNtYW5pZmVzdC54bWwuaHRtbEBUYUxFXzIwMDVfVExGX1Yy
- *Earth Calling: the Environmental Impacts of the Mobile Phone Industry* - report - http://www.forumforthefuture.org/files/earthcalling.pdf
- *Exporting for the Future: Global connections*, Austrade Education Programs 2008 - http://www.austrade.gov.au/Student-and-teacher-resources/default.aspx
- *Going Global* TaLe Code: X00ZK – images, videos, questions, activities - http://www.tale.edu.au/tale/components/includes/trap.html?uid=NjYyOEBUYUxFXzIwMDVfREVUTFJNX1Yy
- *Life Cycle of a Cell phone* – includes student activities - http://www.epa.gov/wastes/education/pdfs/life-cell.pdf
- *Mobile Muster Downloads* – includes educational videos, student activities, fact sheets and posters - http://www.mobilemuster.com.au/downloads
- *Mobile Phones: Communications on the Go* – cradle to grave - http://www.science.org.au/nova/022/022box01.htm
- *The Life Cycle of a Mobile Phone* – animation with comprehensive text, no audio - http://www.youtube.com/watch?v=A-y0Q9uE0MM&feature=related

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Kelly, a global citizen

Appendix A

Meet Kelly, who is a global citizen. Colour the picture and answer the questions below.

1. What is Kelly's destination?
2. Why is she travelling?
3. Name two communication technologies that Kelly is carrying.
4. What is Kelly's nationality?
5. What do the initials FTA mean on Kelly's newspaper?

Source: *Exporting for the Future: Global Connections, p16*
Available as a free print resource at http://www.austrade.gov.au/Student-and-teacher-resources/default.aspx

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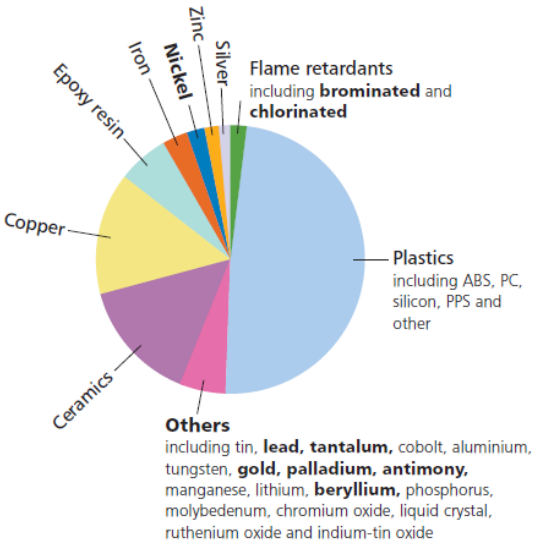
What's in a mobile phone?

Appendix B

Graph 3 What's in a mobile phone? Breakdown of materials used in a typical mobile phone, by volume[13]



The majority of materials in a phone by volume are plastics, as shown in graph 3. However, **materials in tiny proportions cause the most environmental concern.** These are highlighted in bold. According to studies, extracting raw materials and manufacturing components[D] make up more than half of a phone's impact. Mobiles are becoming smaller so using less resource, but there is still opportunity to reduce these impacts using appropriate design.

Network base stations similarly contain precious metals and potentially hazardous materials (although the sum impact of phones is greater due to sheer numbers).

Precious metals

Metals such as gold, silver and palladium are used in phones and networks due to their superior electrical conductivity and resistance to corrosion.

All these metals:

- Require large volumes of earth to be moved. To source the gold in a single phone circuit board around 220 pounds of mine-waste is generated[14]
- Require large amounts of energy to source. For example, gold requires 380,000 Mega Joules/Kg, in contrast to plastics requiring around 100 Mega Joules/Kg[15]

Source: *Earth Calling* http://www.forumforthefuture.org/files/earthcalling.pdf, p.6

1. Approximately what percentage of the total are plastics? _____
2. Which metal is used in the greatest quantity? _____
3. List the materials in a mobile phone that cause the most environmental concern.

_____

_____

_____

4. Why do you think flame retardants are included in a mobile phone? _____

_____

5. What 3 precious metals used in mobile phones have superior electrical conductivity?

_____

6. Name 6 of the materials in a mobile phone that are mined _____

_____

7. Name two environmental impacts of mining metals _____

_____

NEALS

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NSW Education & Training

World Map – Mining of Mobile Phone Materials

Appendix C

Source: *Exporting for the Future: Global Connections, p. 47 Available:* http://www.austrade.gov.au/Student-and-teacher-resources/default.aspx

KEY

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Out of Africa: the blood tantalum in your mobile phone

Appendix D

Stephen Hutcheon, Sydney Morning Herald, May 8, 2009 - 10:06AM

Tantalum is a rare metal with unique properties. Chief among these is that with a melting point of 2996 degrees Celsius it's a superlative thermal conductor.

Almost two-thirds of the world's tantalum production ends up in high quality capacitors that are used in devices such as mobile phones and other electronic gadgets.

Only trace quantities are used in each device with a typical Nokia mobile phone, for instance, containing about 40 milligrams of the stuff. But being the golden age of gadgetry, tantalum should be in high demand.

And as the mining company supplying more than 50 per cent of the world's tantalum demand, Australia's Talison Mineralsshould have been reaping the rewards of its market domination.

Talison - which operates tantalum mines at Wodgina in the Pilbara and Greenbushes, three hours' drive south-east of Perth - has instead spent the past three years scaling down its operations.

That process culminated last December in the mothballing of the second and largest of its mines at Wodgina - a decision that brought a halt to all of its tantalum mining and most of its processing.

With spot prices for tantalum today in the doldrums, high extraction and compliance costs and an unfavourable exchange rate, the company says it's no longer viable to mine the ore in Australia.

As a result, what was a multi-million dollar export market has all but dried up.

Peter Robinson, a veteran mining executive who has been Talison's chief executive since 2006, says it's not just the fault of the prevailing economic climate.

The roots of Talison's problems lie in a conflict that is being fought out 10,000 kilometres away on the other side of the Indian Ocean.

Blood tantalum

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For much of the past decade, cheap supplies of tantalum derived from mines under the control of various rebel groups based in the north-eastern regions of the Democratic Republic of Congo (DRC) have flowed into a long and complex supply chain.

Among those groups profiting from this trade are Hutu militia associated with the 1994 Rwandan genocide.

"There doesn't seem to be any shortage of material coming from that area," Robinson says. "People are making money wherever they can."

In central Africa, tantalum is extracted from an ore called coltan, short for columbite-tantalite.

Coltan is found in alluvial deposits or mined in primitive open-cut pits by workers - some of whom are children, enslaved or indentured - using the most basic of tools.

In the same way that the Taliban uses opium to fund its war in Afghanistan, or rebel groups in Colombia thrive off the proceeds of cocaine sales, the civil war in Congo is bankrolled by the sale of illegally mined "conflict resources" such as tantalum.

The International Rescue Committee refugee action group says the conflict has resulted in the death of over 5.4 million Congolese over the past decade.

"The economic dimension of the conflict has always been an important dimension but originally when some of these armed groups were created they weren't necessarily there to exploit the minerals," says Carina Tertsakian, a team leader with Global Witness, a London-based NGO that investigates natural resource exploitation.

"But as they managed to take over territory and found that these territories were very rich in minerals they then took advantage of that - a kind of opportunistic behaviour."

The problem now, she says, is that, having realised that there's money to be made, they've become more difficult to dislodge.

Article available at: http://www.smh.com.au/articles/2009/05/08/1241289162634.html

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Globalisation Cartoon

Appendix D[a]

Source: http://msl4m1socialstudies.blogspot.com/2009/04/another-cartoon-on-globalisation.html

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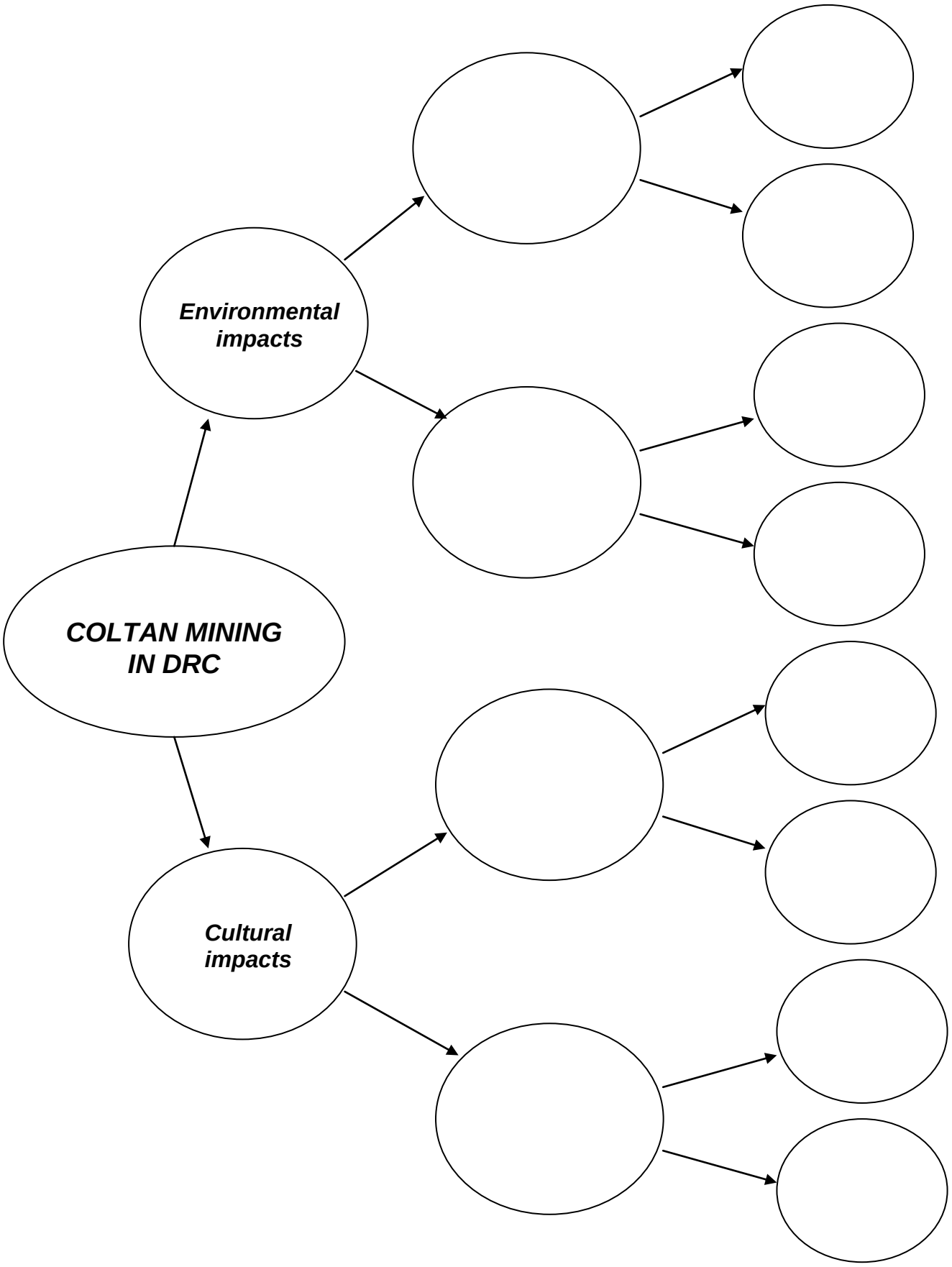
Coltan Mining Consequences Chart

Appendix C



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Why we need to change

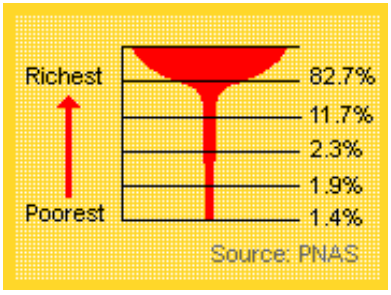
Source: http://weeeman.org/html/what/change.html

The way we use the planet today is not sustainable. We often unwittingly cause big problems for people in other parts of the world because we are unaware of the effects that our actions have on their lives. To act sustainably, we need to take social, environmental and economic responsibility.

Migrant child from Hunan province sits atop one of countless piles of unrecyclable computer waste imported from around the world. Guiyu, China. *© Basel Action Network, December 2001.*

Taking responsibility

Life isn't fair: 20% of the world's population consume 82.7% of the total world income, while the poorest 20% receive only 1.4% of total world income.



The way we behave and the choices we make as consumers have far–reaching effects on other people and environments around the world.

There are three main factors to consider:

- **Social responsibility:** ensuring that other people's quality of life and human rights are not compromised to fulfil our demands – such as buying fair trade products.
- **Environmental responsibility:** ensuring our actions and lifestyles do not have such a negative impact on the environment that the planet's resources are being used at unsustainable rates – for example, reducing energy usage and developing renewable energy sources.
- **Economic responsibility:** ensuring there is an economic benefit both to the region from which the purchase came and to the region in which it is marketed.
  (ITDG, 2003)

CASE STUDY

Mining of coltan in the Democratic Republic of Congo (DRC)

Coltan (columbite–tantalite) is a metallic ore that can be turned into a heat–resistant powder called metallic tantalum. This powder is excellent at storing electrical charge and is used in the capacitors that control current flow in mobile phones.

About 80% of the world's known coltan supply is found in the eastern regions of the Democratic Republic of Congo.

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Coltan is mined by hand, by digging basins in streams and scrapping off the surface mud. A team can "mine" one kilo of coltan per day.

During the technology boom, the price of coltan jumped from US$65/kg to US$600/kg. At the moment, it stands at about US$100kg. A coltan miner can earn up to US$200 a month, compared to US$10 a month for an average Congolese worker.

The cost of coltan and its consequences

The high price of coltan has lead to some serious social and environmental problems:

- Profits from its sale are being used to fund civil wars in Rwanda, Uganda and Burundi.
- Clearing the ground to make mining easier is devastating the natural habitat of the mountain gorilla. In the Kahuzi Biega National Park, the gorilla population has shrunk from 258 to 130.
- Local people suffer poverty as a result of the displacement by the miners. To survive, locals are killing gorillas and selling their meat to the miners as "bush meat". The number of Eastern Lowland gorillas in eight of Congo's national parks has declined by 90% over the past five years, and only 3,000 now remain.
  Source: (Cellular news, ND)

1. What is coltan and how is it used? _____

_____

2. How is coltan mined in the DRC? _____

_____

3. How is this trade fuelling civil war in the DRC? _____

_____

4. Why do locals suffer poverty? _____

_____

5. What impact has coltan mining had on the gorilla population? _____

_____

_____

6. Explain why this is an important industry in the Congo_____

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What mobile phone recycling schemes are available to us for implementation in our school?

Internet sites (there may be others)

Mobile Muster - http://www.mobilemuster.com.au

They're Calling on You - http://www.taronga.org.au/tcsa/environment/take-action/they're-calling-on-you.aspx

AMTA again corrects zoo's misleading coltan claims -

http://www.mobilemuster.com.au/articles/AMTA.again.corrects.zoos.misleading.coltan.claims

Gorilla warfare over recycling, says newspaper -

http://www.amta.org.au/articles/amta/Gorilla.warfare.over.recycling.says.newspaper

1. Comparison table

List the organisations which operate mobile phone recycling for schools in your area and compare them using the table below:

Name of mobile phone recycling organisation/scheme	Does it cost to recycle with them? How much?	What do they do with the mobile phones they collect?	What charities or causes are they aligned with?

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2. Evaluate the options

Write a statement explaining which mobile phone recycling scheme you recommend the school adopts. Justify your choice.

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Mobile phone recycling scheme 1:		
Plus - What are the positive ideas about this?	**Minus -** What are the negative ideas about this?	**Interesting -** What is interesting about this?

Mobile phone recycling scheme 2:		
Plus - What are the positive ideas about this?	**Minus -** What are the negative ideas about this?	**Interesting -** What is interesting about this?

Mobile phone recycling scheme 3:		
Plus - What are the positive ideas about this?	**Minus -** What are the negative ideas about this?	**Interesting -** What is interesting about this?

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