Japan – earthquake, tsunami and nuclear crises
EXEcutive 2011

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The Geography Bulletin is a quarterly journal of the Geography Teachers Association of New South Wales. The Bulletin embraces those natural and human phenomena which fashion the character of the Earth’s surface. In addition to this it sees Geography as incorporating ‘issues’ which confront the discipline and its students. The Geography Bulletin is designed to serve teachers and students of Geography. The journal has a particular emphasis on the area of the Pacific basin and its near neighbours and a specific role in providing material to help meet the requirements of the Geography syllabuses. As an evolving journal the Geography Bulletin attempts to satisfy the requirements of a broad readership and in so doing improve its service to teachers. Those individuals wishing to contribute to the publication are directed to the ‘Advice to Contributors’ on page 58. Articles are submitted to two referees. Any decisions as to the applicability to secondary and/or tertiary education are made by the referees. Authors, it is suggested, should direct articles according to editorial policy.

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In this edition

‘You can travel the seas, poles, and deserts and see nothing. To really understand the world you need to get under the skin of the people and places. In other words, learn about geography,... I can’t imagine a subject more relevant in schools. We’d all be lost without it ... If we don’t understand geography, we can’t properly understand the past, present or future of our planet.’

Michael Palin, member of Monty Python and well-travelled author.

In February, GTA held two award presentations at Parliament House – the HSC Students and Teachers Awards and the Arthur Phillip Awards. We were fortunate to have as our guest, Her Excellency, Administrator of the Commonwealth of Australia, Professor Marie Bashir AC, CVO.

This edition includes an ACARA Update by Susan Caldis, supported by an article on Asia and Australia’s Engagement with Asia – a cross curriculum priority.

Articles in the edition cover the latest natural disasters – Earth Strikes Back!, Queensland’s Floods, Japan’s Earthquake, Tsunami and Nuclear Crises and an inquiry-based research project on the Christchurch Earthquake.

As geography aims to be contemporary Martin Pluss wrote an informative article January 2011: Learning using Twitter, supported by articles on Visualising Facebook’s friendships using maps and The internet and People Power in relation to recent conflicts in the Middle East.

To recognise 2011 as United Nations International Year of Forests an activity-based unit of work is written with links to declining biodiversity, deforestation (Haiti and India), and cloud forests (endangered Gorilla). This section also includes a fun game – Christmas Tree, to cut or not to cut a tree.

Mackellar Girls’ High School participated as active citizens by holding a Birthing Kit Assembly Day supported by Zonta Northern Beaches. North Sydney Girls’ anticipates holding a Birthing Kit Assembly Day in July.


It is interesting to note famous people who majored in, or taught Geography include Michael Jordan, Prince William and Mother Theresa.
The Geography Teachers’ Association of NSW recognises the achievement of the state’s top HSC Geography students and their teachers for 2010.

HSC Geography Award recipients were:
- Alexander Butters, Newcastle Grammar
- Campbell Chambers, SHORE School
- Madeline Collins, Abbotsleigh
- Alice Davidson, Wenona School
- Shi-Ling Kou, James Ruse Agricultural High School
- Emily La, Baulkham Hills High School
- William Ma, Barker College
- Jocelyn McGarity, Dubbo School of Distance Education
- Alexandra Pentz, Queenwood
- Ilaria Popovic, Karabar High School Distance Education Centre
- Suzanne Kerr, Wenona School
- Bruce Marsh, Queenwood
- Helen Rhodes, SHORE School
- Carol Sheridan, Baulkham Hills High School
- Kerrie Wratten, Hurlstone Agricultural High School (formerly teaching at James Ruse Agricultural High School)
The Geography Teachers’ Association of NSW organises an annual competition for students to foster an enthusiasm for Geography. The emphasis of the competition is fieldwork and the gathering of primary data as part of authentic Geography research.

The GTA Fieldwork and Visual Presentation Award
- Highly Commended: Francesca Saraceno, Ravenswood School for Girls, My family is moving to Darwin: Differences between Darwin and Sydney in a range of geographical indicators.

The Global Education Fieldwork and Research Award
- First Place: (shared by three) Emily Cullen, Emily Grellman and Abby Rutherford, Calrossy Anglican School, The political geography of Uganda: A critical analysis of the causes and impacts of conflicts in Uganda.
- Second Place Nicola Close, Ravenswood School for Girls, Chinese migration to Sydney, The impact of Chinese migration to Sydney, push-pull factors and other geographical issues.

The Dr Don Biddle Issues in Australian Environments Fieldwork Award
- First Place: Olivia Appleby, Tara Anglican School, The urban growth and decline of Camden: A study of the demographic, residential and commercial changes associated with urban growth and decline in the Camden area.
- Second Place: Lauren Madigan, Smiths Hill High School, Shell Cove Marina: The impacts of the marina on residents and village, and the flora and fauna of the area.
- Third Place: Lauren Jones, Smiths Hill High School; Corrimal Coke Works: A study and analysis of the issues surrounding the coke-making factory in the suburb of Corrimal.

The Brock Rowe Senior Geography Project Fieldwork Award
- First Place: Thomas Howell, Endeavour Sport High School, A study of the impacts of Australand’s Cronulla housing and recreation development on the surrounding Wanda sand dunes, waterways, vegetation and wildlife, and an evaluation of the strategies developed to ensure environmental sustainability.
- Second Place: Aimee Sutton, Tara Anglican School, An investigation into the upgrade of the M2 motorway – its likely impacts on the environment, adjacent landuses and surrounding roads.
- Highly Commended: Ben Mink, Macquarie College, The future of the Pasminco lead smelter: An analysis of redevelopment issues that arise from the demolition of the Pasminco lead smelter and the construction of the Bunderra Housing and Industrial Zones.

The Water for Life Fieldwork Award
- First Place: Tom McBride, Covenant Christian School, Research on the biodiversity of the Kieran Creek and Duffy’s Creek.
- Second Place: Jeremiah Hunter, Covenant Christian School, Waste and water management by Belrose WSN.
- Third Place: Huong Pham, Merewether High School, How healthy is Cottage Creek?
- Highly Commended: Matthew Russell, Merewether High School, Glenrock Lagoon: Water quality and lagoon drainage.

The Dr Maurine Goldston-Morris Award for Excellence in Civics and Citizenship
- Jessica Grabelli, Macquarie College, Belmont Wetlands State Park: An investigation of the positive and negative effects on the environment and the community.

The Dr Maurine Goldston-Morris Award for Excellence by Teachers and Schools
- Ms Cathy Donnelly, Merewether High School

Geography Teachers’ Association of NSW Award of Recognition and Appreciation
- Dr Don Biddle AM
- Dr Maurine Goldston-Morris OAM
The Shape of the Australian Curriculum: Geography paper and the consultation report have now been published on the ACARA website – www.acara.edu.au/curriculum/geography.html

The consultation report synthesises the responses that were received during the national consultation period last year, between June and August 2010 and informs the revisions that were made to the Shape paper.

The Shape of the Australian Curriculum: Geography will be used as a guide for the development of the Foundation to Year 12 Australian Curriculum for Geography.

Advisory panel members and a curriculum writing team were appointed at the end of 2010. The advisory panel constitutes a range of geography practitioners, curriculum experts and academics in the field of geography and education from across Australia. Membership to the advisory panel and curriculum writing team was obtained through an expression of interest and a merit based selection process – www.acara.edu.au/verve/_resources/2011AdvisoryPanel+++Geography.pdf.

Since February, advisory panel members and the curriculum writing team have been working collaboratively to produce a draft broad outline of the curriculum for geography which encompasses the rationale, aims and a curriculum scope and sequence. This will be prepared for consultation at a National Panel meeting which has been scheduled for early May 2011. Delegates from state and territory education authorities, AGTA and the individual GTA’s around the country will be invited to attend the National Panel meeting along with other key stakeholder experts. Once the feedback from consultation has been considered and the required amendments made, the process continues with the development of the draft curriculum content from June through to September 2011.

It is anticipated that the draft Australian Curriculum for Geography will be released for online national consultation between October – December 2011. After consideration of the feedback, the revision process occurs along with further consultation activity in 2012. Digital publication and release of the Australian Curriculum: Geography is scheduled for the second half of 2012.

Professional development
Regional mini-conferences 2011

GeographyGoing National – Key issues in Geographical Education

This series of mini-conferences will focus on the development of the Australian Geography Curriculum; enhance skills in developing quality assessment tasks; assist non-Geography trained teachers to teach Geography skills (including a range of ICT-based skills); and to enhance participants’ content knowledge in areas relevant to the Stage 4/5 and Stage 6 Geography syllabuses.

Presenters: Dr Grant Kleeman; Mr Rod Lane, Mr David Hamper; Dr Susan Bliss; Mr Nick Hutchinson; Ms Lorraine Chaffer; and a representative from ACARA.

Orange –
Monday 17 and Tuesday 18 May

Coffs Harbour –
Tuesday 14 and Wednesday 15 June

Canberra –
Tuesday 21 and Wednesday 22 June

Batemans Bay –
Tuesday 26 and Wednesday 27 July

Session times: Day 1, 4.30pm – 6.30pm
Day 2, 9.00am – 3.30pm

Audience: Geography teachers
Target group: 10 – 12, KLA: HSIE
NSWIT endorsed course
Places available: 40
Registration closes: One week prior to each event
Cost and venues: To be advised, check GTA NSW website for updates – www.gtansw.org.au
Event contact: Carmel Logalbo
Phone: 02 9564 3322, Fax: 02 9564 2342
INTRODUCTION

The Birthing Kit Foundation Australia (BFKA) is a non-government organisation dedicated to improving the conditions for women who give birth at home in developing countries. Approximately 60 million women give birth each year with no assistance or only the assistance of a Traditional Birth Attendant (TBA), due to isolation, cultural choice, poor transport or poverty. AusAID and Zonta support the BFKA financially. Zonta is a world wide organisation of executives in business and the professions working together to advance the status of women through service and advocacy. It also performs 90% of the Birthing Kit Assembly Days in Australia.

CONTEMPORARY GLOBAL ISSUE

The United Nations World Health Organisation (WHO) estimates 525,000 women die annually in childbirth. Developing countries account for 99% of these deaths. For every woman who dies in childbirth, another 30 women incur injuries and infections – many of which are disabling, embarrassing and lifelong. The loss of a mother shatters a family and threatens the well-being of surviving children. Evidence shows that infants whose mothers die are more likely to die before reaching their second birthday than infants whose mothers survive (UNFPA). Of the hundreds of thousands of women who die during pregnancy or childbirth each year, 90 per cent occur in Africa and Asia. Working for the survival of mothers is a human right imperative. A woman living in a developing country compared to a woman living in a developed country is 300 times more likely to die in childbirth or from pregnancy-related complications and her child 14 times more likely to die during the first month of life. The woman’s chance of dying from complications during pregnancy or delivery is:

‘Every minute, a woman dies of complications related to pregnancy and childbirth’

1 in 7 in Niger
1 in 4,800 in USA
1 in 48,000 in Ireland

Roughly half of the deaths are concentrated in sub-Saharan Africa, which is home to only 11% of the world’s population.

INFANT MORTALITY RATE (IMR)

Infant Mortality Rate is the number of infant deaths, one year of age or younger, per 1000 live births

Map 1: World Infant Mortality Rates

Table 1: World historical and predicted Infant Mortality Rates per 1,000 births from 1950–2050

<table>
<thead>
<tr>
<th>Years</th>
<th>Rate</th>
<th>Years</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975–1980</td>
<td>83</td>
<td>2025–2030</td>
<td>34</td>
</tr>
<tr>
<td>1980–1985</td>
<td>74</td>
<td>2030–2035</td>
<td>31</td>
</tr>
<tr>
<td>1995–2000</td>
<td>57</td>
<td>2045–2050</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 2: Infant Mortality Rates – highest & lowest rates

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>IMR</th>
<th>Rank</th>
<th>Country</th>
<th>IMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Angola</td>
<td>180.21</td>
<td>193</td>
<td>Australia</td>
<td>4.75</td>
</tr>
<tr>
<td>2</td>
<td>Afghanistan</td>
<td>153.14</td>
<td>200</td>
<td>Korea, South</td>
<td>4.26</td>
</tr>
<tr>
<td>3</td>
<td>Liberia</td>
<td>138.24</td>
<td>201</td>
<td>Slovenia</td>
<td>4.25</td>
</tr>
<tr>
<td>4</td>
<td>Niger</td>
<td>116.66</td>
<td>204</td>
<td>Switzerland</td>
<td>4.18</td>
</tr>
<tr>
<td>5</td>
<td>Mali</td>
<td>115.86</td>
<td>205</td>
<td>Germany</td>
<td>3.99</td>
</tr>
<tr>
<td>6</td>
<td>Somalia</td>
<td>109.19</td>
<td>206</td>
<td>Czech Republic</td>
<td>3.79</td>
</tr>
<tr>
<td>7</td>
<td>Mozambique</td>
<td>105.80</td>
<td>215</td>
<td>Hong Kong</td>
<td>2.92</td>
</tr>
<tr>
<td>8</td>
<td>Zambia</td>
<td>101.20</td>
<td>216</td>
<td>Japan</td>
<td>2.79</td>
</tr>
<tr>
<td>9</td>
<td>Guinea-Bissau</td>
<td>99.82</td>
<td>217</td>
<td>Sweden</td>
<td>2.75</td>
</tr>
<tr>
<td>10</td>
<td>Chad</td>
<td>98.69</td>
<td>219</td>
<td>Singapore</td>
<td>2.31</td>
</tr>
</tbody>
</table>

MATERNAL MORTALITY RATE (MMR)

Maternal Mortality Rate is the number of maternal deaths per 100,000 live births

Graph 1: Maternal deaths – best performing countries

Table 3: Maternal Mortality Rate – Worst Performers

<table>
<thead>
<tr>
<th>MMR Global rank</th>
<th>Country</th>
<th>MMR 2008 Per 100,000 live births</th>
<th>Annual % change 90–08</th>
</tr>
</thead>
<tbody>
<tr>
<td>172</td>
<td>Liberia</td>
<td>858.9</td>
<td>0.9</td>
</tr>
<tr>
<td>173</td>
<td>Guinea</td>
<td>859.8</td>
<td>-0.6</td>
</tr>
<tr>
<td>174</td>
<td>Timor-Leste</td>
<td>928.6</td>
<td>-0.5</td>
</tr>
<tr>
<td>175</td>
<td>Côte d’Ivoire</td>
<td>944.1</td>
<td>2.7</td>
</tr>
<tr>
<td>176</td>
<td>Lesotho</td>
<td>963.5</td>
<td>5.6</td>
</tr>
<tr>
<td>177</td>
<td>Sierra Leone</td>
<td>1032.7</td>
<td>-0.1</td>
</tr>
<tr>
<td>178</td>
<td>Chad</td>
<td>1065.2</td>
<td>1.0</td>
</tr>
<tr>
<td>179</td>
<td>Malawi</td>
<td>1140.1</td>
<td>2.4</td>
</tr>
<tr>
<td>180</td>
<td>Central African Republic</td>
<td>1570.4</td>
<td>-0.6</td>
</tr>
<tr>
<td>181</td>
<td>Afghanistan</td>
<td>1575.1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Source: LIN – compilation of LIN information
Graph 2: Births without skilled care

Giving birth is especially risky in Southern Asia and sub-Saharan Africa, where most women deliver without skilled care.

<table>
<thead>
<tr>
<th>Region</th>
<th>Proportion of Deliveries Attended by Skilled Health Personnel 1990 (%)</th>
<th>Proportion of Deliveries Attended by Skilled Health Personnel 2008 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Asia</td>
<td>45</td>
<td>54</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>46</td>
<td>54</td>
</tr>
<tr>
<td>Eastern Asia</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>South-Eastern Asia</td>
<td>46</td>
<td>54</td>
</tr>
<tr>
<td>Western Asia</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Latin America &amp; the Caribbean</td>
<td>46</td>
<td>56</td>
</tr>
<tr>
<td>CIS</td>
<td>69</td>
<td>79</td>
</tr>
<tr>
<td>Eastern Asia</td>
<td>50</td>
<td>58</td>
</tr>
<tr>
<td>Transitional Countries of South-Eastern Europe</td>
<td>48</td>
<td>59</td>
</tr>
<tr>
<td>Developed regions</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Ongoing regions</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>

*Includes only deliveries in health-care institutions.

Big Issue – large number of births delivered without skilled care i.e. people with midwifery skills (e.g. Doctors, Midwives and Nurses).

Active Global Citizenship – shows all regions improved since 1990, but more than 50% of deliveries in some regions still have no skilled care (SE Asia, Sub-Saharan African).


WHAT SHOULD WE DO AS ACTIVE GLOBAL CITIZENS?

There are ways to reduce these statistics as active responsible global citizens by:

- preventing unwanted pregnancies
- improving antenatal care
- improving capacity for dealing with obstetric complications
- providing clean birthing conditions

The aim of the Birthing Kit Foundation and Zonta is to reduce the incidence of infant and maternal mortality/
SO WHAT IS A BIRTHING KIT?

A kit contains six items – a plastic sheet, soap, two gloves, sterile scalpel blade, three cords and five gauze squares. These items are assembled into a small bag at an Assembly Day. The birthing kit also addresses the seven cleans needed for a safe delivery.

There are 7 cleans necessary for a clean birth:
- Clean birth site
- Clean hands
- Clean umbilical ties
- Clean cut
- Clean eyes
- Clean umbilical cord
- Clean perineum

DID YOU KNOW?

A kit costs less than a cup of coffee but makes a huge difference to the lives of women and babies

- kit costs $2.50 to make and transport to a destination in Asia, Africa or the Pacific
- kits are effective in lowering chances of infection and death. A report from Afghanistan on the impact of using 2350 kits, noted only one woman died and no babies died. Normally between 44 and 118 women would die (depending on region) and over 100 babies would die.
- kits are part funded by AusAID. This supports AusAID’s commitment to help women in developing countries where the need is widespread and few resources are available. During the recent Pakistan floods, AusAID provided 2000 birthing kits for displaced pregnant women.
- kits are also funded by Zonta. Zonta Northern Beaches ladies organised fundraising activities such as breakfasts, dinners, fashion shows and trivia nights to fund the contents in the Birthing Kits

The following organisations support BKFA

UNITED NATIONS MILLENNIUM DEVELOPMENT GOALS

- MDG 5 – improve maternal health
- MDG 4 – reduce child mortality
- MDG 3 – promote gender equality and empower women
- MDG 6 – combat HIV/AIDS, malaria and other diseases.

The Birthing Kit project, supported by training programmes, have had a marked impact on these four Millennium Development Goals as the impact is felt long after the kits are used and the training is completed.

BIRTHING KIT PROJECT IN DEVELOPING COUNTRIES

Annually over 140,000 women who give birth in remote regions in developing countries are the recipients of BFKA kits. The kits are distributed with the assistance of a health professional who will provide instructions on how to use the kits correctly and how to dispose of the waste safely.

The Birthing Kit Project has two main aspects:

- make and distribute birthing kits to women who live in remote and rural regions in developing countries. It also targets home births where there is no assistance or only the assistance from a Traditional Birth Attendant (TBA)
- establish funded health training programmes for health workers and Traditional Birth Attendants (TBA), in consultation with local stake holders and health authorities in the course design and content

The BKFA also addresses the need to explore sustainable kit production in developing countries as well as fund training programmes.
Afghanistan has one of the highest maternal mortality rates in the world, estimated at 1900:100,000 live births. The women are either geographically restricted or culturally not allowed to use health facilities. BKFA started working in Afghanistan in 2006. Most of their kits are transported to Afghanistan via the Australian Defence Force. BFKA works with:

- Terre des Hommes (Tdh) in Kabul, Kandahar and Rustaq
- Marie Stopes International (MSI) Afghanistan in Kabul
- Revolutionary Afghanistan Women Association (RAWA)

Vietnam was one of the first countries to introduce the Birthing Kit Project. The maternal mortality rate is 130:100,000 live births. The remote mountainous regions where ethnic minority groups live have a much higher maternal mortality rate. The BKFA targets these regions where there are many home births. 42,800 kits were distributed in 2008

Ethiopia, a country of 80 million people located in Sub Saharan Africa, has 2.75 million pregnant women every year of which 93% deliver their babies at home. Ethiopia with a maternal mortality rate of 850:100,000 live births, requires clean birth and midwifery education. BKFA distributes kits through the Health Extension Worker and Traditional Birth Attendant training programs and to remote outposts through the following organisations:

- Hamlin Fistula Hospital
- Oasis Foundation
- Afar Pastoral Development Association (APDA)
- Ministry of Health
Democratic Republic of Congo, Kenya and Rwanda.
All three countries have high maternal mortality rates such as: 1000:100,000 live births in Kenya; 990:100,000 live births in the Congo; and 1400:100,000 live births in Rwanda. Mission in Health Care and Development (MHCD) partners BKFA to deliver birth kits in these three countries. In Kenya 70% of women deliver their babies at home where the Traditional Birth Attendants do not have access to birth materials – hence the importance of a clean birth kit. BKFA has worked in Kenya since 2005 supplying kits as well as a 3–5 day midwifery training seminar since 2008. At these training programmes, 80 Traditional Birth Attendants from remote regions, are educated and given a training manual in the local language.

Papua New Guinea was the first country to receive kits from BKFA in 1999. The lifetime risk of death in childbirth is 1.7 in rural PNG with a maternal mortality rate of 300:100,000 live births. BKFA is currently working through the following organisations to distribute kits and train birth attendants:
- National Department of Health
- Man-I-Kiau Cooperative Society Goroka
- MSI PNG / Medical Society of PNG
- Enga Baptist Hospital

TRAINING PROGRAMS
The Ethiopian Ministry of Health gave BKFA permission to distribute birthing kits and develop health initiatives to make available clean and safe birthing environments in remote communities. The Afar nomadic pastoralists live in the Danakil Desert in Ethiopia. The Afar Pastoralist Development Association (APDA) was formed in 1993 to address literacy and primary health care. In 2010 the BKFA funded a Traditional Birth Attendant training course for 40 women run by APDA in Dagaba and Daaba, in the remote Dubte Woreda of the Afar Region. The training included information on clean birthing, women’s rights and minimising harmful traditional practices. They also received a year’s supply of clean birth kits made up of locally-sourced components.

PHOTOGRAPHS: RECEIVING BIRTHING KITS

Photograph: In Tibet a Traditional Birth Attendant with her maternity pack as well as a birthing kit

Photograph: Maasai Mara women receiving birthing kit

Photograph: An Afar family in Ethiopia receiving birthing kits
Geography Bulletin Vol 43, No 2 2011

School project – Mackellar Girls’ High School

Photograph: A Maasai Mara woman at the training seminar in 2009. Over 400 women wanted training but funding only allowed 80 women to be trained. Source: www.birthingkitfoundation.org.au/projects/p121.aspx

ACTIVE CITIZENSHIP: HOW CAN YOU HELP?

Schools could consider helping in one of the following ways:

• organise an Assembly Day (contact Zonta)
• hold a fund raising event
• volunteer at an Assembly Day
• become a member

Cartoon

STUDENT ACTIVITIES

• Answer the inquiry skills: What is a birthing kit? Why are birthing kits required? Who needs birthing kits? Where do these women live? Why does it occur? What organisations are working for a more equitable world for women? What could you do?
• Refer to the map and list the countries receiving birthing kits from BKFA. www.birthingkitfoundation.org.au/map/map.aspx
• Explain the problems of distributing birthing kits in developing countries
• Suggest strategies to reduce high maternal and infant death rates
• Describe how birthing kits have improved the lives of women and children living in developing countries
• Develop a school plan to participate in a Birthing Kit Assembly Day

Using geographical tools:

• Map 1: List three countries with IMR less than 10 and three countries with an IMR greater than 100
• Map 1: What is the IMR for Egypt, Indonesia, China, PNG, Vietnam and India?
• Table 1: Draw the table as a line graph. Account for the changes from 1950-2050
• Table 2: Draw the IMR of countries as a column graph. Calculate the range in IMR between Singapore and Angola as well as between Australia and Afghanistan
• Graph 1: Research the reasons for the MMR of USA lagging behind the other developed countries
• Table 3: Imagine you were a poor rural woman living in one of these countries. Describe the problems giving birth.
• Graph 2: List the countries where less than 70% of births are delivered without skilled care in 2008.
• Map 2: List ten countries where birthing kits are delivered from Birthing Kit Foundation Australia

Weblinks

AUSAID – www.ausaid.gov.au
Birthing Kits Australia – www.birthingkitfoundation.org.au
No Woman Should Die Giving Life UNFPA – http://cl-t077040cl.privatedns.com/safemotherhood/mediakit/documents/fs/factsheet1_eng.pdf
Safe Motherhood – www.unfpa.org/public/mothers/
UN Fact Sheet on Millennium Development Goal 5 – www.unfpa.org/webdav/site/global/shared/safemotherhood/docs/MDG_FG_5_EN_new.pdf
Video library UNFPA – http://video.unfpa.org/video/43961384001-82296234001-PSA-Storytelling
Video: Women and Poverty; Birthing Kits – www.youtube.com/watch?v=nq9vQjJNwu0
YouTube: Birthing Kit Assembly Day – www.youtube.com/watch?v=ShLDlf5zdzw
YouTube: Birthing Kit Sydney University – www.youtube.com/watch?v=t7psQvAo8E
Zonta District 24 – www.zontadistrict24.org.au
Facebook engineering intern Paul Butler created a map of international human relationships, using a ten million friend pair sample size from Facebook social graph data.

This is what the world looks like, according to the Facebook social graph.

Paul Butler created a visualisation of Facebook connections around the globe to locate friendships. He wanted to investigate: How local are our friends? Where is the highest concentration of friendships using Facebook? How do political and geological boundaries affect them?

Butler used a sample of 10 million friend pairs, correlated them with their current cities and mapped the data using the longitude and latitude of each city.

Creating the effect to show connecting relationships between thousands of cities proved a challenge. Butler wrote a Facebook note explaining some of the challenges he faced creating his visualisation:

‘I plotted points at some of the latitude and longitude coordinates. To my relief, what I saw was roughly an outline of the world. Next I erased the dots and plotted lines between the points. After a few minutes, a big white blob appeared in the centre of the map. Some of the outer edges of the blob vaguely resembled the continents, but it was clear that I had too much data to get interesting results just by drawing lines... Instead... I defined weights for each pair of cities as a function of the Euclidean distance between them and the number of friends between them. Then I plotted lines between the pairs by weight, so that pairs of cities with the most friendships between them were drawn on top of the others. I used a colour ramp from black to blue to white, with each line’s colour depending on its weight.’

With a few tweaks, Paul Butler came up with the visualisation above. It provides some expected data; such as the U.S. has the highest concentration of Facebook friendships and Africa the lowest concentration. While most of Russia and Antarctica are not found on the map, the rest of the world is identifiable.

Butler said ‘It’s not just a pretty picture, it’s a reaffirmation of the impact we have in connecting people, even across oceans and borders.’

Source: http://mashable.com/2010/12/13/facebook-members-visualization/
In 2011 the world witnessed the growth of ‘people power’ via information technology such as Facebook, Twitter, Blogs, YouTube, satellite TV and mobile phones. As a result, an imaginative geography of liberation evolved, mapping a new world to navigate and discover.

The internet was used by protesters in North Africa and the Middle East to help coordinate their manifestations. While millions of Egyptians participated in the ‘March to Victory’, a week after the resignation of Hosni Mubarak as president, the success of the revolution spurred other demonstrations against authoritarian regimes in the Middle East and North Africa. In Bahrain, Yemen and Libya demonstrations resulted in deaths. The wave of riots in the Arab world – and the fear of it spreading to Saudi Arabia, the world’s largest exporter of oil – resulted in a rise in the price of crude oil. Hundreds of people joined a Facebook campaign to hold a ‘day of rage’ in Saudi Arabia, to demand elections, freedom for women and the release of political prisoners.

Protests in Egypt

Anti corruption protests in Egypt turned violent, reminding everyone of Tunisia. More than 90,000 Egyptians agreed on Facebook to turn out for a ‘day of revolution’ to mark Police Day, a national holiday. Hundreds of thousands turned out for the protests around the country. The riots turned violent in Cairo resulting in deaths and damaged infrastructure.

China responds

China blocked the word ‘Egypt’ in web pages searches, in a sign the country’s government is concerned about the impact of protests in the Middle East. China says the Internet is free and open to its 450 million users in the country but the government blocks many social networking sites like Twitter, Flickr, Facebook and YouTube.
People Power uses the Internet

Political impact: engaging the youth

Facebook’s role in the American political process was demonstrated in January 2008, before the New Hampshire primary, when Facebook teamed up with ABC and Saint Anselm College to allow users to give live feedback about the Republican and Democratic debates. Over 1,000,000 people installed Facebook’s application in order to take part. The application measured users’ responses to specific comments made by the debating candidates. The debate provided the views of the broader community. It also involved young students who use Facebook to interact and voice opinions. As a result, more young people voted and became involved in the election.

Did you know?

- February 2008, a Facebook group called ‘One Million Voices Against Revolutionary Armed Forces of Colombia (FARC)’ organised an event that saw hundreds of thousands of Colombians march in protest against the FARC.
- February 22, 2011, an Egyptian baby was named ‘Facebook’ to commemorate the vital role Facebook and other social media played in Egypt’s revolution.
- The Social Network, a drama film directed by David Fincher is about the founding of Facebook. It was released October 1, 2010.

Facebook, a social network service and website launched in February 2004, is operated and privately owned by Facebook, Inc. As of January 2011, Facebook has more than 600 million active users. Facebook allows anyone who declares themselves to be at least 13 years old to become a registered user of the website.

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GTA
The Geography Teachers’ Association of New South Wales Inc.

HSC STUDENT LECTURES 2011

Once again this year, the GTA has organised lectures for HSC Geography students. The presenters are experienced educators and HSC markers. The sessions cover: Ecosystems at Risk, Urban Places, People and Economic Activity and Skills in Geography.

LOCATIONS AND DATES
- Brisbane Waters Secondary College
  Woy Woy Campus, Gibbs St, Woy Woy
  Tuesday 31 May
- Callaghan Secondary College (Jesmond Campus, Janet St, Jesmond)
  Tuesday 7 June
- St Andrews Cathedral School
  (Ground Floor, 51 Druitt St, Sydney)
  Thursday 16 June
- University of Wollongong
  (Northfields Ave, Gwynneville)
  Thursday 23 June

TIME
9:00am – 3:00pm

REGISTRATION CLOSES
One week prior to event. Attach a list of attendees with your school’s registration

COST (inc GST)
- $30 per student for member schools/teacher
- $50 per student for non-member schools/teacher

Teacher attending with students admitted free
There are major natural events at the local, national and global scale which occur in our absence. Bushfires and cyclones are common in Australia during January and the floods in 2011 took things to another dimension. Like many of my students I was on holidays and perhaps unlike many of my students I was obtaining all my information from Twitter.

**TWITTER**

As teachers we need to ask – *Are our students prepared to process the causes, effects and management of these events by themselves?*

The Geographer in me was aware of what was happening with the floods. I noticed the Bureau of Meteorology (BOM) spin in one of the early press conferences. *Would the majority of students been astute to pick this up in our absence? If they did not – did we fail them?*

The BOM spokesman was saying their modelling was accurate for the forecast but did not have the capabilities to factor in all the local variables. At the time I was wondering if this was a disclaimer or a spin. Then a couple of hours later Prime Minister Julia Gillard was asked if the government would give BOM more money to enable them to improve their modelling. The Premier of Queensland Anna Bligh stepped in and said the BOM was fine but technology had not caught up and could not do all that needed to be done in a disaster.

*What was that the Premier said? Technology had not caught up?* From this point on I suspended my natural interest in geography and started to look at the whole experience from the point of view of technology and social media. Those involved with the Geographical Society of NSW and academic geography are aware of the work carried out by hydrologists, marine scientists and geomorphologists and the technology they use for local predictive capabilities. Also teachers have experience with technology and social media which can be used to investigate the floods. I took time in January to take a more analytical look at how it was used in the Brisbane floods.

Soon I realised many students would be missing out on this avenue of learning because perhaps they had not been exposed to the educational value of social media despite their active use of social media in other avenues of their life. The difference is in what they follow and increasingly I am of the opinion students need to separate their personal and learning use of social media tools.

We as teachers should accept the responsibility to guide the students in this process. This may mean using Twitter for student learning and Facebook for their social life. Or, in other words – use Facebook socially and judiciously use “Groups” and the “Like” functions of the more learned aspects of Facebook.

**QUEENSLAND FLOODS AND TWITTER**

I want to share with you my experience of the floods using social media, mainly Twitter, for professional learning in relation to the Queensland floods. I was only using my phone (Nokia E71) because I was not in WiFi range. I collected all the tweets I found useful to understand the lead up to and the peaking of the Queensland floods. After the peaking of the floods I stopped collecting the tweets. Hence the information I am commenting about is limited to: a certain time frame; those people and organisations I follow; and the key hash tags for the floods such as #qldfloods.

**TWITTER CHANGES BY 2011**

A few years ago I wrote about the use of Twitter as a tool for professional development and how to obtain information about an event before the mainstream media. In fact Twitter often alerted the world to an event. This proved to be the case in February 2011 with the political developments in Egypt and later in countries in Africa.
and the Middle East. This time Twitter about the floods in Australia became mainstream media. The Channel 7 Sunrise program used their Twitter accounts to gather and process their information.

I was noticing the use of Twitter has changed. It was more formal and informative rather than random and generalist. With the Victorian bushfires in February 2009 many of the tweets were providing information about things we could not get from other sources. Twitter users had started to process and analyse these results.

Twitter, as it was an organism itself, adapted and started to take on a different role:

1. Tweets were used to show the evolution of the event. There were many good photos, videos and map mashups on Twitter showing rising water levels. All this information gave real time examples of what was happening but no real geographical fix was made. People were giving suggestions of what to take and leave behind in the case of evacuations (Figure 1).

2. Tweets from organisations started to add value to our understanding of the event. Snippets from press conferences for those not near the television outlined where the road closures were occurring. It became clear organisations were seeing the benefits of getting information to people. Some individual tweeters were data mining information from key organisations. These people were also viral in spreading information during the bushfires in Western Australia and floods in Victoria. There were also organisations putting together emergency information specifically about the floods such as the QPS Media Unit. Soon other organisations were spreading their word through other social media sources such as the Queensland Police Facebook page.

3. Tweets were used for the crowd sourcing of information and there were “mash up” of resources about the floods. Crowd sourcing is where groups of people share their collective knowledge to put together useful information or product. Crowd sourcing is not new, but the speed at which it was developing during the floods was quite distinctive. This was a new development with the use of Twitter and natural events. Experts from Google were also collecting data and embedding data with Google Maps. This resulted in a series of overlapping flood maps showing their spread and future projections. Also individuals were creating mashups of data mined from twitter and other sources (Figure 2). It also appears Google formalised a Crisis Response Team where experts went to Christchurch and Japan to help with earthquake mapping.

4. The pitching in and helping tweets. Tweets about raising money and charity events appeared before the flood levels rose in Brisbane. Everybody was pitching in to help. This was interesting with leading sports people making suggestions for special events such as celebrity cricket matches and specific donations by high profile people such as Lance Armstrong and Stephen Fry. These celebrities also contributed to spreading the word globally (Figure 3).

5. Reflection and evaluation of tweets. I have only discussed the tweets during the height of the floods. Over time tweets started to look more carefully into broader issues. Father Bob, in Victoria, questioned why it takes a major event to trigger the charity instinct in people rather than doing something all the time or at least on a regular basis. Some asked - why was so much water released from the dams? At once this involved reflection on government policy. Soon after the tweets talked about the need for volunteers to help with the cleanup (Figure 4).

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**Figure 1: Evacuation advice**

**Figure 2: Mashups of data**

**Figure 3: Pitching in and helping**

**Figure 4: Reflection and evaluation**
How can the social media, specifically Twitter, be harnessed for education and specifically geographical education?

- Firstly, students need to collect information about events. The use of information gleaned from Twitter adds value to the traditional modes of information collection for researching contemporary geographical issues. Major media outlets such as Sunrise, SkyNews and the like used Twitter to distribute information rather than wait for the next edition of the news or print run of the paper. This also allowed more considered and analytical commentary in the printed media when it was released. It also made use of crowd sourced mashups of pre and post maps with aerial images.

- Secondly, the information gleaned from Twitter varied in its accuracy and authenticity. It is a perfect medium to teach students the value of cross checking the reliability of information. For example, at one stage during the floods an Ipswich Council Member tweeted about bodies found in a certain location. Watching the police and emergency services checking the validity of this tweet not only proved it to be false but resulted in Premier Anna Bligh asking people to be careful about what they tweet.

- Thirdly, there were interesting examples of moral and ethical dilemmas evolving from the tweets. For example Father Bob questioned – why does it take a major event to get people to make donations and help? Peoples’ reaction to comments in the formal media about looters was interesting and thought provoking. The Mayor of Ipswich suggested they should be used as flood markers and the Premier suggested there is not a word in the English language that is strong enough to express her opinion on looters.

- Fourthly, more so than in past events Twitter and social media helped galvanise the populace into civic action to help those in the floods, as supporters and volunteers. Social media helped make it happen!

Record numbers of volunteers from all over Australia came to help and third party volunteer organisations assisted to organise the volunteers. In fact I read on Twitter a few weeks later they had saved the insurance industry millions of dollars in their clean up costs. I wonder – will it be recognised by the insurance companies?

VALUE OF TWITTER: FIELDWORK

Almost all mainstream organisations and businesses see the value of social media. Others use it or have plans to use it. However, many teachers are not embracing the social media as they do not have sufficient understanding of its value and use. Are we failing our students? On two levels I think we are: firstly because we are failing to adapt and understand the value of social media tools; and secondly because we don’t have the skills to help our students use the tools they are already using to enhance their learning in our absence.

Personally, I believe a critical mass of students use the social media. They are ready to be lead to the next stage of their geographical learning with technology. I pondered whether I was capable of doing this and whether they were ready to take the leap. The answer to my question came to me through the students. On a recent fieldwork trip my students took out their phones and recorded what I was saying at a location in Pyrmont while other students were taking photos and videoing what I was talking about. Other students used their phone to find key information about sites such as the price of terraces and units they noticed for sale and the type of business they read on a building plaque. The students were using their phones to collect information in the field. I did not ask them to do this and I was impressed at their initiative.

In fact the students took it to another level. I was walking through the library later that evening and a group were sorting out their photos and videos, putting the audio into Audacity and the clips into Moviemaker and were making a presentation linking up my audio with the relevant pictures.

I now want to take my students to the next stage and teach them how to use social media for their January Geography (or holiday/weekend geography) when I am not around. I am still working out how best to do this – but from what I have learnt from the floods and my recent fieldwork experience – they are ready!

Exploring the use of Twitter around the world – www.sysomos.com/insidetwitter/geography/

Twitter website offers a social networking and microblogging service, enabling its users to send and read messages called tweets. Tweets are text-based posts of up to 140 characters displayed on the user’s profile page. Tweets are publicly visible by default; however, senders can restrict message delivery to just their followers. Since its launch in July 2006, Twitter has gained popularity worldwide and has almost 190 million users, generating 65 million tweets a day and handling over 800,000 search queries per day. It is sometimes described as the ‘SMS of the Internet’ http://en.wikipedia.org/wiki/Twitter

Martin Pluss, teaches Geography and is Learning Technologies Co-ordinator at Loreto Normanhurst. martinpluss@gmail.com; twitter.com/plu
Geography involves the study of natural disasters reported daily on television, newspapers, the Internet and mobile phones. A natural disaster is the effect of a natural hazard such as a flood, tornado, cyclone, heat wave, volcanic eruption, earthquake, blizzard, landslide, tsunami, fire, drought, avalanche, health epidemic and famine. It can lead to human, environmental and financial loss.

The year 2010 was a tough year for most of the world, considering the spread and diversity of natural disasters. In 2010 there were over 250,000 deaths from natural disasters. The Haiti earthquake was responsible for 220,000 of these deaths. The 2010 figures were high compared to previous decades: 2000s (78,000); 1990s (43,000); and 1980s (75,000).

Just a few months into 2011, Mother Nature delivered a slew of costly and deadly natural disasters. The year commenced with floods in Australia, an earthquake in Christchurch New Zealand, an earthquake and tsunami in Japan, floods in the Philippines, South Africa and Pakistan, floods and mudslides in the Brazilian state of Rio de Janeiro, landslides in Victoria and tornadoes in USA. China is still experiencing the worst drought in 60 years affecting most of its wheat producing regions.

Possessions are not difficult to replace if people have insured their property and goods – but lost loved ones, lack of access to water, food, shelter, power and medical assistance is more devastating. Often communities are displaced, separating friends and neighbours, and anxiety increases fearing the disaster could occur again.

Activity; Using the Internet, design a collage on natural disasters during the last 12 months.

PHOTOGRAPH OVERVIEW: RECENT NATURAL DISASTERS

Boston Blizzards (D. Bliss);
Japan earthquake and tsunami – http://en.wikipedia.org/wiki/File:Aerial@sendai.jpg;
Machu Picchu landslides and floods – www.msnbc.msn.com/id/35090990/ns/world_news-americas/;
WHERE WERE NATURAL DISASTERS LOCATED 2010–2011?

<table>
<thead>
<tr>
<th>Activity: Select two recent natural disasters. Research the disasters and complete the scaffold</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What was the natural disaster?</strong></td>
</tr>
<tr>
<td><strong>Where was the disaster located? Include map with latitude, longitude, scale, key and heading</strong></td>
</tr>
<tr>
<td><strong>When did it occur?</strong></td>
</tr>
<tr>
<td><strong>What were the processes involved?</strong></td>
</tr>
<tr>
<td><strong>What were its impact on people and the environment?</strong></td>
</tr>
<tr>
<td><strong>What was the emergency response?</strong></td>
</tr>
<tr>
<td><strong>Was it effective?</strong></td>
</tr>
<tr>
<td><strong>How can the impact of the disaster be reduced in the future?</strong></td>
</tr>
<tr>
<td><strong>What are the Internet links to the disaster? (YouTube and Flikr)</strong></td>
</tr>
<tr>
<td><strong>What was the impact of the social media on the disaster? (Twitter, Facebook)</strong></td>
</tr>
</tbody>
</table>

### April 2010: Iceland – volcanic eruptions
- Eyjafjallajökull caused thousands of cancelled flights and millions of passengers were stranded or delayed across airports from Europe to North America, Africa, Asia and Australia.

### July 2010: Pakistan – floods
- Resulting from heavy monsoon rains affected the Indus River basin. One-fifth of Pakistan’s land area was flooded. It affected 20 million people, destroyed property, livelihoods and infrastructure, 2,000 people died. This was followed in February – March 2011 with the Balochistan floods. UNHCR claims 166,000 flood victims still remained homeless from the 2010 floods.

### Christmas 2010 – New Year 2011: USA – blizzards
- Hit the NE coast (New York) - 10,000 flights cancelled, snow caved in roofs, schools closed and power shut down.

### April 2011: USA – 630 tornadoes
- Reported in US. Worldwide, 55 people perished: 12 in Bangladesh and 43 in US.

### February 2010: Haiti – 7.0 magnitude earthquake
- Struck near Port-au-Prince. Poorly constructed buildings toppled. 200,000 deaths and 3 million people affected.

### February 2010: Peru – 40 landslides and floods
- Heavy rains wiped out straw and earth huts, farms, roads and bridges. Killed 26, stranded 1,900 tourists and displaced 20,000 villagers near Cusco. Machu Picchu was shut down for over two months. $1 million a day was lost in tourism revenue.

### February 2010: Chile – earthquake and tsunami
- Magnitude 8.8 magnitude earthquake struck off the coast of Maule, in Chile. A tsunami (2.6m high) swept through Constitucion and other coastal towns. The quake killed 500 people and caused $30 billion damage. 200,000 Chileans homeless and 20% of the country’s wine destroyed.

### February 2011: New Zealand Christchurch – 6.3 magnitude earthquake
- Hit five months after the city was hit by a 7.1 earthquake. Death toll 182.

### March 2011: Japan Tohoku – earthquake and tsunami
- A 9.0 magnitude earthquake in Pacific Ocean destroyed parts of NE Japan and triggered a tsunami of 10metres, which travelled up to 10km inland. Estimated 25,000 deaths.

### December 2010 and January 2011: Australia experienced floods
- Primarily in Queensland (including Brisbane) but also parts of Victoria, NSW and Tasmania. In Queensland 70 towns and 200,000 people affected. Damage around $1 billion. Three-quarters of Queensland declared a disaster zone. 35 dead, 9 missing.

### February 2010: Chile – earthquake and tsunami
- Magnitude 8.8 magnitude earthquake struck off the coast of Maule, in Chile. A tsunami (2.6m high) swept through Constitucion and other coastal towns. The quake killed 500 people and caused $30 billion damage. 200,000 Chileans homeless and 20% of the country’s wine destroyed. Another earthquake occurred 12/2/2011.
TYPES OF NATURAL DISASTERS

The United Nations International Strategy for Disaster Reduction (ISDR) divides natural disasters into three groups:

- hydro-meteorological disasters: floods, wave surges, storms, heat waves, blizzards, droughts and related disasters (forest/scrub fires), landslides and avalanches
- geophysical disasters: volcanic eruptions, earthquakes and resulting tsunamis
- biological disasters: epidemics and insect infestations

Table 1: Average number of people reported killed, per million inhabitants by continent and disaster origin 1991–2005

<table>
<thead>
<tr>
<th>Continent</th>
<th>Hydrometeorological</th>
<th>Geophysical</th>
<th>Biological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>1.30</td>
<td>0.37</td>
<td>7.31</td>
</tr>
<tr>
<td>Americas</td>
<td>6.23</td>
<td>0.31</td>
<td>1.13</td>
</tr>
<tr>
<td>Asia</td>
<td>5.19</td>
<td>7.54</td>
<td>0.39</td>
</tr>
<tr>
<td>Europe</td>
<td>4.77</td>
<td>0.23</td>
<td>0.03</td>
</tr>
<tr>
<td>Oceania</td>
<td>1.92</td>
<td>5.06</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Source: www.unisdr.org/disaster-statistics/impact-killed.htm

Activities:

Which continent experienced the largest number of people killed from 1991–2005?
What was the major cause of most deaths from 1991-2005?

Table 2: Number of people reported killed by type of disaster and level of development 1991–2005

Table 3: Natural disasters with deaths over 200,000

<table>
<thead>
<tr>
<th>PLACE</th>
<th>TIME &amp; CAUSE</th>
<th>IMPACT (DEATHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt and Syria</td>
<td>1201 Earthquake</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Europe and beyond</td>
<td>1347–50 Bubonic Plague</td>
<td>25,000,000</td>
</tr>
<tr>
<td>China, Shansi</td>
<td>1556 Earthquake</td>
<td>830,000</td>
</tr>
<tr>
<td>India, Calcutta</td>
<td>1737 Typhoon</td>
<td>300,000</td>
</tr>
<tr>
<td>India</td>
<td>1769 Drought/famine</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Iran, Tabriz</td>
<td>1780 Earthquake</td>
<td>200,000</td>
</tr>
<tr>
<td>China</td>
<td>1876–79 Famine/drought</td>
<td>9,000,000</td>
</tr>
<tr>
<td>China, Yellow River</td>
<td>1887 Floods</td>
<td>900,000</td>
</tr>
<tr>
<td>World-wide</td>
<td>1918–19 Influenza</td>
<td>50+ million (not all fatalities)</td>
</tr>
<tr>
<td>China (North)</td>
<td>1920 Drought</td>
<td>500,000</td>
</tr>
<tr>
<td>China, Gansu</td>
<td>1920 Earthquake</td>
<td>200,000</td>
</tr>
<tr>
<td>China, Nanshan City</td>
<td>1927 Earthquake</td>
<td>200,000</td>
</tr>
<tr>
<td>China</td>
<td>1935 Floods</td>
<td>3,400,000</td>
</tr>
<tr>
<td>China</td>
<td>1939 Floods</td>
<td>200,000</td>
</tr>
<tr>
<td>China, Henan Province</td>
<td>1942–43 Drought</td>
<td>1,000,000+</td>
</tr>
<tr>
<td>China</td>
<td>1958–61 Drought/famine</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1970 Cyclone, floods, storm surge</td>
<td>500,000</td>
</tr>
<tr>
<td>China, Tangshan</td>
<td>1976 Earthquake</td>
<td>655,000</td>
</tr>
<tr>
<td>20 African nations</td>
<td>1981–84 Drought</td>
<td>1,000,000, until recently</td>
</tr>
<tr>
<td>North Korea</td>
<td>1995–98 Floods/famine</td>
<td>3,000,000</td>
</tr>
<tr>
<td>12 Sth Asian Nations</td>
<td>2004–05 Earthquake/tsunami</td>
<td>235,000–285,000</td>
</tr>
<tr>
<td>Haiti</td>
<td>2010 Earthquake</td>
<td>220,000</td>
</tr>
</tbody>
</table>

Table 4: Natural disasters with deaths over 200,000

Activities:

ANALYSIS OF TABLE

- Frequently we hear news reports refer to the 2004 South Asian tsunami disaster as ‘the world’s worst disaster’. Yes, the disaster was horrendous, but there have been more destructive natural disasters as noted in the table.
- Some natural disasters are not included in the table. For example of the 300-500 million cases of malaria each year, 2-5 million sufferers die (WHO).
- These figures are rough estimates. As noted during the 2004 earthquake and tsunami disaster, volunteers eventually stopped keeping accurate records. They were overwhelmed, tired and too busy. Also governments hide true figures (China in 1976) and varying statistics are given by different sources.

Activities:

Refer to Table 3:

- Explain why the number of deaths was huge in 1201 compared to the population at the time
- What country appears most disaster prone? Explain why deaths are high?
- Calculate the number of deaths from earthquakes and floods
- List the natural disasters that could be included in the table
- Explain the problem of using statistics
The Global Disaster Alert and Coordination System provides near real-time alerts about natural disasters around the world and tools to facilitate response coordination, including media monitoring, map catalogues and Virtual On-Site Operations Coordination Centre.

Activities
Refer to this website www.gdacs.org/index.asp
- list the disasters around the world in the last month. Locate the places on a world map
- locate one green flood alert and discuss its impact

Knowledge and Understanding
- Assign one student per week to monitor the Pacific Disaster Centre website www.pdc.org/iweb/pdchome.html;jsessionid=43C2F1838D2188EF780506C5C6B5E6B5.
  The student will post a small display of the most interesting events and give a short verbal update on one or two interesting hazard events from the past week.
- Design brochures outlining the school’s disaster plan and distribute them around the school
- Describe the difference between a natural and a human disaster. Provide examples
- Discuss why natural disasters have become so commonplace they hardly receive passing notice on the news unless there have been a large number of casualties. Provide examples.
- Research how disaster management, forecasting and technology have reduced deaths from natural disasters
- Make or collect emergency kits for the classroom.
- Refer to this website and discuss the economic impact of natural disasters on countries – www.unisdr.org/disaster-statistics/top50.htm

COFFS HARBOUR MINI CONFERENCE:
Geography Going National – Key issues in Geographical Education
The mini conference will focus on: Australian Geography Curriculum: update and consultation; urban dynamics; working with students’ ideas to build geographical understanding; Australia in its regional context with a focus on China; and promoting student engagement and conceptual understanding using contemporary issues and visual literacy.

LOCATION
Novotel Pacific Bay Resort
Cnr Pacific Hwy & Bay Drive
Coffs Harbour NSW

DATE
Tuesday 14 June 4:00pm start,
pre-dinner drinks 6.30pm & 7.00pm dinner
Wednesday 15 June
8:30am – 3:30pm

REGISTRATION CLOSES
Wednesday 8 June

COST [inc. GST]
Tuesday only –
$80 member and $90 non-member
Tuesday & Wednesday –
$120 member and $140 non-member
Conference dinner (three course) $55.50

ACCOMMODATION
$165 per room [including breakfast]
* All rates include GST
Earthquakes occur around the world on a daily basis, often wreaking havoc on regions, killing hundreds of thousands of people, tearing down buildings, damaging infrastructure and triggering deadly tsunamis.

**Deadly Earthquake**

Japan is located along the Ring of Fire where 90% of the world's earthquakes occur. The subduction of the Pacific plate under the Eurasian plate is responsible for Japan's earthquakes and volcanoes (Mt. Fuji). In Japan minor tremors occur almost daily causing a slight shaking of buildings but major earthquakes are rare. The most notable earthquakes in Japan during the twentieth century were the Great Kantō earthquake in 1923 resulting in 130,000 deaths and the Great Hanshin earthquake in 1995 with 6,434 deaths.

On 11 March, 2011 a magnitude (M) 9.0 earthquake hit Japan, with an epicentre 72km east off the Oshika Peninsula of Tōhoku and a hypocentre at an underwater depth of 32km. As a result the earthquake moved Honshu 2.4metres east and shifted the Earth on its axis 10cm. The earthquake's magnitude made it the most powerful earthquake to hit Japan and one of the five most powerful earthquakes in the world.

On 9 March a major foreshock of M7.2 and three other foreshocks above M6.0 occurred. Four hours after the 11 March M9.0 earthquake, thirteen aftershocks above M6.0 took place. Additional large aftershocks were felt the following days and months.

**Richter Magnitude Scale**

The Richter magnitude scale quantifies the amount of seismic energy released by an earthquake based on a logarithmic scale (base 10). This means, for each whole number you go up on the Richter scale, the amplitude of the ground motion, recorded by a seismograph, goes up ten times. For example a M5 earthquake would result in ten times the level of ground shaking compared to a M4 earthquake. Also it releases 32 times more energy.

The table lists the effects of earthquakes of different magnitudes near the epicentre. The values should be taken with caution, since intensity and ground effects depend not only on the magnitude but also: distance to the epicentre; depth of the earthquake's focus beneath the epicentre; and geological conditions.

On average great earthquakes occur once a year. The largest recorded earthquake was the Great Chilean Earthquake of May 22, 1960, which had a M9.5
Table: Richter magnitude scale (adapted)

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Description</th>
<th>Possible earthquake effects</th>
<th>Frequency of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2.0</td>
<td>Micro</td>
<td>Not felt</td>
<td>8,000 per day</td>
</tr>
<tr>
<td>2.0 – 2.9</td>
<td>Minor</td>
<td>Generally not felt but recorded.</td>
<td>1,000 per day</td>
</tr>
<tr>
<td>3.0 – 3.9</td>
<td>Light</td>
<td>Often felt but rarely causes damage.</td>
<td>49,000 per year</td>
</tr>
<tr>
<td>4.0 – 4.9</td>
<td>Moderate</td>
<td>Shaking of indoor items.</td>
<td>6,200 per year</td>
</tr>
<tr>
<td>5.0 – 5.9</td>
<td>Strong</td>
<td>Major damage to poorly constructed buildings.</td>
<td>800 per year</td>
</tr>
<tr>
<td>6.0 – 6.9</td>
<td>Major</td>
<td>Destructive up to 160km across populated areas</td>
<td>120 per year</td>
</tr>
<tr>
<td>7.0 – 7.9</td>
<td>Great</td>
<td>Serious damage over larger areas.</td>
<td>18 per year</td>
</tr>
<tr>
<td>8.0 – 8.9</td>
<td>Devastation – thousands of kilometres across.</td>
<td>1 per year</td>
<td></td>
</tr>
<tr>
<td>9.0 – 9.9</td>
<td>Never recorded</td>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

Source: http://en.wikipedia.org/wiki/Richter_magnitude_scale

Table and graph: Deadliest earthquakes according to deaths since 1556 and description of magnitudes

Activities:

Explain the terms: earthquake, epicentre, hypocentre, aftershock, foreshock, Ring of Fire and magnitude

Refer to the logarithmic graph and distinguish between a disastrous and a catastrophic earthquake

How would you classify the 2011 earthquake in Japan? Give reasons for your answer

Roll over points on the map and list five recent earthquakes and describe their impacts – www.abc.net.au/news/infographics/earthquakes/

List the earthquakes in the last seven days – http://earthquake.usgs.gov/earthquakes/recenteqsww/

OTHER EARTHQUAKES MARCH 2011

While we were hearing and viewing the latest information on the Japanese earthquake and tsunami in March – did you know there were other earthquakes during the month? Why did they receive little media coverage?
JAPAN—EARTHQUAKE, TSUNAMI & NUCLEAR CRISES

The Great Wave off Kanagawa, woodcut print after Katsushika Hokusai, 1820s
Source: Wikimedia Commons

TERRIFYING TSUNAMI

Undersea earthquakes also expose the Japanese coastline to tsunamis. The M9.0 earthquake on 11 March triggered destructive tsunami waves up to 10 metres high. The waves travelled up to 10km inland destroying everything in their path. Tsunami warnings were issued and evacuations ordered along Japan’s Pacific coast and to over 20 countries located around the Pacific Rim. Although Japan invested billions of dollars on anti-tsunami seawalls, which line 40% of its coastline and stand up to 12 metres high, the tsunami washed over the top.

Diagram: How tsunamis occur

Each DART station consists of a surface buoy and a seafloor bottom pressure recording (BPR) package that detects pressure changes caused by tsunamis.

Activities:

Describe the processes involved in the formation of a tsunami.

Calculate the time the tsunami took to reach PNG, NSW, USA and South America.

Count the number of DARTS located in the Pacific Ocean.

Japanese citizens unload food and water from a US Navy helicopter.
IMPACTS OF EARTHQUAKE AND TSUNAMI

- People: Death toll expected to reach 25,000.
- Buildings and infrastructure: The damage caused by the earthquake and resulting tsunami was enormous (especially from the tsunami). Over 125,000 buildings, roads and railways were damaged or destroyed. Fires occurred and a dam collapsed. Around 4.4 million households were left without electricity and 1.5 million without water. Japan’s government predicted the cost could reach $309 billion, making it the world’s most expensive natural disaster on record.

**Nuclear power stations:** The Fukushima I, Fukushima II, Onagawa Nuclear Power Plant and Tōkai nuclear power stations, consisting of eleven reactors, automatically shut down following the earthquake. Cooling is required to remove heat for several days after a plant has been shut down. The cooling process was powered by emergency diesel generators. At Fukushima I and II, tsunami waves swept over the seawalls and destroyed the diesel backup power systems. This led to explosions at Fukushima I and leakage of radiation. Over 200,000 people were evacuated. There was evidence of radiation in vegetables, water and milk which stirred concerns, despite officials’ assurances the levels were not dangerous. Japan’s radiation food scare rippled around the world as the US blocked imports of produce from areas near the nuclear power plant.

**NEWS ITEM** 19 March 2011: Dangerous levels of radiation spewed into the atmosphere from the Fukushima power station. The country’s nuclear safety agency raised the alert rating from four to seven the most severe on a global scale. The same scale as the explosion at Chernobyl in 1986

Map: Radioactive plume
GLOBAL IMPACTS: JAPANESE DOMINOES

The earthquake, tsunami and nuclear crisis alerted the world’s business community to the precariousness of globalisation. The NE region of Japan is a major production base for auto and electronics components. Japan controls 90% of the world’s production of bismaleimide-triazine resin, which ends up in chips and circuit boards. Continued disruption to production could create problems across the global electronics industry.

Many Japanese carmakers and parts producers shut down their operations because of damaged factories and infrastructure. The global auto industry could be hampered for months by short supply of parts:

- **General Motors**: Production stopped at a small truck factory
- **Toyota Motor**: Japan’s largest automaker, was forced to make production ‘adjustments’ in North America as it works to restart operations in Japan
- **Honda Motor**: Shut auto assembly plants in Japan until March 27
- **Nissan Motor**: Temporarily halted auto production in Japan after the quake

The Japanese disaster sent shockwaves through auto makers in China, especially companies funded by Japanese car makers.

The Japanese crisis may affect other countries via goods and services trade, commodity prices and capital flows as money is required to rehabilitate the country. The Australian economy is vulnerable to a hindered Japan as it is Australia’s second largest export market.

Japan has taught us a lesson. Borderless supply chains are vulnerable if a disaster occurs within one of the borders. Perhaps a factory uses only a part of a part of a part made in Japan, but a disruption in the supply of that part could halt the entire assembly line.

**Activities:**

Debate: Borderless manufacturing is not safe

As a result of the earthquake and tsunami in Japan – will globalisation of manufacturing reverse itself or will it result in more diversified global supply networks as manufacturers look to expand their source of important parts and components? Discuss

**USING TECHNOLOGY**

In the hours following the earthquake, Internet users turned on mass to live videos and reports from YouTube and Twitter. By morning, CNN, BBC and ABC had become informative sources.

a) **Google**: Geographers used Google to view the disaster
b) **Micro-blogs**: Large micro-blogging platforms with ‘Japan earthquake’ updates enabled geographers to remain updated with disaster news
c) **Twitter**: Following tweets helped geographers understand the story in real-time #tsunami, #prayforjapan and #japan.

**ICT JAPAN**

- **Update with new maps** – [www.maproomblog.com/](http://www.maproomblog.com/)
- **MapLarge’s earthquake map** – [http://maplarge.com/Japan-Earthquake](http://maplarge.com/Japan-Earthquake)
- **NASA Earth Observatory map** – [earthquake, foreshocks, aftershocks](http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=49621)
- **Japan Earthquake Map Viewer** – [http://twitter.com/geospatialnews/status/47036677599928320](http://twitter.com/geospatialnews/status/47036677599928320)
- **All Points Blog’s map resources** – [www.directionsmag.com/articles/japanese-earthquake-tsunami-comprehensive-map-resources/168924](http://www.directionsmag.com/articles/japanese-earthquake-tsunami-comprehensive-map-resources/168924)
- **Centre for Satellite Based Crises Information** – [www.zki.dlr.de/article/1893](http://www.zki.dlr.de/article/1893)
RESEARCH ASSIGNMENT: CHRISTCHURCH EARTHQUAKE

The 2011 Christchurch earthquake was a M6.3 earthquake that struck New Zealand’s South Island on 22 February 2011. The earthquake was centred 10 kilometres SE of Christchurch, New Zealand’s second most populous city. The final death toll is expected to be over 182, making the earthquake the second deadliest natural disaster recorded in New Zealand. The New Zealand Government declared a state of national emergency.

Answer the inquiry questions around the photograph. Include a map showing the location of the earthquake and photographs to illustrate the impact of the disaster. Present your research as a PowerPoint.

ICT

Christchurch quake map – www.christchurchquakemap.co.nz/ (729 quakes)


News, Youtubes and real time updates – www.google.com/crisisresponse/christchurch_earthquake.html
A series of rain events from November 2010 to February 2011 resulted in three quarters of Queensland, the combined area of Germany and France, being inundated by floods. Heavy rains then moved south resulting in floods in central and western Victoria, NSW and Tasmania. As the disaster dissipates politicians debate whether the flooded areas will be either rebuilt or turned into parkland, as future floods are anticipated.

**HOW DID FLOODS OCCUR?**

**2010 December: Tropical Cyclone Tasha**

Flooding started across parts of Queensland in early December 2010. On 24 December a monsoonal trough crossed the coast from the Coral Sea, bringing heavy rain from the Gulf of Carpentaria to the Gold Coast. This combined with Tropical Cyclone Tasha during the peak of a La Niña event caused widespread floods in Queensland during the Christmas holidays. By 28 December, nearly half of Queensland was flooded.

**2011 February: Tropical Cyclone Yasi**

On 3 February 2011 Tropical Cyclone Yasi hit the heavily populated coastal areas of north Queensland. The Bureau of Meteorology noted the storm's size and power dwarfed Cyclone Tracy, which hit Darwin in 1974, killing 71 people. As a precaution tens of thousands of people abandoned their homes ahead of the cyclone. Premier Anna Bligh said it was the worst news for a state already reeling from recent flooding.
WHAT WAS THE PATH OF YASI?

Tropical Cyclone Yasi began developing as a tropical low off Fiji on 29 January 2011. It then started tracking westward towards the Queensland coast. On 2 February Yasi was upgraded to a Category 5 system and maintained this intensity when it hit the coast near Mission Beach on 3 February. Being a strong large system, Yasi maintained a strong core with damaging winds and heavy rain, tracking westwards across northern Queensland and finally weakening to a tropical low near Mount Isa.

The Tully Sugar Mill recorded a minimum pressure of 929 hPa as the eye passed over, suggesting wind gusts of about 285 km/h. The highest precipitation was at South Mission Beach 471mm, Hawkins Creek 464mm, Zattas 407mm and Bulgun Creek 373mm along the Tully and Herbert River catchments. A five metre tidal surge was observed at Cardwell, which was 2.3 metres above Highest Astronomical Tide (HAT).

Yasi was one of the most powerful cyclones to affect Queensland since records commenced. Previous cyclones of a comparable intensity include the 1899 cyclone Mahina in Princess Charlotte Bay, and the two cyclones in 1918 at Mackay (January) and Innisfail (March).

Activities:
Select one cyclone from the table and answer the following inquiry questions. When did it occur? Where did it occur? What were its impacts on people, infrastructure and the environment? What was the response? Was the response effective? How have communities adapted to future cyclones?

Refer to the map and describe the location of tropical cyclones in Australia. Why are they located above warm water? What could be the impact of global warming on the location of future cyclones?
WHAT IS LA NINA?

The La Niña weather pattern 2010 and early 2011 brought wetter conditions to the east coast of Australia. It was the strongest La Niña weather pattern since 1973 with record high sea surface temperatures off the Queensland coast in late 2010.

This La Niña caused prolonged heavy rainfall over Queensland’s river catchments. December 2010 was Queensland’s wettest month on record and the state’s wettest spring since 1900. The year 2010 was also Australia’s third wettest year.


The Southern Oscillation Index (SOI) is calculated from the monthly or seasonal fluctuations in the air pressure difference between Tahiti and Darwin.

A positive SOI pattern (about +6 over a two month period) is related to a high probability of above long term average rainfall for many areas in Australia, especially eastern Australia – La Niña.

A negative SOI pattern (less than -6 over a two month period) is related to a high probability of below average rainfall for many areas in Australia at certain times of the year – El Niño.

Line graph: Monthly Mean Southern Oscillation Index (SOI)


WHAT WAS THE IMPACT IN QUEENSLAND?

The floods forced the evacuation of thousands of people from towns and cities. The Brisbane River broke its banks leading to evacuations in the Brisbane CBD. The town of Ingham became isolated as the Herbert River peaked and homes at Babinda, Gordonvale, Condamine and Chinchilla were flooded.

About 300 roads were closed, including nine major highways. Coal railway lines were closed and many mines flooded. The floods caused fruit and vegetable prices to rise as crops were destroyed (e.g. bananas). Snakes sought safety in homes and saltwater crocodiles and sharks swam in flooded towns.

At least 70 towns and over 200,000 people were affected. The floods killed 35 people and nine are missing. Damage is around $1 billion and the expected reduction in Australia’s GDP is $30 billion.

More than 55,000 volunteers registered to clean up the streets of Brisbane. The Australian Defence Force’s Operation Queensland Flood Assist helped with flood relief. Also 35 State Emergency Service personnel from New South Wales and 20 from Victoria provided relief to exhausted staff and volunteers. The Flood Relief Appeal: Australia Unites telethon raised $10 million.

A Flood levy to fund reconstruction works will cost the taxpayer between $1 and $5 a week in extra income tax.

Aerial photographs: Albion Park raceway, Brisbane before and during floods – January 13, 2011

a) Before floods

b) During floods

Graph: Brisbane River levels


Graph: Brisbane River levels


WHY USE SOCIAL MEDIA DURING DISASTERS?

Australians used the social media to stay connected with friends and family via their mobile phones. Using the same platform volunteers mobilised the clean-up process using Facebook, Facebook groups, Messages and Status updates and also by tracking Twitter hashtags #qldfloods #thebigwet. Both the response to mobilise volunteers and share images of the impact of the disaster would have been impossible without social media platforms.

Activities:

Dunk and Bedarra Islands copped the full force of Yasi leaving buildings in splinters and lush gardens stripped bare. Research the impact of Yasi on the tourism industry in Queensland.

- Are we getting stronger and more frequent tropical cyclones in the last several years?
- Who is responsible for issuing tropical cyclone warnings?
- What types of warning products are issued by the Bureau of Meteorology?
- What should you do when a cyclone warning is issued?


ICT


Climate change linked to heavy floods – www.reuters.com/article/2011/01/12/us-climate-australia-floods-idUSTRE70B1XF20110112

Tropical cyclone warning services – www.bom.gov.au/cyclone/about/warnings/


Soul Solutions allows you to overlay Brisbane City Council Flood predictions, road closures, river levels and NASA imagery of the flooded areas over Bing Maps. It also enables you to overlay the historical floods of 1893 and 1974 – http://soulsolutions.com.au/QLDFlood2011/


Youtube

Time lapse satellite image of Yasi – www.youtube.com/watch?v=vTPu-y5VIuw 0.20min

Yasi approaches Queensland – www.youtube.com/watch?v=zZ7F8i_haok&feature=related 2.1.2min

Yasi – 1st Feb 2011 – www.youtube.com/watch?v=Em9fbjCh2n0&feature=related 5.09min

Satellite & Radar Time lapse – Yasi (Update 8) – www.youtube.com/watch?v=IBiPQk2kjWc 0.39min

Video

Australain floods – www.google.com.au&q=australian+flooding+map&hl=en&prmd=ivns&source=univ&tbs=vid:1&tbm=u&sa=X&ei=aA2TaeREiPGvQOfo6vTQDg&ved=0CEYQqw Q&fp=a838e0ed4cb8505a

Photographs


- Refer to the before and during flood photographs.
- Draw and label a form line diagram indicating the places inundated with water
- Refer to this website – www.bom.gov.au/cyclone/faq/index.shtml#definitions and answer the questions as a short response
- What is a tropical cyclone?
- What is the difference between Australian tropical cyclones and typhoons and hurricanes in other parts of the world?
- What is storm surge?
- How does the amount of damage caused by a cyclone increase as the wind speed increases?
- Why and how are cyclone names chosen?
- How do tropical cyclones form?
- What is the life-cycle of a tropical cyclone?
- What is the eye?
- What happens to cyclones as they move further south?
- When is the cyclone season?
- How many cyclones occur each year?
- What is the most cyclone prone region in Australia?
- Do cyclones affect Perth and Brisbane or Sydney?
INTRODUCTION

Forests are biologically diverse systems providing shelter to people and habitats for animals. They are also the basis of more than 5,000 products – from aromatic oils distilled from leaves to medicines, fuel, food, furniture and clothing. Forests also prevent soil erosion, regulate climate and provide clean water. All are vital to the survival and well-being of people everywhere – all seven billion of us!

However, forest biodiversity is increasingly threatened as a result of deforestation, fragmentation, climate change, fire and other stressors. The International Union for the Conservation of Nature (IUCN) and the Global Partnership on Forest Landscape Restoration declared ‘across the globe lie more than a billion hectares of lost and degraded forest land that could be restored’.

The year 2011 was declared the International Year of Forests by the United Nations to strengthen the sustainable development of all types of forests for the benefit of current and future generations.

The theme ‘Forests for People’ celebrates the central role people play in the sustainable management of the world’s forests. The year long series of events aim to galvanise public participation in forest-related activities at all levels.

WHAT IS OUR VANISHING GLOBAL HERITAGE?

In the last 8000 years 45% of the Earth’s original forest cover has disappeared. Most have been cleared during the past century. The Food and Agriculture Organisation (FAO) estimated each year 13 million hectares of the world’s forests are lost to deforestation. The annual net loss of forest area between 2000 and 2005 was 7.3 million hectares.

The 2010 Global Forest Resources Assessment showed deforestation rates still alarmingly high – despite slowing down in recent years. Continued deforestation resulted in increased carbon emissions, shortages in water and food supply, and loss of biodiversity.

DID YOU KNOW?

- Forests cover 31% of land area.
- 1.6 billion people depend on forests for their livelihoods.
- 300 million people live in forests.
- Forests are home to 80% of the world’s terrestrial biodiversity.
- 30% of forests are used for production of wood and non-wood products.
- 40% of the world’s oxygen is produced by rainforests.
- 25% of modern medicines originate from tropical forest plants.
- Forest product industry is a source of economic growth and employment.
- $270 billion global forest products are traded internationally.
- Forests stabilise soils, protect watersheds and regulate hydrological cycles.
- Deforestation accounts for 20% of global greenhouse gas emissions.
WHAT IS A FOREST?

A forest (also called woodland) is an area with a high density of trees. These plant communities cover approximately 9.4% of the Earth’s surface (or 30% of total land area), although they once covered 50% of total land area.

The 2000 FAO report, defined forests as ‘ecological systems with a minimum of 10% crown cover of trees and/or bamboo, generally associated with wild flora and fauna and natural soil conditions and not subject to agricultural practices’.

A more precise definition remains elusive, because trees occur in different ecosystems, at different densities and in different forms.

WHERE ARE FORESTS LOCATED?

According to the FAO Global Forest Resources Assessment, forests cover almost one-third of the world’s land area of which 95% is natural forest and 5% is planted forest. Forests are distributed unevenly across the globe:

- 17% in Africa
- 14% in Asia
- 27% in Europe
- 14% in North and Central America
- 23% in South America
- 5% in Oceania.

Two-thirds of the world’s forest is currently distributed among 10 countries: the Russian Federation, Brazil, Canada, USA, China, Australia, the Democratic Republic of Congo, Indonesia, Angola and Peru.

Activity:
Calculate the differences in forest cover between Russia and India and USA and Australia.
Redraw the pie graph as a column graph.

WHAT FACTORS DETERMINE FOREST DISTRIBUTION?

The factors determining the distribution of forests are largely climatic. Tree establishment and growth requires a minimum number of days in the year with adequate moisture and warmth for active growth. Trees also require access to enough soil to supply nutrients, water and anchorage. Trees are therefore absent from areas that are too dry, too cold or have inadequate soil cover.

Other natural factors that limit the distribution of forests include fire, flooding, presence of toxic minerals in the soil or water, and the impact of large herbivores.

Around 50% of the Earth’s land surface is climatically suitable for forest, but as a result of human interactions, around half of this area is not forested.

Forests can be grouped by their ecological type. The largest proportion of the world’s forest is in the Tropical Zone (47%), followed by Boreal (33%), Temperate (11%), and Sub Tropical Zones (9%):

- Tropical and Sub Tropical dry forests are concentrated in Africa (36%), South America (30%) and Asia (21%). The majority of tropical rain forests are located in South America (58%), Africa (24%) and the rest found in Asia.
- Temperate and Boreal forests are concentrated in Europe and North and Central America.
- Mountain forests are mainly located in Europe (40%) and North and Central America (34%).

Types of forests also vary according to latitude, altitude, temperature and precipitation:
UNITED NATIONS INTERNATIONAL YEAR OF FORESTS 2011

- Latitudes: between 10°N and 10°S of the Equator areas are mostly covered in tropical rainforests and between 53°N and 67°N boreal (taiga) forests.
- Altitude: forests are found in all regions capable of sustaining tree growth, at altitudes up to the tree line.

Diagram: Forests change in relation to temperature and precipitation

Activity:
What type of vegetation is found at: 200mm and 25°C; 350mm and 26°C; 300mm and 15°C, 150mm and 15°C; 100mm and -5°C? Explain relationship between forests and temperature and precipitation.

WHAT ARE THE MAJOR FOREST TYPES?
Classifying forests is a difficult task. A simplified global classification system shown in the table provides a breakdown of 22 forest types in five major categories:

Table: Global areas of 22 main forest types

<table>
<thead>
<tr>
<th>FOREST TYPE</th>
<th>AREA (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Boreal and Temperate Needleleaf</td>
<td>12,511,062</td>
</tr>
<tr>
<td>- Evergreen needleleaf</td>
<td>8,894,690</td>
</tr>
<tr>
<td>- Deciduous needleleaf</td>
<td>3,616,372</td>
</tr>
<tr>
<td>2. Temperate Broadleaf and Mixed</td>
<td>6,557,026</td>
</tr>
<tr>
<td>- Mixed broadleaf/needleleaf</td>
<td>1,803,222</td>
</tr>
<tr>
<td>- Broadleaf evergreen</td>
<td>342,892</td>
</tr>
<tr>
<td>- Deciduous broadleaf</td>
<td>3,738,323</td>
</tr>
<tr>
<td>- Freshwater swamp forest</td>
<td>126,963</td>
</tr>
<tr>
<td>- Sclerophyllous dry forest</td>
<td>485,093</td>
</tr>
<tr>
<td>- Disturbed</td>
<td>60,533</td>
</tr>
<tr>
<td>3. Sparse Trees and Parkland</td>
<td>4,748,694</td>
</tr>
<tr>
<td>- Temperate</td>
<td>2,407,735</td>
</tr>
<tr>
<td>- Tropical</td>
<td>2,340,959</td>
</tr>
<tr>
<td>4. Tropical Moist</td>
<td>11,365,672</td>
</tr>
<tr>
<td>- Lowland evergreen broadleaf forest</td>
<td>6,464,455</td>
</tr>
<tr>
<td>- Lower montane forest</td>
<td>620,014</td>
</tr>
<tr>
<td>- Upper montane forest</td>
<td>730,635</td>
</tr>
<tr>
<td>- Fresh water swamp</td>
<td>516,142</td>
</tr>
<tr>
<td>- Semi-evergreen moist broadleaf</td>
<td>1,991,013</td>
</tr>
<tr>
<td>- Mixed needle leaf and broadleaf</td>
<td>17,848</td>
</tr>
<tr>
<td>- Needleleaf</td>
<td>61,648</td>
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<tr>
<td>- Mangrove</td>
<td>121,648</td>
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<tr>
<td>- Disturbed</td>
<td>842,269</td>
</tr>
<tr>
<td>5. Tropical Dry</td>
<td>3,701,883</td>
</tr>
<tr>
<td>- Deciduous/semi deciduous broadleaf</td>
<td>3,034,038</td>
</tr>
<tr>
<td>- Sclerophyllous</td>
<td>405,553</td>
</tr>
<tr>
<td>- Thorn</td>
<td>262,292</td>
</tr>
<tr>
<td>TOTAL</td>
<td>38,808,671</td>
</tr>
</tbody>
</table>

Adapted source: Global Biodiversity, table 7.4
Activity:
Diversity of forests exists across the globe. Design a collage showing Australian forests using ICT. Label the type of forest and its location.

WHY DO WE NEED FORESTS?
Forests are important in different ways. From an ecological perspective, they help reduce pollution and protect the soil from erosion by wind or water, particularly on sloping ground. They also prevent soil erosion and sediment in rivers resulting in declining marine species. Leaves help in humus formation, which maintains the fertility of soils.

From a commercial perspective, forests provide raw materials to industries (timber, pharmaceutical goods, paper) and employment. They also have recreational value by promoting tourism.

Products from forests are around us

<table>
<thead>
<tr>
<th>Products from forests</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood fibre</td>
<td>Paper products and purified cellulose products (rayon, cellophane, food additives and pharmaceuticals).</td>
</tr>
<tr>
<td>Solid wood products</td>
<td>Furniture, doors, flooring, pencils.</td>
</tr>
<tr>
<td>Composite wood products</td>
<td>Plywood, particle board.</td>
</tr>
<tr>
<td>Products from bark</td>
<td>Cork, fuel, mulch.</td>
</tr>
<tr>
<td>Food, fruits and nuts</td>
<td>Chocolate, coconuts, nuts (cashew, pine nut, pecan, walnut, almond), olives, fruit, avocado, pineapple, lemon, grapefruit, mango, orange, peach. Coco flavour from the nut of the cola tree native to West Africa (today they usually use synthetic cola flavouring). Spices – allspice, bay leaves, cinnamon, cloves, nutmeg.</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Soap, chewing gum, maple syrup, rubber, charcoal, turpentine (cleaning agent) - small amounts of turpentine in tooth paste to make them sweet without adding sugar. Flavourings and food additives (beverages, salad dressing, root beer, artificial vanilla flavouring). 60% of perfumes and cologne contain cedar wood oil. Eucalyptus oil and sandalwood oil.</td>
</tr>
<tr>
<td>Fight heart disease</td>
<td>Phytosterols help prevent the uptake of cholesterol.</td>
</tr>
<tr>
<td>Medicine</td>
<td>120 prescription drugs sold worldwide today are derived directly from rainforest plants. Some compounds in rainforest plants are also used to treat malaria, heart disease, bronchitis, hypertension, rheumatism, diabetes, muscle tension, arthritis, glaucoma, dysentery and tuberculosis, among other health problems. Also many commercially available anaesthetics, enzymes, hormones, laxatives, cough mixtures, antibiotics and antiseptics are derived from rainforest plants and herbs.</td>
</tr>
</tbody>
</table>

WHAT ARE FRONTIER FORESTS?
Frontier forests are areas that are relatively undisturbed by human activity and are large enough to maintain their original biodiversity. Frontier forests constitute 40% of total global forest area but are concentrated in three large blocks:
- Two areas of boreal forest (Canada, Alaska, and Russia).
- One area of tropical forest spanning the NW Amazon Basin and Guyana Shield (Brazil, Peru, Venezuela, and Colombia).

Additional frontier forests are found in Central Africa (Congo) and Papua New Guinea. However frontier forests face a moderate to high threat of degradation or clearance.

WHAT ARE PRIMARY AND SECONDARY FORESTS?
Primary forest refers to untouched, pristine forest relatively unaffected by human activities. In contrast secondary forest has been disturbed by natural or human interactions.

The FAO estimates primary forests account for 36% of total forest area, but are being lost or modified at a rate of six million hectares a year through deforestation. Scientists do not know how long it takes for secondary forests to attain the structure and levels of biodiversity of primary forests. A recent study found trees in Central Amazon are several hundred years old – suggesting primary forests take a long time to evolve.

WHY IS BOTH FOREST QUANTITY AND QUALITY IMPORTANT?
Quantity: According to the FAO Global Forest Resources Assessment 2000, the net loss in forest area during the 1990s was 94 million ha, an area larger than Venezuela.

Quality: Quantity of forests (i.e. forest area) alone is an inadequate indicator of the health of a forest ecosystem since most of the world’s forests are fragmented and face human pressure. For example in the Brazilian Amazon,
the area of fragmented forest is 150% greater than the area deforested. Small fragments have different ecosystem characteristics than larger areas of forest, as they contain more light-adapting species, more trees with wind or water dispersed seeds or fruits, and fewer under storey species.

WHAT IS DEFORESTATION?

Deforestation reduces the area under forest. The FAO defines deforestation as ‘The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.’ (2001). Deforestation occurs when forest areas are transformed to other land uses such as:

- agriculture: shifting cultivation, permanent cultivation (subsistence and commercial), and cattle ranching (small and large-scale). Agricultural expansion has replaced native forests with pasturelands and crops. Palm oil, soy crops and fuel crops are considered the leading cause for forest land use change in the tropics.
- human settlement: urban and industrial development, transmigration and resettlement.
- infrastructure: transport, market (mills, food markets, storage), public services (water, sanitation), hydropower, energy and mining.

If the current rate of deforestation continues, the world’s rain forests will vanish within 100 years – causing unknown effects on global climate and eliminating the majority of plant and animal species on the planet.

WHAT IS RATE OF DEFORESTATION GLOBALLY?

- 1 hectare per second: equivalent to two football fields per second.
- 60 hectares per minute.
- 86,000 hectares per day: an area larger than New York City.
- 31 million hectares per year: an area larger than Poland.
- As a result 137 species become extinct everyday; or 50,000 each year!
- Brazil has highest annual rate of deforestation – Atlantic coast of Brazil has lost 90–95% of its rainforest.
- Philippines lost 90% of its rainforests.
- Sumatra lost 85% of its rainforests.
- Only 6% of Central Africa’s forests are protected by law.

Table: Worst deforestation rates of primary forests, 2000-2005.

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTRY</th>
<th>DEFORESTATION RATE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nigeria</td>
<td>55.7%</td>
</tr>
<tr>
<td>2</td>
<td>Vietnam</td>
<td>54.5%</td>
</tr>
<tr>
<td>3</td>
<td>Cambodia</td>
<td>29.4%</td>
</tr>
<tr>
<td>4</td>
<td>Sri Lanka</td>
<td>15.2%</td>
</tr>
<tr>
<td>5</td>
<td>Malawi</td>
<td>14.9%</td>
</tr>
<tr>
<td>6</td>
<td>Indonesia</td>
<td>12.9%</td>
</tr>
<tr>
<td>7</td>
<td>North Korea</td>
<td>9.3%</td>
</tr>
<tr>
<td>8</td>
<td>Nepal</td>
<td>9.1%</td>
</tr>
<tr>
<td>9</td>
<td>Panama</td>
<td>6.7%</td>
</tr>
<tr>
<td>10</td>
<td>Guatemala</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Activity:

- Research the causes of deforestation in Nigeria or Indonesia. Include maps and statistics.
- Draw the table as a line graph.
Globally, forest cover has been expanding in North America, Europe and China while declining in the tropics. Plantations help offset the loss of natural forests but result in a decline in global biodiversity as single species plantations replace their biologically richer natural counterparts.

Activity:
- List three countries that gained forests from 2005–2010.
- List three countries that lost forests from 2005–2010.
- Research deforestation in Australia: Where is it occurring? What are the causes? What should be done about it? Causes refer to www.wrm.org.uy/deforestation/Oceania/Australia.html

Pie and column graph: Tropical deforestation rates 2000–2005

Line graph: Deforestation in the Brazilian Amazon rainforest 1988–2010

Causes of deforestation are: cattle ranching (65%–70%), small scale agriculture (20%–25%), logging (2%–3%); large scale agriculture (5%–10%) and other (1%–2%).

Activity:
- Calculate the difference in deforestation in 1991 and 1995.
- Explain the deforestation trend since 2004.

WHAT ARE THE LINKS BETWEEN FORESTS AND GREENHOUSE EMISSIONS?

Deforestation and forest degradation (DFD) is a larger source of greenhouse gas emissions than all the world’s cars, trucks, planes, trains, and ships combined. It is also a threat to biodiversity, Indigenous cultures, and ecosystem services like flood control.

Australian Geographic July 28, 2010

‘Among the many things that humans are doing to the environment, few rank worse than destroying tropical forests. Rainforests sustain an astonishing diversity of species and keep our planet liveable by limiting soil erosion, reducing floods, maintaining natural water cycles, and stabilising the climate. Yet roughly 10
millions of hectares of tropical forest are destroyed every year – the equivalent of 50 football fields a minute.

If we hope to reign in global warming, the last thing we should be doing is razing tropical forests. Destroying them dumps vast quantities of greenhouse gases into the atmosphere – nearly 20 per cent of all human carbon emissions, which is more than the entire global transportation sector.'

Activity:
- Read the full article at this website and discuss whether developed countries should pay the tropics to reverse deforestation.


REDD

A new mechanism aims to slow deforestation by compensating countries and landowners for protecting forests. To qualify for payments under Reducing Emissions from Deforestation and Degradation (REDD), countries must quantify reductions in deforestation against a historical baseline. This is difficult for most countries, even Australia. Therefore a reliable tool to measure past deforestation and track forest disturbances would be of value.


There is growing recognition of the role of forests in storing carbon and the emerging approach of Reducing Emissions from Deforestation and forest Degradation (REDD).

A key initiative of IUCN is Livelihoods and Landscapes through which dozens of projects are underway across Africa, Asia and South America. The aim is to sustain the flow of goods and services from forest landscapes for the benefit of local livelihoods and biodiversity conservation.

Source: www.iucn.org/knowledge/news/focus/2010_forest/

Groundbreaking news

Researchers at ANU revealed Australia has some of the most carbon-rich forests in the world. In fact they store more carbon per hectare than tropical forests in Indonesia or Brazil.

HOW CAN FORESTS BE MANAGED SUSTAINABLY?


Following the Earth Summit, the UN established the Intergovernmental Panel on Forests (IPF) and its successor, the Intergovernmental Forum on Forests (IFF), to implement the Forest Principles and Chapter 11 of Agenda 21. In 2000, the United Nations Economic and Social Council (ECOSOC) established the United Nations Forum on Forests (UNFF) with the main objective to promote ‘... the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end...’. The outcome was the Centre for International Forestry Research (CIFOR) committed to conserving forests and improving the livelihoods of people in the tropics by helping farmers and communities gain from forest resources.

HOW CAN TECHNOLOGY PROVIDE A GLOBAL OVERVIEW OF FORESTS?

NASA uses space lasers to map the world’s forests – http://mashable.com/2010/07/21/forest-map-with-lasers/

CASE STUDY 1: INDIA’S CARBON FOOTPRINT AND FORESTS

At present the average Indian emits 16 times less carbon dioxide than the average American. With increasing population growth the International Energy Agency (IEA), predicts India is on track to become the world’s third largest emitter of carbon dioxide by 2020, producing over two billion tons of CO2 each year.

The preference of Indian Hindus for cremation in a country of 1.2 billion exacerbates the global problem. If you want to burn a body, it will take 400–500kg of wood, says Kalu Chaudhary, a body-burner at the Harishchandra ghat in Varanasi. This means 50–60 million trees, covering 1,500–2,000 sq. km of forest land, are cut every year to burn the dead. At present there is technology to make cremations more environmentally friendly but traditional cultural practices still dominate.

In fact the urban Indian EF encroaches into the surrounding environment to supply the city with resources such as food, wood and carpets. In 1847, the Jodhpur king sent his army out to cut trees to build his palace. When his army started to log a Bishnoi forest, the inhabitants staged a non-violent protest, offering their bodies as shields for the trees. The army killed 363 people before the king, hearing of their courage, halted the logging and declared the Khejarli region a preserve, off limits for logging and hunting.

CASE STUDY 2: HAITI FORESTS AFTER EARTHQUAKE AND HURRICANE

Hurricane rains followed the deadly 2010 January earthquake in Haiti, pounding forests, triggering mudslides, cutting gullies, destroying vegetation and washing deadly strains of cholera and sewage into rivers where people wash and drink. The once lush Caribbean island has little tree cover. It was cleared by impoverished people desperate for fuel. Ninety-eight percent of the trees have been lost which were used to sponge up flood waters, provide refuge for forest animals and buffer mudslides.

Haiti offers an illustration of the devastating consequences of narrowly valuing forests for only the commodities they provide (food and fuel), while ignoring the wealth of environmental services. Now as markets for ecosystem services (carbon, wetlands, and biodiversity) expand their reach, investors are exploring their potential to rescue a tree-starved Haiti.

Port-au-Prince, Haiti shows the proximity of homes, many damaged in the earthquake and subsequent aftershocks. Source: www.navy.mil/management/photodb/photos
High montane forests from 2,500-3,000m often manifests as ‘cloud forest,’ as they receive most precipitation from mist or fog that passes up from the moist, humid lowlands. A cloud forest, also called a fog forest, is generally a tropical or subtropical evergreen montane moist forest characterised by frequent or seasonal low-level cloud cover, usually at the canopy level. Cloud forests exhibiting an abundance of mosses covering the ground and vegetation are also referred to as mossy forests.

Place
Only 1% of global forests are covered by cloud forests. Tropical cloud forests extend from 23°N to 25°S and occur in a narrow altitudinal zone. Areas of cloud forest are located in Central and South America, East and Central Africa, Indonesia, Malaysia, the Philippines, Papua-New Guinea and the Caribbean.

Weather
Most of the precipitation is in the form of fog drip, where fog condenses on tree leaves and then drips onto the ground below. Annual rainfall ranges from 500 to 1000mm/year and temperature is between 8°C and 20°C.

Water cycle
The tree crowns intercept the wind driven cloud moisture, part of which drips to the ground. This water stripped from the clouds is termed horizontal precipitation and is not recorded with normal rainfall measurement. Because of the cloud stripping strategy, effective rainfall can double in dry seasons and increase the wet season rainfall by 10 percent.

Forests
In comparison with lower tropical moist forests, cloud forests are generally shorter and more heavily stemmed than in lower altitude forests. They often have gnarled trunks and branches, forming dense, compact crowns. Tropical montane cloud forests are not as species-rich as tropical lowland forests but provide habitats for many species not found elsewhere. For example, the Cerro de la Neblina, a cloud covered mountain in southern Venezuela has shrubs, orchids and insectivorous plants which are restricted to this mountain.

Fauna
In Peru, more than one third of the 270 endemic birds, mammals and frogs are found in cloud forests. One of the best known cloud forest mammals is the Mountain Gorilla. Many of those endemic animals have important functions such as seed dispersal.

Changes
In 1970, the original extent of cloud forests was 50 million hectares. Population growth and uncontrolled land use have contributed to their loss. About 1.1% of tropical mountain forests are lost each year, which is higher than other tropical forests. Areas have been converted to plantations, agriculture (tea, coffee) and pasture. Currently, one third of all cloud forests are protected.

Climate change
Climate change will result in loss of cloud forests resulting in loss in biodiversity.

Good news!

Rwanda’s forests diminished rapidly in the 1990s. In 2011 Rwanda’s Forest Landscape Restoration Initiative aims to reverse degradation of soil, water, land and forest resources by 2035. The Rwandan government, IUCN and the UN Forum on Forests will work together towards delivering forest restoration designed to achieve sustainable agricultural production, low carbon economic development, adequate water and energy supplies, and new opportunities for rural livelihoods. Safeguarding the nation’s rich wildlife, such as the Critically Endangered mountain gorilla, is also part of the commitment.

Source: www.iucn.org/?6875/Rwanda--restoring-nature-for-future-prosperity
UNITED NATIONS INTERNATIONAL YEAR OF FORESTS 2011

KNOWLEDGE AND UNDERSTANDING

• Design your own logo for the 2011 International Year of Biodiversity.
• Brainstorm what you could do to stop deforestation.
• Research one product grown on a tree then answer the following inquiry skills: What part of the plant does your product come from? Do/did Indigenous people use your product? How? How/when was your product discovered? Is your product processed? Does your product grow anywhere else now? Are there any substitutes for the product?

Events like the World Day to Combat Desertification, the International Year of Biodiversity 2010, and the International Year of Forests 2011 serve to showcase the importance of people’s roles as agents for change in building a more sustainable future for all.

• Explain what is meant by this sentence.

Desertification is caused by climatic variations and human actions.

• Discuss the links between deforestation and the clearing of forests.
• Discuss how active citizenship could reduce desertification and at the same time improve food security and political stability as well as reduce poverty.

USING ICT

What has a tree done for you lately? Refer to this website for answers – http://owic.oregonstate.edu/pubs/products_from_trees.pdf

Rainforest lesson plans and notes and teacher resources – http://kids.mongabay.com/lesson_plans/


What are the environmental and social impacts of deforestation? http://kids.mongabay.com/lesson_plans/lisa_algee/deforestation.html

Refer to Google Earth – http://news.mongabay.com/2009/1210-google_earth_deforestation.html and discuss how technology tracks deforestation and can become an effective conservation tool.


FIELDWORK: INQUIRY SKILLS

• Develop a geographical question e.g. why are forests disappearing?
• Plan a geographical inquiry: explain the cause and effect relationships of deforestation
• Collect, evaluate and manage information: use primary and secondary data
• Make sense of the information: map where deforestation occurs
• Communicate your research to the class using PowerPoint
• Plan and implement actions: find ways to resolve the problems
• Reflect on the investigation

WEBSITES

Rainforest Action Network – http://ran.org/info_center/factsheets/04b.html


NASA uses space lasers to map world’s forests – http://i612.org/2010/07/21/nasa-uses-space-lasers-to-map-the-world%E2%80%99s-forests-pics/

World map – present forest cover – www.cbd.int/gbo1/chap-01-05.shtml

Interesting links and websites – www.idahoforests.org/nfpw.htm National Forest Products Week

Forest type by country – www.mongabay.com/forest_types_table.htm

Deforestation table – countries – www.mongabay.com/forest_types_table.htm
INTRODUCTION

Coniferous trees are mostly evergreen (green all year), have needle-like leaves, produce cones and are softwoods. There are 630 coniferous species. Some species such as Balsam fir, Douglas-fir, Fraser fir, Noble fir, Scotch pine, Virginia pine and White pine are grown and sold as Christmas trees.

In the early 20th century, around 98% of Christmas trees came from the forest. Today, most Christmas trees are grown on tree farms, which can both benefit and harm the environment.

TYPES OF CONFEROUS FORESTS

Coniferous forests are divided into three regions:

- **sub-arctic boreal forests or taiga forests** (needle leaf) are located in sub-arctic climates south of the tundra, in the northern hemisphere. The winters are long and cold with snow and the summers warm, rainy and humid. Coniferous trees have adapted to cold environments with long, needle like waxy needles. The wax gives them protection from freezing temperatures and from drying out. The thin leaves reduce water loss via evaporation. Conifers in the taiga tend to be thin and grow close together giving them protection from the cold and wind. Conifers are usually shaped like an upside down cone to protect the branches from breaking under the weight of snow. The snow then slides off the slanting branches. Many of the conifers seasonally alter their biochemistry to make them more resistant to freezing, called ‘hardening’.

The trees in the Taiga have adapted to frequent fires by growing thick bark. The fires burn the upper canopy of the trees which allows the sunlight to reach the ground. New plants then grow and provide food for animals such as the lynx and members of the weasel family like wolverines, bobcats, minks and ermines.

- **temperate coniferous forests** (needle leaf) have warm summers and cool winters with adequate rainfall to sustain a forest. Temperate evergreen forests are common in: coastal areas with mild winters and heavy rainfall; drier inland climates; and mountain areas. Many species of trees inhabit these forests including cedar, cypress, pine, spruce and redwood. Temperate coniferous forests are located in seven regions around the world: NW Pacific; SW South America; New Zealand and Tasmania; NW Europe (United Kingdom, Iceland, Norway); Southern Japan; Eastern Black Sea-Caspian Sea region of Turkey and Georgia; and Northern Iran.

Temperate coniferous forests sustain the highest levels of biomass in any terrestrial ecosystem and are notable for trees of massive proportions, including Giant Sequoia, Coast Redwood and Kauri.

- **tropical and subtropical coniferous forests** (needle leaf) are located from Mexico to Nicaragua and on Greater Antilles, Bahamas, Bermuda and parts of Asia. While tropical rain forests have greater biodiversity, coniferous forests represent the largest terrestrial carbon sink. They are also of economic value for timber and paper production.

DID YOU KNOW?

The first evergreen tree as part of Christmas celebrations was traced to northern Europe in the late 1400s.

To protect their shrinking forests 'the first artificial Christmas trees were made in Germany out of goose feathers dyed green and attached to wire branches. The Addis Brush Company, manufacturer of toilet brushes, introduced what is believed to be the first mass produced artificial Christmas tree in the 1930s. Dubbed the 'Silver Pine' the trees were made of the same materials and on the same machines used for their toilet brushes, making it possible for its owner to use the branches to scrub out their toilet bowl once the Silver Pine had outlived its usefulness as a tree.'


Today artificial trees are made from aluminium, PVC plastic, fibre optics and a ‘holographic mylar’ tree which comes in many hues. Tree shaped objects made from cardboard, glass, ceramic or other materials are found as tabletop decorations.

FACTS AND FIGURES

- Great Britain consumes 8 million natural trees annually with two-thirds of households opting for artificial trees.
- USA consumes between 35 and 40 million natural trees and 36.3 million artificial trees annually.
- European demand for live trees is 50 million per year.
- 73 million Christmas trees are planted each year.
- For every real Christmas tree harvested – 1 to 3 seedlings are planted the following spring.
- Average growing time is 7 years.
- Artificial Christmas trees are mostly produced in the Pearl River delta area of China.

Diagram: Facts and figures on real Christmas trees in USA

In USA Christmas trees have been sold since 1850 and today are grown in 50 states, including Alaska and Hawaii

- 5,000 Christmas tree recycling programs
- 140,000 hectares devoted to growing Christmas trees
- 15,000 farms grow Christmas trees
- 350 million trees are grown on farms
- 4,000 local and small businesses involved in industry
- 100,000 people employed in the industry

Source: www.christmastree.org/trees/concolor.cfm

AUSTRALIA: CHRISTMAS TREE FARMS

Christmas tree farming in Australia only sprouted up in the early 21st century. In the past real Christmas trees in Australia were poor and variable with scraggy foliage and poor shape. For these reasons the plastic fold up tree became popular. To address the demand for real trees in recent years, the quality and quantity have improved with the growth of the Australian Christmas tree industry.

*P. radiata* is the most popular tree species used for Christmas trees in Australia. This species is no longer commonly grown for Christmas trees in the USA and Europe. The species grow on a variety of sites, but grow well where soils are well drained and precipitation is in excess of 700mm pa.

Australia has large *P. radiata* plantations, though they are less than 1% of the total forested area. Many Australians are concerned the plantations have resulted in loss of native wildlife habitat. A few native animals, notably the Yellow-tailed Black Cockatoo, feed on *P. radiata* seeds.

**Activity:**
- Refer to this website and draw a map locating Christmas tree farms across Australia. http://pickyourownchristmastree.org/australia.php
- Select one Christmas tree farm in Australia and explain how it operates.

HOW CAN OLD CHRISTMAS TREES BE USED?

**USA:**
- Christmas trees were destroyed after Hurricane Ivan devastated a farm in 2004. Approximately 300 destroyed Christmas trees were used to rebuild sand dunes along the coast following the hurricane. Volunteers built 1,500 metres of sand fencing with a Christmas tree at the base of each fence.
- The Heron Rookery at Baker’s Lake reuses Christmas trees as nesting materials for the birds, many of which have been forced away from their native habitats due to overcrowding. Annually, the project uses 300-400 recycled Christmas trees to attract hundreds of blue herons, egrets, cormorants and black-crowned night herons to the rookery.

**Australia:**
Rather than adding the tree to landfill it can be turned into mulch by local councils. The City of Sydney council collects trees which are turned into woodchips and mulch for local parks and gardens.

KNOWLEDGE AND UNDERSTANDING

Explain how you could reuse your real Christmas tree in your garden — http://organicgardening.about.com/od/organicgardenmaintenance/a/How-To-Use-Your-Christmas-Tree-In-Your-Garden.htm

Real Christmas trees are recyclable – www.christmastree.org/recycle.cfm. Refer to this site and write a report on how Christmas trees contribute to both the environment and people.
DEBATE: REAL VERSUS FAKE CHRISTMAS TREES

Each Christmas season, shoppers find themselves confronted with a choice – celebrate with a fresh, real tree or one that is artificial or fake. Refer to the quotes from the following children and decide whether you will buy a real or fake tree this Christmas. Justify your answer as a PowerPoint report.

Arguments for buying a fake Christmas Tree

<table>
<thead>
<tr>
<th>BENJAMIN BLISS</th>
<th>ISABELLA BLISS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• fake trees don’t lose their needles and there is no sap to get over the furniture or clothes.</td>
<td>• more choice – trees come in all dimensions, shapes and colours.</td>
</tr>
<tr>
<td>• fake trees do not need water and are therefore good for the environment.</td>
<td>• most Christmas trees are mono crops and sprayed with fertilisers and pesticides for diseases, pests and weeds.</td>
</tr>
<tr>
<td>• fake trees are better than killing a living thing.</td>
<td>• some apartment buildings in China banned natural trees because of fire concerns.</td>
</tr>
<tr>
<td>• real trees can become a fire hazard when they dry out.</td>
<td>• most fake trees are created from flame resistant materials and do not start fires.</td>
</tr>
<tr>
<td>• fake trees are usually free from allergens, moulds, and funguses that grow on natural trees, and can be a problem for people.</td>
<td>• fake trees may originally be more expensive but are a good investment in the long run.</td>
</tr>
<tr>
<td>• most artificial Christmas trees are made of 100% recycled plastics from used PVC materials in China.</td>
<td>• today artificial trees are more convenient, reusable, and of better quality than the old artificial trees.</td>
</tr>
<tr>
<td>• lead was often used as a stabiliser in PVC but it is now banned by Chinese laws.</td>
<td>• clear cut logging of Christmas trees accelerates soil erosion, degrades wildlife habitat and leads to loss of biodiversity.</td>
</tr>
<tr>
<td>• cutting real trees means animals and birds have no homes.</td>
<td></td>
</tr>
</tbody>
</table>
Arguments for buying a real Christmas Tree

AUDREY HAWKINS

- fake trees are largely made from metal or plastic. Plastics may contain lead and are petroleum-based, which depletes the earth's natural resources.
- life span of a fake tree is 5–10 years in the home and hundreds of years in a landfill.
- real trees return carbon, nitrogen and other nutrients to the soil as they decompose.
- a pharmaceutical company, plans to make an influenza medicine with the shikimic acid extracted from the needles of discarded Christmas trees.
- fake trees do not last forever.
- real trees offer fragrance and freshness.
- you can buy a real tree from a tree farm, use it at Christmas, then plant it in your backyard and then re-use it the next year.

Photograph: Famous Rockefeller Centre Christmas tree, the biggest, brightest, and most famous evergreen in USA. The tree, usually a Norway spruce, is 21 to 31 metres tall. Source: www.greatcommission.com/family/2005_12_09/RockefellerCenterChristmasTree3.jpg

NICOLA BLISS

- trees absorb carbon and produce oxygen when growing which helps reduce global warming.
- real trees are a renewable and recyclable resource – used for mulch in gardens, preventing beach front erosion and stabilising river banks.
- one hectare of Christmas trees will produce enough oxygen each day for eight people.
- tree roots hold soil in place reducing sediments in rivers allowing fish to survive.
- when strategically planted, a tree can lower heating and cooling bills by helping to insulate a home.
- several known carcinogens, including dioxin, ethylene dichloride and vinyl chloride, are generated during the production of PVC (used to make fake trees) polluting neighbourhoods located near factory sites.
- a natural tree will generate 3.1kg of greenhouse gases every year (based on purchasing 5km from home) whereas the artificial tree will produce 48.3kg over its lifetime.

PTC NSW in partnership with AusAID to support the integration of a global perspective across the curriculum

NSW GLOBAL EDUCATION PROJECT

The NSW Global Education Project is managed by the Professional Teachers’ Council of NSW and financed by Australian Government AusAID.

To access the catalogue of Global Education material available from PTC NSW, including complimentary resources, go to: www.ptc.nsw.edu.au then click on the Global Education link.
AUSTRALIAN CURRICULUM: GEOGRAPHY
Asia and Australia’s engagement with Asia

The *Melbourne Declaration on Educational Goals for Young Australians* refers to the need for Australians to become Asia literate. In a major step towards achieving this goal, the new Australian Curriculum identifies ‘Asia and Australia’s engagement with Asia’ as a priority across the curriculum and at all levels of schooling.

Without increased investment in Asia literacy through a national plan, the intentions of the *Melbourne Declaration* and the new Australian Curriculum are unlikely to be met. Read more at www.asiaeducation.edu.au/partnerships/education_alliance_for_asia_literacy/call_to_action1.html

How can you develop knowledge and understanding of Asia?

1. **Professional development:**
   - Asia Education Teachers’ Association Australia (AETA) publishes excellent resources (journal format) four times a year, which contain practical ideas, student activities, units of work and background information for teachers. It also organises conferences in urban and rural/regional areas across NSW. Also AETA regularly conducts overseas study tours to Cambodia, India, Sri Lanka, Borneo, Japan and China. For more information contact www.aeta.org.au; email: secretary@aeta.org.au. Phone/Fax 02 4787 5974
   - The National Asian Language and Studies in Schools Program (NALSSP) is currently being implemented in NSW schools. For teachers in public schools, possibilities of Teacher Education Visitation programs, tertiary education courses, units of work and support for intercultural understanding are available. For further information contact Jennifer Curtis, Senior Curriculum Adviser: Studies of Asia, on (02) 9886 7593 email: jennifer.curtis@det.nsw.edu.au, or visit www.curriculumsupport.education.nsw.gov.au/nalssp/index.htm

2. **Videos: Showcasing Asia skills**
   View 20 inspiring individuals applying their Asia skills in a wide range of settings including hospitality, the arts, health, government, agriculture and exporting, media, marketing, sport, development and aid agencies, fashion and design. The videos illustrate how Asia skills have enriched their lives and careers. www.asiaeducation.edu.au/for_teachers/asia_skills/asia_skills_home.html

3. **Videos: My Future – Asia Skills**
   Videos and supporting information for building Asia literacy in Australian schools have been launched on myfuture at www.myfuture.edu.au/asiaskills

4. **Study Tours**
   AEF conducts study tours to Asian countries. For further details contact studytours@asialink.unimelb.edu.au

5. **Leading 21st Century Schools – Engage with Asia**
   This program provides strategies and resources for school leaders to support curriculum change in school communities. Read more at www.asiaeducation.edu.au/for_school_leaders/school_change/leading_21st_century_schools_landing.html

6. **AEF Asia Skills**
   This widget enables quick links to the AEF website. Connect your school website with AEF resources, lesson plans, study tours, grants and school-business partnerships to support the development of Asia literacy www.asiaeducation.edu.au/asia_skills_widget_info.html

‘Asia literacy doesn’t mean reading and writing specifically. It means knowing more about the regions you’re going into, knowing something that sets you apart from all those vying for the same opportunities’

Adam Liaw,
Chef and Lawyer
POVERTY ON OUR DOORSTEP – EAST TIMOR (TIMOR LESTE)

World Vision sent six Youth Ambassadors to East Timor in January 2011 (see photograph). The NSW representative was Aaron Lovell who completed his HSC at Gymea Technology High School in 2010 and is now available to speak in schools in 2011. Below is his reflection on the trip.

“My name is Aaron. I’m just an ordinary 18 year old but three months out of school I was boarding a plane to East Timor as a World Vision Youth Ambassador. Just an hour flight from Darwin and I found myself in a whole other world – a world of injustice and poverty, a world that together we must change. I had heard about poverty, seen pictures of poverty, even talked about poverty, but never before have I been exposed to such raw and uncensored poverty.

East Timor is the poorest nation in all of Asia, and poorer than some African nations, but unlike Africa it’s not on the other side of the world – it’s on our doorstep.

While I was in East Timor, it was the middle of the five month long hungry season. Each year many of the Timorese endure months with no food, and many are reduced to eating cooked tree bark. It gives them no nutrition... just stops them feeling hungry. This is how many of the families I met were living. We are so close to them but our lives are very different.

Many of the families I visited lived in situations that appeared hopeless. You will meet some of them in the Get Connected DVD. At the same time, I also got to see how an Australian non government organisation (NGO) is working with these families and their communities.

I met farmers who had been given training and were now reaping crops four times bigger than ever before. I met other families who now not only had enough food for themselves but were selling produce to supermarkets. World Vision doesn’t give people food or water, they allow the people to believe in themselves again and see a way out of their situation. They give training and hope. This made me proud to be an Australian – knowing that we can help break the shocking effects of poverty on people’s lives.

Now, I will be speaking in schools encouraging Australian students to do something – to think differently about our world and what we can do – to get involved in the 40 Hour Famine, buy Fair Trade or write a letter to the Australian government. We can’t be aware of this poverty on our doorstep and not do something!

East Timor will forever have a special place in my heart. After seeing the country, meeting the people and hearing their stories, my perspective on life has been changed. Never again will I stand in front of a fridge of food and tell mum there’s nothing to eat.”
GLOBAL INEQUALITY

The topic for Get Connected Issue 9 is Global Inequality and includes a DVD case study on East Timor.

One way of measuring global inequality is to measure the wealth of different countries – the amount of goods or products and services produced (the gross domestic product or GDP).

2010 Gross Domestic Product (GDP) – in $US (per capita)

<table>
<thead>
<tr>
<th>TOP 15</th>
<th>$US</th>
<th>BOTTOM 15</th>
<th>$US</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Qatar</td>
<td>88,230</td>
<td>168. Guinea</td>
<td>1,056</td>
</tr>
<tr>
<td>2. Luxembourg</td>
<td>80,305</td>
<td>169. Ethiopia</td>
<td>1,018</td>
</tr>
<tr>
<td>4. Norway</td>
<td>52,240</td>
<td>171. Mozambique</td>
<td>982</td>
</tr>
<tr>
<td>5. Brunei</td>
<td>47,200</td>
<td>172. Madagascar</td>
<td>910</td>
</tr>
<tr>
<td>6. United States of America</td>
<td>47,125</td>
<td>173. Malawi</td>
<td>908</td>
</tr>
<tr>
<td>7. Switzerland</td>
<td>41,765</td>
<td>174. Togo</td>
<td>847</td>
</tr>
<tr>
<td>8. Netherlands</td>
<td>40,775</td>
<td>175. Sierra Leone</td>
<td>803</td>
</tr>
<tr>
<td>10. Austria</td>
<td>39,455</td>
<td>177. Niger</td>
<td>720</td>
</tr>
<tr>
<td>11. Canada</td>
<td>39,035</td>
<td>178. Eritrea</td>
<td>676</td>
</tr>
<tr>
<td>12. Ireland</td>
<td>38,685</td>
<td>179. Burundi</td>
<td>410</td>
</tr>
<tr>
<td>13. Kuwait</td>
<td>38,295</td>
<td>180. Liberia</td>
<td>396</td>
</tr>
<tr>
<td>14. Sweden</td>
<td>37,775</td>
<td>181. Zimbabwe</td>
<td>395</td>
</tr>
<tr>
<td>15. United Arab Emirates</td>
<td>36,975</td>
<td>182. Democratic Republic Congo</td>
<td>340</td>
</tr>
</tbody>
</table>

Source: www.imf.org

However, this doesn’t mean that everyone in Qatar or the USA is rich and everyone in Zimbabwe and the Democratic Republic of Congo is poor. There is inequality of wealth between countries and there is inequality of wealth in every country. There is poverty in the USA and people with great wealth in Zimbabwe. Also, money or GDP is only one measure of global inequality. A few weeks before he was shot, while a candidate for President of the USA, Robert Kennedy said this:

“Our gross domestic product counts air pollution and advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for those who break them. It counts napalm, the cost of a nuclear warhead, and armoured cars for police who fight riots in our streets. It counts rifles and knives, and the television programs which glorify violence in order to sell toys to our children.

Yet the gross domestic product does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages; the intelligence of our public debate or the integrity of our public officials.

It measures neither our wit nor our courage; neither our wisdom nor our learning; neither our compassion nor our devotion to our country; it measures everything, in short, except that which makes life worthwhile.”

For you to do!

1. Find the countries listed on p. 4 of Get Connected Issue 9, on a world map (see worldvision.com.au/schoolresources) and identify the region of the world they represent. What do you notice about the distribution of wealth around the world?

2. Read the quote from Robert Kennedy (above) and identify the important things he says that GDP does not measure. Can you suggest any ways that these could be measured?

Human Development Index

1. Read the information on p. 6–7 of Get Connected Issue 9 (Global Inequality) and graph the data on the three bar graphs.

2. What patterns do you notice in the three graphs above?

3. Suggest reasons to explain these patterns.
ACTIVE CITIZENSHIP

National Close the Gap Day is an annual event of major significance to all Australians seeking to close the gap between Indigenous and non-Indigenous Australian health. In 2011 it was held on Thursday 24th March.

Since 2005, more than 140 thousand people have joined the campaign, which calls for national action to close the 10-17 year life expectancy gap between Indigenous and non Indigenous Australians within a generation. Close the Gap is supported by all Australian Federal, State and Territory Governments and Oppositions.

The following figures illustrate the staggering reality:

- Indigenous men and women die up to 17 years earlier than other Australians.
- Indigenous children are dying at more than double the rate of non-Indigenous children.

The state of Indigenous health today is a result of decades of neglect and inadequate services. Poverty caused by high unemployment, poor housing, inadequate education, discrimination, unresolved trauma and a lack of empowerment have contributed to the situation.

Achieving Indigenous health equality relies on investment in primary healthcare for Aboriginal and Torres Strait Islanders in health education, improved nutrition, maternal and child health, and the prevention and management of disease. Indigenous Australians need to be consulted, empowered, resourced and supported to address the health issues facing their communities.

HOW DID WE GET TO THIS?

A 2007 report by the Australian Medical Association uncovered evidence of discrimination in our health system. It found Aboriginal and Torres Strait Islanders do not benefit from mainstream health services to the same level of other Australians because they are either located out of the reach of Aboriginal communities or the medical attention they receive is culturally inappropriate and unwelcoming. http://ama.com.au/node/3229#end_of_page

GOOD NEWS!

- In 2008 the Council Of Australian Governments (COAG) signed up to close the gap on life expectancy within a generation (25 years) and to halve the Indigenous child mortality rate within a decade.
- In November 2008, the Australian Government announced a $1.6 billion commitment to improve Indigenous health, the biggest ever injection of new funding for Indigenous health.
- The Australian Government is working in partnership with the National Congress of Australia's First Peoples to develop a long term plan to Close the Gap – www.oxfam.org.au/media/releases/campaigns-and-advocacy?p=3881

While these achievements are commendable – it’s just the beginning.

FREE SCHOOL KITS

A National Close the Gap Day Schools kit has been developed with resources to support students and teachers to hold their own events on, or during the week of Thursday 24th March. Also teachers may select to use the kit when studying the topic on a different date, www.oxfam.org.au/national-day

For more details contact: Peter Grzic Youth Engagement Officer, Oxfam Australia.

RESOURCES

- Leave Your Mark – http://leaveyourmark.my3things.org/ Leave Your Mark explores the inspirational stories of five Aboriginal and Torres Strait Islander youth and their journeys to creative positive social change.
- Teaching programs and worksheets – Geography Stage 4 and 5 – http://leaveyourmark.my3things.org/teachers/
Human rights are basic to humanity

Human rights apply to all people, everywhere, everyday. All people – no matter their age, sex, colour, religion or where they live – have the same basic needs to live a healthy life. These needs include food, shelter, education, healthcare and freedom from persecution and discrimination. Through the Universal Declaration of Human Rights, the governments of the world agreed that ‘all’ people have the right to basic needs. Denying people their basic rights not only leads to personal suffering but can result in conflict.

In addition to these rights, children have supplementary rights to help them survive and develop to their full potential. The Convention on the Rights of the Child (CRC) sets out these rights. Australia, along with nearly every other country in the world, has agreed to protect these rights.

Australian Human Rights Commission – rightsED

The Australian Human Rights Commission’s human rights education resources for teachers – rightsED – aims to help students develop a critical understanding of human rights and responsibilities, as well as develop the attitudes, behaviours and skills to apply them in everyday life. They are designed to introduce students to human rights concepts in an engaging, relevant way. The resources are free to download or order and may be photocopied.

Face the Facts

Face the Facts education resource provides information about Indigenous peoples, migrants, refugees and asylum seekers. The resource draws on primary research information from a variety of sources, including laws made by the Australian Parliament, government policies, academic research and statistics gathered by the Australian Bureau of Statistics. The factual information, from various sources, provides a snapshot of some aspects of the social realities in Australia.

At www.hreoc.gov.au/education/index.html you will find rightsED resources on topics such as:

- Understanding human rights.
- Commemorate Human Rights Day.
- Child rights.
- Bringing them home (and related English resources).
- Face the Facts.
- Voices of Australia.
- Disability rights – What about Doug’s rights?
- Young people in the workplace.
- Tackling sexual harassment.

Geographical inquiry:

- What are human rights?
- Why do we need human rights?
- What is the spatial distribution of human rights abuses around the world?
- How do abuses to human rights impact on humanity?
- How would abuse to human rights affect me?
- What are our responsibilities as informed, responsible active citizens?
- What organisations (local, national, global) are involved in reducing human rights injustices?
BOOK & DVD REVIEWS

Dr. Susan Bliss

Geography books for primary school students

Geography books for secondary students and teacher resource

Title: Civilising Globalisation: Human Rights and the Global Economy
Author: David Kinley
Publisher and date: Cambridge University Press, 2009
Number of pages: 256
Resource description: Teacher reference book
Price: $49.95

The book is organised into five chapters: economic globalisation and human rights; trade and human rights; aid and human rights; commerce and human rights; and civilising globalisation ahead.

Geographic concepts: globalisation, human rights, trade, aid, climate change, transnational corporations, fair trade, right to development (RTD), poverty, Millennium Development goals, environment and sustainable development.

Comments
Professor David Kinley analyses how human rights intersect with trade, aid and commerce and the role of the global economy as an important civilising instrument. He notes that globalisation and human rights have the power to improve and enrich people and communities, however, their respective institutions, practices and goals differ, leading to both detrimental clashes and beneficial synergies.

David argues that the future challenge is to: match the power of transnational corporations with their responsibilities; ensure trade organisations like the World Trade Organisation meet their aims to help the poor and protect the environment; increase the levels of overseas aid; and achieve the Millennium Development Goals by 2015.

David combines meticulous research with informed views to outline frameworks to ensure the global economy advances universal human rights. He also argues for equitable distribution of wealth and more effective management of the debilitating effects of global financial meltdowns. Finally he argues a persuasive case for global economic actors to be responsible and respect people’s human rights and discusses how these duties ought to be reconfigured and enforced if we want a civilising globalisation.

David’s lucid, well balanced and informative book, discussing the complex interactions of human rights law with globalisation, is excellent value for money. With quotes based on the author’s personal experiences and interviews, the book draws on a range of cases and arguments to demonstrate how, in the wake of a global financial crisis, human rights responsibilities can be met while simultaneously promoting global economic growth. His facts and the figures to explain how aid can better protect the human rights of the poor were persuasive.

I highly recommend this book as a teacher resource or university textbook for anyone studying the human rights implications of globalisation.

Title: Violent Geographies; Fear, Terror, and Political Violence
Author: Derek Gregory and Allan Pred
Publisher and date: Routledge, 2007
ISBN: 0-415-95146-1
Number of pages: 390
Resource Description: Teacher reference book
Price: $55.95
Global Education

The book is written by a group of young geographers and is organised into nineteen chapters.

Geographic concepts: space; place, landscape, cartography; geopolitics; globalisation; imaginative geographies; microgeographies; racism; refugees; spatial strategy; terror.

Comments

Violent Geographies looks at how territory and space delimit and shape both terrorism and political violence in a wide range of places, from the Middle East to Latin America. The book discusses how physical violence, especially terrorism, disrupts the distinction between the global and the local by injecting transnational politics into everyday life. Violent Geographies also shows how terrorism is not only used by non-state groups but is used by states, including some of America's allies. The book goes beyond 9/1, moving backward in history and across the globe to other locales to explain the fear of terror occurring everywhere.

Derek Gregory is Professor of Geography at the University of British Columbia. He taught for many years at Cambridge before moving to UBC, and is the author of numerous books.

Reviews of the book

‘This is what a public geography should be all about: acute analysis of momentous issues of our time in an accessible language. Gregory and Pred have assembled a peerless group of critical geographers whose essays alter conventional understandings of terror, violence and fear. No mere gazetteer, Violent Geographies shows how place, space and landscape are central components of the real and imagined practices that constitute organised violence past and present. If you thought terror, violence, and fear were the professional preserve of security analysts and foreign affairs experts this book will force you to think again.’ Noel Castree, School of Environment and Development, Manchester University.

‘A studied, passionate and moving examination of the way in which the violent logics of the War on Terror have so quickly shuttered and reorganised the spaces of this planet on its different scales. From the book emerges a critical new cartography that clearly charts an archipelago of a large multiplicity of ‘wild’ and ‘tamed’ places as well as ‘black holes’ within and between which we all struggle to live.’ Eyal Weizman, Director, Goldsmiths College Centre for Research Architecture.

I recommend this book as a teacher resource when studying political geography in years 11–12 (ACARA) and a university textbook for anyone studying terrorism and political violence.

Title: Climate Change, Ethics and Human Security
Editor: Karen O’Brien, Asunción Lera St. Clair and Berit Kristoffersen
Publisher and date: Cambridge University Press (2010)
Number of pages: 231
Resource description: Upper-level students in the social sciences and humanities interested in climate change.
Price: A$120

Summary

Presenting human security perspectives on climate change, this volume raises issues of equity, ethics and environmental justice, as well as our capacity to respond to what is increasingly considered to be the greatest societal challenge for humankind. Written by international experts, it argues that climate change must be viewed as an issue of human security, and not an environmental problem that can be managed in isolation from larger questions concerning development trajectories, and ethical obligations towards the poor and to future generations. The concept of human security offers a new approach to the challenges of climate change, and the responses that could lead to a more equitable and sustainable future.

Title: Climate Capitalism: Global Warming and the Transformation of the Global Economy
Authors: Peter Newell and Matthew Paterson
Publisher and date: Cambridge University Press (2010)
ISBN: 978-0-521-12728-8
Number of pages: 205
Resource description: Teachers and upper-level students in the social sciences and humanities interested in climate change.
Price: A$85

Summary

Confronting climate change is now understood as a problem of ‘decarbonising’ the global economy: ending our dependence on carbon-based fossil fuels. This book explores whether such a transformation is underway, how it might be accelerated, and the complex politics of this process. Given the dominance of global capitalism and free-market ideologies, decarbonisation is dependent on creating carbon markets and engaging powerful actors in the world of business and finance. Climate Capitalism assesses the huge political dilemmas
this poses, and the need to challenge the entrenched power of many corporations, the culture of energy use, and global inequalities in energy consumption. Climate Capitalism is essential reading for anyone wanting to better understand the challenge we face. It will also inform a range of student courses in environmental studies, development studies, international relations, and business programmes.

Title: Troubled Waters
Editors: Geoff Holland and David Pugh
Publisher and date: Cambridge University Press (2010)
Number of pages: 316
Resource description: Upper-level students in the social sciences and humanities interested in climate change.
Resource description: Teachers, upper-level students and any person concerned about the future stewardship of our oceans.
Price: A$50
Summary
Bringing together 30 international experts, this volume commemorates the 50th anniversary of the Intergovernmental Oceanographic Commission of UNESCO, the UN organisation responsible for fostering intergovernmental cooperation on global ocean issues. It looks at how governments use science to establish ocean policies, with chapters ranging from the history of ocean management to current advances in marine science, observation and management applications, and the international agencies that co-ordinate this work. With a focus on key topical issues such as marine pollution, exploitation, and hazards, Troubled Waters reflects on past successes and failures in ocean management and emphasises the need for knowledge and effective government action to ensure a sustainable future for this precious resource. It is illustrated with dramatic, full-colour images.

DVD: Slumming It
Slums: India
Kevin McCloud immerses himself in one of the most extreme and densely populated places on earth: Dharvi, Mumbai.
Over one million people are crammed into 2.6 square kilometres. Living and working with the locals, Kevin explores the 15,000 one-room industries contained within the slum. Despite the hardships of life in the area, Kevin discovers an extraordinary sense of spirit and community and reflects on the lessons Western cities could learn from its sustainable society.
Price: $24.99
Youtube Trailer: www.youtube.com/watch?v=sTu5bOrKols 10.02 min
Mumbai’s Slums —the Real Scene Behind ‘Slumdog Millionaire’ www.youtube.com/watch?v=qtkvsNUVF5Y&feature=related 3.39 min
Dharavi Slum Rehabilitation www.youtube.com/watch?v=gYa6ooID1ZE&feature=relmfu 8.57 min

The GTA NSW Annual Conference is a valuable opportunity for teachers to update their content knowledge and explore key issues in Geographical Education. Of particular interest to conference participants will be the renewed emphasis on Physical Geography in the Australian Geography Curriculum, together with the importance of geographical inquiry and fieldwork.

Keep this date free – Conference program and registration information will be distributed to association members, schools and will also be available on the GTA website soon.
At the heart of urban planning, social science, heritage and tourism

The University of Western Sydney has 6 campuses all placed in the heart of the future growth and development of Sydney, which makes UWS the smart choice of university if you’re considering Urban Planning, Heritage & Tourism or Social Science.

In 2012 the University will offer;

» B Social Science / Master of Urban Management and Planning (pathway)
» B Social Science (Heritage & Tourism)
» B Social Science (Peace & Development Studies)
» B Tourism Management
» B Social Science

Bachelor of Urban Planning

Greater Western Sydney is an ideal planning laboratory for a new generation of planners. The students learn in the field, through class trips, case studies, visiting lectures, and the opportunity to complete a professionally focused major project. This innovative program takes a whole of city approach, equipping students to contribute to the future of cities. The Bachelor of Social Science in conjunction with the Master of Urban Management and Planning is an accredited course with the Planning Institute of Australia.

Bachelor of Tourism Management

If an exciting career in the tourism, leisure or cultural industries is what your students are looking for, the innovative Bachelor of Tourism Management would be an excellent course choice. This program provides students with a social science and management focus on the tourism industry of Australia, giving graduates expertise in the cultural bases of tourism and its sustainable development.

Bachelor of Social Science
(Penrith and Bankstown)

Students looking to positively influence the lives of people should consider the Bachelor of Social Science. It offers six majors in

» Child and Community
» Geography and Urban Studies
» Peace and Development Studies
» Criminology and Criminal Justice
» Heritage and Tourism
» Sociology

For more information on any of these courses, visit myfuture.uws.edu.au or call 1300 897 669
The BluePlanet website is a fantastic resource for Geography, Science and Agriculture High School teachers.

Visit the **blueplanet** website for

- Information centered around the NSW curriculum
- Central Coast case studies
- Curriculum information
- Games (great time fillers for the last 5 minutes of a lesson)
- Statistics and water facts
- Maps of the Central Coast

**blueplanet topics:**

- The water cycle
- Wastewater and its treatment
- Water infrastructure
- Water recycling and reuse
- Types of water
- Food chains and food webs
- El Niño
- La Niña
- Climate change
- ... and much much more

Email blueplanet@wyong.nsw.gov.au to join the BluePlanet mailing list. For more information call the Water Education Officer - High Schools on (02) 4350 5685

A teacher resource section has been developed to house materials available only to teachers via a login. Contact Council staff through the website for your login.

Encourage your students to submit their work to be published on the BluePlanet website. Prizes awarded every term.

www.blueplanet.nsw.edu.au
The Geography Teachers’ Association of New South Wales (GTA) is a not-for-profit, incorporated body that represents the professional interests of Geography teachers in NSW and Geographical Education more generally. The objectives of the Association are to promote the study and teaching of geography in schools by:

- providing professional learning opportunities for teachers of Geography;
- advocating the interests of Geography teachers on matters in the State and National interest;
- providing forums where teachers of Geography and the wider community can exchange views;
- supporting Geographical Education through the development and dissemination of geographical resources; and
- promoting geographical research and fieldwork.

The GTA seeks to address its objectives via a yearly program of activities and events, which include:

- publishing of the quarterly Geography Bulletin a quality, peer-reviewed journal designed to serve the contemporary interests of Geography teachers and students.
- delivering Teacher Professional Learning Workshops and in metropolitan and regional locations, focusing on current issues, including in Global Education, the use of technology in the classroom, research and fieldwork skills.
- conducting an Annual Conference with keynote addresses from leading geographers on contemporary and emerging geographical issues as well as more practical sessions by geographical practitioners.
- hosting School Certificate and Higher School Certificate Reviews for teachers of Geography. These reviews are held in a number of regional areas across the state.

**MEMBERSHIP RENEWAL/APPLICATION FORM 2011**

Please select ONE of the following membership options and complete the details

- **Personal membership $90.00**
  - Title – please tick:  
    - Dr  
    - Mr  
    - Mrs  
    - Ms  
    - Miss  
    - Other:  
  - Surname:  
  - Given Name(s):  
  - Home address:  
  - Postcode:  
  - Phone:  
    - (Mob)  
    - (Home)  
    - (Work)  
  - Fax:  
  - Email:  

- **Corporate membership $180.00**
  - Title – please tick:  
    - Head of HSIE  
    - Head Teacher of Social Science  
    - Head Teacher of Geography  
    - Co-ordinator of Geography  
    - Senior Geography Teacher  
    - Librarian  
  - School:  
  - School address:  
  - Postcode:  
  - School phone:  
  - School fax:  

- **Concessional membership $40.00**
  - Title – please tick:  
    - Dr  
    - Mr  
    - Mrs  
    - Ms  
    - Miss  
    - Other:  
  - Surname:  
  - Given Name(s):  
  - Home address:  
  - Postcode:  
  - Phone:  
    - (Mob)  
    - (Home)  
    - (Work)  
  - Fax:  
  - Email:  

**PAYMENT:**

Membership is for twelve months commencing in January. If payment is made later in the year all back copies of Geography Bulletin will be forwarded. A membership reminder will be sent in December.

Please make cheques payable to: Geography Teachers’ Association of NSW Inc OR

Charge $ to my credit card:  
- Mastercard  
- Visa

Card Number:  
- Expiry:  

Name on card:  
- Signature:  

**Post this form and your payment to:** GTA NSW, PO Box 577 Leichhardt, NSW 2040
Advice to contributors

1. **Objective:** The *Geography Bulletin* is the quarterly journal of the New South Wales Geography Teachers’ Association, Inc. The role of the *Geography Bulletin* is to disseminate up-to-date geographical information and to widen access to new geographic teaching ideas and methods. Articles of interest to teachers and students of geography in both secondary and tertiary institutions are invited, and contributions of factually correct, informed analyses, and case studies suitable for use in secondary schools are particularly welcomed.

2. **Content:** Articles, not normally exceeding 5000 words (no minimum specification), should be submitted to the Editor at the following address:

   PO Box 577, Leichhardt, NSW, 2040

   Articles are welcomed from tertiary and secondary teachers, students, business and government representatives. Articles may also be solicited from time to time. Articles submitted will be evaluated according to their ability to meet the objectives outlined above.

3. **Format:** An original on disk plus one hard copy should be submitted. Tables should be on separate pages, one per page, and figures should be clearly drawn, one per page, in black on opaque paper suitable for photographing. Photographs should be on glossy paper, and strong in contrast. An indication should be given in the text of approximate location of tables, figures and photographs. Every illustration needs a caption.

4. **Title:** The title should be short, yet clear and descriptive. The author’s name should appear in full, together with a full title of position held and location of employment.

5. **Covering Letter:** A covering letter, with return forwarding address should accompany all submitted articles. If the manuscript has been submitted to another journal, this should be stated clearly.

6. **Photo of Contributor:** Contributors should enclose a passport-type photograph and a brief biographical statement.

7. **References:** References should follow the conventional author-date format:


   Harrison, T. L. (1973a) *Railway to Jugiong* Adelaide: The Rosebud Press. (*2nd Ed.*)


8. **Italics** should be indicated by underlining.

9. **Spelling** should follow the *Macquarie Dictionary*, and Australian place names should follow the Geographical Place Names Board for the appropriate state.

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• encourage teachers to share their ideas on teaching geography
• provide a means by which teachers can publish articles
• inform readers of developments in geographical education

Articles are sought reflecting research and innovations in teaching practices in schools. From time to time issues of the Bulletin address specific themes.

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An aerial view of damage to Wakuya, Japan after a 9.0 magnitude earthquake and subsequent tsunami devastated the area in northern Japan. Ships and aircraft from the Ronald Reagan Carrier Strike Group are conducting search and rescue operations and re-supply missions as directed in support of Operation Tomodachi throughout northern Japan.