Teaching notes

Using this issue

Simon Oakes

These notes are intended for use with GEOGRAPHY REVIEW Vol. 27, No. 4. They suggest ways in which you might develop further some of the articles in the magazine with your A-level and diploma students.

Football in Africa: migration, identity and globalisation (pp. 2–4)

This fascinating article should be of enormous interest to geography students, especially those following IB Higher Level and Edexcel (Unit 1 and Unit 4). Curriculum relevance here is not limited to the optional study of the geography of sport. David Storey's look at football in Africa touches on many important themes for studies of globalisation, global interactions, migration and diaspora.

Possible follow-up activities

1. Ask students to think carefully about the paradox (in an unexpected sense) posed by the Mandanda brothers, and what it tells us about national identities in a shrinking world. ‘Steve Mandanda, the oldest brother, is a regular member of the French squad but his younger brother Parfait has represented DR Congo at full international level. Ironically Steve was born in Kinshasa, the capital of what was then known as Zaire, shortly before the family moved to France. After the move Parfait and two younger brothers (also footballers) were born in France. So here we have a player born in what is now the DRC playing for France, while his French-born brother dons the colours of DRC.’

2. Sports players are just one example of an ‘international elite’ of economic migrants who are likely to experience fewer restrictions on their movement than migrants who are less skilled and (from a state’s point of view) less desired. Students can look for evidence in David Storey’s article of ways in which migration is made easier for sports stars. The illustration on the right can be used as the basis for a wider discussion about elite migration, and the reason why some countries employ a points system that helps them grant entry to some international migrants, but not others.

IB geography examination tip

This is an excellent article for Higher Level students to support their P3 studies:
• The multiple identities claimed by players profiled in this article are a product of global interactions. The Mandanda brothers can be used to support the synthetic teaching of strands 5 and 6 of Global interactions. The fluid identity of this diaspora family — and the way in which the football teams of nation states are increasingly composed of players who were not born in those states — raises all kinds of pertinent questions about national power and sovereignty. What do global citizens, such as the Mandandas, see as the basis for their own identity? Is it membership of a diaspora, such as the DRC diaspora, or allegiance to the state in which they were born? Or both?

• The case-study material could be used to support discussion of the statement 'All societies, wherever they are, enjoy the benefits of a shrinking world' (IB Paper 3, November 2013). One benefit could be a strengthening of the national football team. This has direct advantages for the state, in terms of both global prestige and the economic benefits of a successful national squad (ticket sales, merchandise sales etc.) It is good for ordinary citizens too, who may take pride in national sporting success and for whom sport may be an important leisure activity. Once again, the Mandanda brothers provide us with a fine example of the complex way in which benefits are actually distributed in a globalised world. DRC’s diaspora is an important human resource that the country can draw on; France maintains mutually beneficial post-colonial links with its ex-colonies. The statement refers to ‘the benefits of a shrinking world’ and a good answer will stress the role that transport and communications play in this case study, conveying migrants and players between countries and broadcasting matches worldwide.

**Development update Changing the way the world cooks (pp. 5–7)**

This article provides AS/A2 students with a case study of biofuel/biomass use, and the impact that this energy use can have on people and the environment. Solutions are suggested that help reduce harmful impacts and increase efficiency and sustainability.

**Possible follow-up activities**

Biofuel use is on the rise in the UK where it is stirring up controversy. It would be interesting to make a comparative case study of the costs, benefits and management challenges faced by UK energy companies using biofuels. Here are two suggestions:

• A new biofuel-burning plant has been prosed for the Isle of Arran in Scotland. The Northern Energy Developments scheme plans to open a wood-fired combined heat and power plant, using 40,000 tonnes of wood per year from Arran’s forests. ‘But the plan is encountering widespread opposition on the island itself. A campaign group, No to Arran Biomass, claims that the plant is not suitable for the area and the Buddhist community on Holy Isle, in Lamlash Bay, has now joined the protest.’ Find out more at: [http://www.scotsman.com/lifestyle/heritage/holy-isle-buddhists-fight-power-plant-1-2438917](http://www.scotsman.com/lifestyle/heritage/holy-isle-buddhists-fight-power-plant-1-2438917)

• UK government ministers are relying on biomass technology to help Britain meet its carbon commitments. The Environment Agency estimates that biomass-fired electricity generation, using wood pellets, can cut greenhouse gas emissions by up to 90% compared with coal-fired power stations. Eight biomass power stations, including one in the giant Drax power station, are already operating in the UK and a further seven are planned. However, the Drax station
has attracted a great deal of negative publicity. A campaign group, Biofuelwatch, has challenged the suitability of biomass burning as a sustainable means of energy production. Find out more at: http://www.biofuelwatch.org.uk/2013/drax-agm-targeted-over-biomass-conversion-plans/ and http://www.theguardian.com/environment/2013/nov/09/biomass-power-stations-wood-forests-report

Hazard risk assessment: a case study from Brazil (pp. 12–15)

This is a first-class case study to support the teaching of hazards. It can be used to support a range of learning objectives. Students can use the article to support three fundamentally different types of assessment.

Possible follow-up activities

1. One possible exam question is shown below. This is a data-stimulus question, requiring students to use the information in the table in conjunction with some of their own ideas about hazard events and impacts.

### Table 1 Dates of some landslide events, with total fatalities and rainfall amounts, 1980–2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Total fatalities</th>
<th>Rainfall (mm) in 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>20</td>
<td>235</td>
</tr>
<tr>
<td>1988</td>
<td>171</td>
<td>250</td>
</tr>
<tr>
<td>2001</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>2008</td>
<td>9</td>
<td>195</td>
</tr>
<tr>
<td>2011</td>
<td>71</td>
<td>180</td>
</tr>
<tr>
<td>2013</td>
<td>33</td>
<td>400</td>
</tr>
</tbody>
</table>

Source: Petrópolis Civil Defence.

(1) Study Table 1. Suggest why the fatalities vary for the landslide events shown. [10 marks]

**Tip**

Table 1 gives you one possible route to answering the question: the amounts of rainfall that fell prior to the different events. For instance, the highest fatalities are linked to the second-highest rainfall; the lowest fatalities are linked to the second-lowest rainfall. However, the correlation is not strong overall which naturally leads us towards considering additional factors not shown in the table. You might want to consider the location of the landslide. How populated was the area? What were the population characteristics of the affected area? It could be that some landslides struck richer areas where houses were better built and more resilient. There are many other possible explanations for the variations shown, including the time of day the landslide struck, whether warnings were given, etc.
2 A second type of exam question is shown below. This time, there is no data stimulus. Instead, the candidate is expected to show a greater depth of understanding of how landslides can become hazardous.

(2) Using examples, explain why landslide disasters occur. [10 marks]

Tip
This is similar to the previous question, but an answer must rely entirely on the student’s ideas, as there is no supporting stimulus. It would be a good idea to provide a structured answer that looks first at physical factors (such as slope angle, rainfall intensity and duration, local soils and geology) and second at human factors (numbers of people exposed to risk, the timing of the event, preparation and warnings, etc.)

3 Finally, consider the third type of exam question shown below. This question uses a tougher command word. In the article, Antonia Guerra and Maria Oliveira write that their research might have helped prevent the landslide hazards of 2013. However, the authorities failed to act in accordance with the advice given. The researchers created the first alarm system for Petrópolis Civil Defence. Their comprehensive report ‘was presented to the local authorities in 2010, 3 years before the most recent catastrophe of March 2013. They took no preventative measures to avoid this catastrophe.’

(3) Discuss the reasons why attempts to reduce hazard vulnerability sometimes fail. [15 marks]

Tip
This question can be answered with reference to different types of hazard, and certain generic arguments are important here. For instance, we cannot predict exactly when and where events will happen, ‘mega-events’ are hard to prepare for, population growth occurs over time. You can also try to develop a high-level evaluation using the authors’ account of the steps they took to try and help prevent landslide disasters in Petrópolis. Despite all their published research — which included risk analysis for past events, land-use mapping and recommendations for pre-event actions to reduce vulnerability — Petrópolis’ authorities failed to act in accordance with the advice and warnings given.

The Welsh Highland Railway: a case study of rural development (pp. 16–19)

This article offers a useful case study to students of tourism and rural geography. At A2 or IB Diploma level, both topics usually require that a critical appraisal is made of so-called ‘sustainable tourism initiatives’. Here, Stephanie Denning focuses nicely on the tension between sustainable development and sustainable tourism.

Possible follow-up activities
The article explains that the WHR’s restoration has been controversial, with objections from some of the local communities through which the railway runs. ‘For example, a local business benefiting from increased trade would support the WHR more than a local resident living next to the railway who might feel it is causing environmental damage and impacting on their quality of life. It could be said then that the WHR contributes to sustainable rural tourism but not necessarily to sustainable rural development.’ This is an interesting and intellectually challenging line of inquiry to take. Inevitably, some compromise may need to be made when attempting to provide environmental, economic and social intra-generational equity (as sustainable development is meant to, with its focus on
safeguarding future generations). The two perspectives outlined above can be analysed according to the different weighting that is given to either environmental or economic concerns.

**News watch Stormy weather (pp. 20–21)**

At the time of going to press, the full cost and extent of the damage caused by the winter of 2013–14 is still not clear. Students should keep an eye on the news for updates about the insurance costs to the UK, not to mention the time it takes for communities in some flooded areas to get back on their feet.

**Possible follow-up activities**

Several different kinds of hazard resulted from the extreme weather of winter 2013–14. Using GEOGRAPHY REVIEW and online research, students could populate the following table with their own examples. The distinction between sudden onset flooding and gradual onset flooding is particularly important to understand and can be related to the operation of two different types of overland flow (see Snapshot in GEOGRAPHY REVIEW Vol 25. No. 1). For additional research, try using: [http://www.theguardian.com/environment/flooding](http://www.theguardian.com/environment/flooding)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
<th>2013–14 example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storm wind damage</td>
<td>Unusually low pressure bringing winds up to hurricane-force in strength</td>
<td></td>
</tr>
<tr>
<td>Coastal flooding</td>
<td>This can sometimes happen when there is a high tide and a storm is blowing at the same time. Winds drive the high tide further inland than usual, while low pressure also influences sea level</td>
<td></td>
</tr>
<tr>
<td>River flash flooding</td>
<td>High-intensity rainfall events can outstrip the infiltration capacity of soils that are not yet saturated. Infiltration-excess overland flow is also encouraged by steep slopes, thin soils or impermeable urban surfaces and a lack of vegetation which would otherwise intercept some of the rainfall. This results in a flashy river response</td>
<td></td>
</tr>
<tr>
<td>Slower-onset river flooding</td>
<td>Spring floods can occur even when precipitation is not heavy, provided the soils are already saturated from a previous large volume of winter rainfall. In southern and eastern England the chalk rock is permeable and groundwater emerges slowly into rivers, sometimes many months after the rain fell. When groundwater levels are high, further rainfall can trigger flooding</td>
<td></td>
</tr>
</tbody>
</table>
Lighting up the world; is artificial light a good thing? (pp. 22–24)

This article takes a look at light pollution and how it varies from region to region across the world.

Possible follow-up activities

1. Practice questions are included with the article, based on the cartogram (p. 23) showing the Earth at night. These questions are reproduced below with additional guidance for students.

Allowing for the distortion in the cartogram, describe the geographical pattern of light it shows.

In general, a good answer ought to mention the main continents by name and might also refer to the northern and southern hemispheres, as well as coastal and land-locked areas.

Suggest what the image tells us about global patterns of population distribution.

Note that the size of land areas has been shrunk or enlarged to show population density, so areas with few people are barely visible. The continent of Africa, for instance, is shown as much larger than South America, reflecting its larger population. The cartogram shows far greater numbers of people living in Asia compared with North America, to judge by their proportional sizes.

With reference to human and physical factors, explain why two settlements of similar size might not emit the same level of light.

‘Size’ can be interpreted in different ways: it might refer to population numbers, or the actual physical size (urban footprint) of the settlement. There are a number of different factors that could be referred to as part of the comparison. The cartogram will help students to focus on cities in countries at different stages of economic development. It may also help provide a focus on climate and the number of daytime hours or temperatures (heating devices, for example patio heaters, may emit light too).

2. Study the table below and locate these cities on the cartogram. Think about how the population density and land areas of each settlement might influence the level and pattern of light
pollution (a compact city with many high-rise buildings might look far brighter than a city where low-density urban sprawl has taken place).

**Top ten megacities (by population size), 2012**

<table>
<thead>
<tr>
<th>City</th>
<th>Country</th>
<th>Population</th>
<th>Size (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo</td>
<td>Japan</td>
<td>37,239,000</td>
<td>8,547</td>
</tr>
<tr>
<td>Jakarta</td>
<td>Indonesia</td>
<td>26,746,000</td>
<td>2,784</td>
</tr>
<tr>
<td>Seoul</td>
<td>South Korea</td>
<td>22,868,000</td>
<td>2,163</td>
</tr>
<tr>
<td>Delhi</td>
<td>India</td>
<td>22,826,000</td>
<td>1,943</td>
</tr>
<tr>
<td>Shanghai</td>
<td>China</td>
<td>21,766,000</td>
<td>3,497</td>
</tr>
<tr>
<td>Manila</td>
<td>Philippines</td>
<td>21,241,000</td>
<td>1,437</td>
</tr>
<tr>
<td>Karachi</td>
<td>Pakistan</td>
<td>20,877,000</td>
<td>803</td>
</tr>
<tr>
<td>New York</td>
<td>USA</td>
<td>20,673,000</td>
<td>11,642</td>
</tr>
<tr>
<td>Sao Paulo</td>
<td>Brazil</td>
<td>20,568,000</td>
<td>3,173</td>
</tr>
<tr>
<td>Mexico City</td>
<td>Mexico</td>
<td>20,032,000</td>
<td>2,046</td>
</tr>
</tbody>
</table>

**Sunken lanes: historical landmark or flood risk? (pp. 28–30)**

Here is a really thought-provoking piece of synoptic geography! This article takes a holistic look at the way in which hundreds of years of transport and traffic have literally shaped the landscape, eroding vertically (subject to local geology) and creating sunken lanes that function as river tributaries during storm events.

**Possible follow-up activities**

Some courses, such as OCR, require that students make a study of stream networks and analyse patterns of drainage density. John Boardman’s article provides an opportunity to introduce some engaging research themes into drainage-density map analysis. The third discussion point included in the article gives a suggestion of how this can be done.

- On a photocopied map, students can highlight the river tributaries (for an area they are familiar with, ideally).
- Next, using a different colour, students can highlight human features, such as roads and pathways, which evidence on the map suggests could operate as first-order river tributaries under extreme rainfall conditions (they must consider additional factors such as road gradient).
- The bifurcation ratio can be calculated for (a) the natural stream network and (b) the modified stream network.
Environment today Rivers in a warmer world (pp. 32–33)

This Environment today focuses on ways in which river regimes could change in response to a warming climate. The hydrological cycle is a complex system, composed of many inter-connected and inter-dependent flows and associated energy transfers, such as evaporation, condensation and runoff. It is this complexity that makes rainfall and runoff modelling a challenging area of research for climate-change scientists.

Possible follow-up activities

1. Living With Environmental Change (LWEC) is an innovative partnership of UK government departments and agencies, including the Environment Agency and the Met Office. LWEC provides environmental reports for the public that aim to make the best use of existing knowledge for policy and practice. One of its recent (2013) reports takes a look at how hydrological flows may alter in the UK in future. The Water Climate Change Impacts report card considers possible trends in rainfall, floods and droughts. The report card is intended to help people understand the scale of possible change and the level of certainty surrounding current predictions: http://www.lwec.org.uk/resources/report-cards/water

2. The Environment today piece makes reference to possible changes in stream and river ecology as a result of warmer water. Interesting parallels can be drawn with the documented impacts of dam building on river ecology as a result of changing water temperatures. For instance, water in the Colorado River became colder as a result of dam construction (due to a reduced sediment load). This led to the loss of four of the Colorado’s natural fish species, including the squawfish, which prefer warmer conditions. They were also preyed upon by trout, who prefer cooler water. A warming climate may bring ecosystem changes to river environments everywhere, in a high emissions scenario.

3. The possible impact of warmer air temperatures on the ‘water towers of Asia’ is a topic that is of great concern to geographers working in range of topic areas, ranging from glaciers to geopolitics! An interesting article from the region itself is: http://www.hindu.com/2009/01/14/stories/2009011456141200.htm

What’s wrong with fracking? The costs and benefits explained (pp. 34–37)

The controversy over fracking continues. On 3 March 2014, thirty leading economists from UK universities wrote an open letter to the Financial Times endorsing fracking. Geographers, however, have remained more circumspect with regard to hydraulic fracturing.

Possible follow-up activities

1. Since the article was written, there have been further policy developments in the UK. Most recently, the government has been discussing the possible use of ‘sweetener’ payments for local communities: http://www.appgunconventionaloilandgas.com/lancashire-mps-join-forces-to-seek-fracking-sweeteners/

2. Practice exam questions can be built around the illustrations included with the feature, as shown below.
Top ten countries with technically recoverable shale-gas resources

(a) Describe how shale-gas reserves vary for the countries shown. [4 marks]

(b) Suggest reasons why countries with shale-gas reserves may choose not to exploit them. [10 marks]

Tip
For part (b), environmental, political, technical and economic reasons can all be dealt with separately as part of a well-structured response. A very good answer may additionally consider how some of these reasons are interrelated. The best answers may consider how certain reasons are especially important in particular local geographical contexts. For instance, the high population density in the southeast of England means there may be far more planning objections per fracking well than in sparsely populated parts of Argentina.