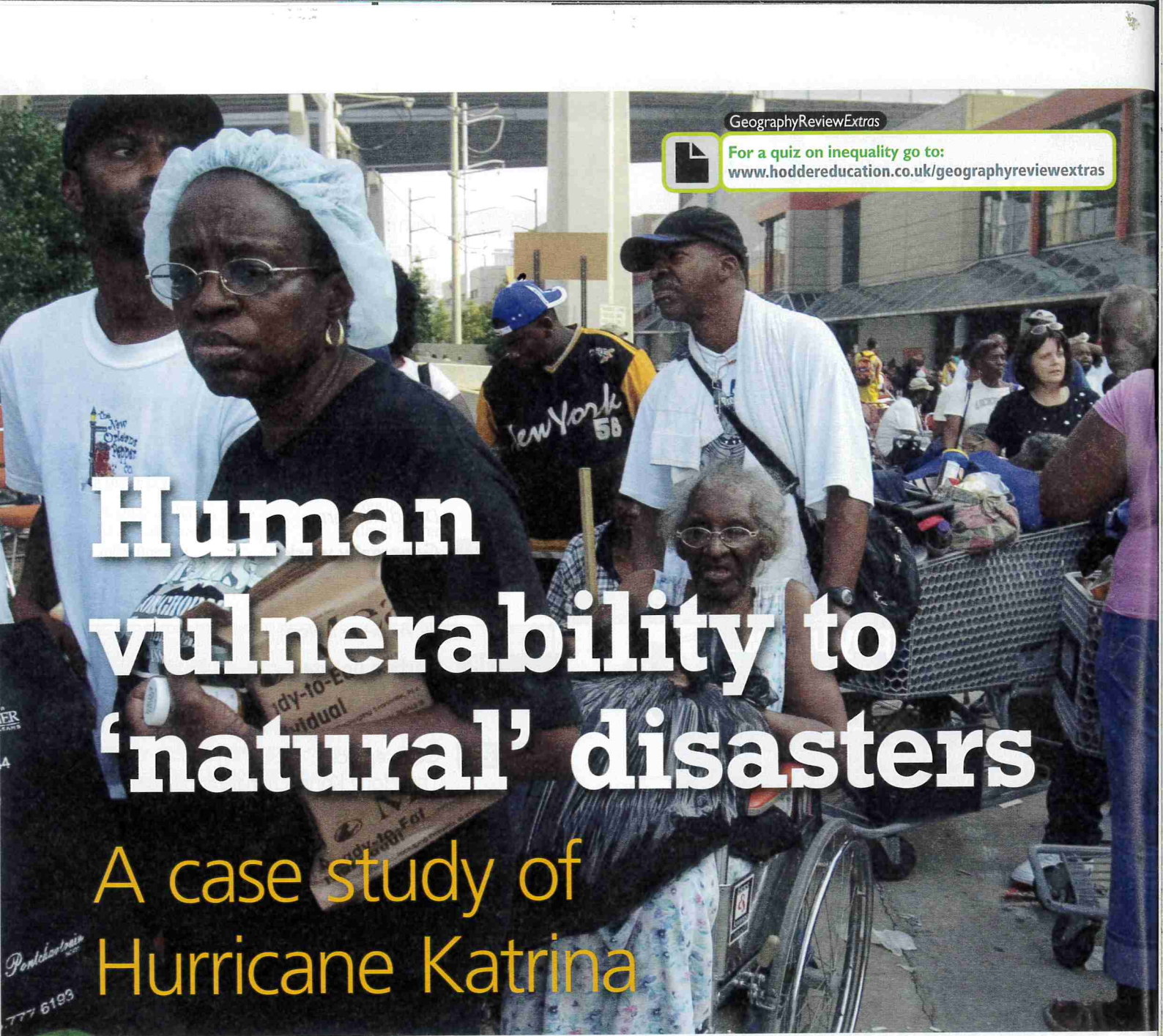**Task and Resources Required**

Tasks

The Geography A Level is divided into 4 key components in Year 12:
- Tectonic Hazards
- Coastal Landscape
- Globalisation
- Regeneration

1. For each key component find a relevant topical news item/article. Each article must be explained in detail with background information and other research. State all sources of information. I would expect 1 side of A-4 notes (size 12, Times New Roman) for each of your articles (4 sides in total). Consider the impacts on people and the environment. Are there wider geographical implications?
2. Create a 'research portfolio'. This will be in the form of a folder. Put the 4 articles and research in the folder and bring to the first lesson of Geography in September. Be ready to present your research.
3. You will find 4 articles in the Geography Pre-Course Tasks folder. Read through each article. Make notes, summarising the main points from each article. Each summary should be on a separate sheet of paper, with a clear title and reference to the source. You may decide to add images to support your notes.
4. All students would benefit from having read Prisoners of Geography by Tim Marshall. This will be used in discussion in the first lessons back. https://www.waterstones.com/book/prisoners-of-geography/tim-marshall/9781783962433

Resources

- www.bbc.co.uk/news www.usgs.gov

- https://www.cia.gov/library/publications/the-world-factbook/

- Prisoners of Geography by Tim Marshall - ISBN: 9781783962433

Human vulnerability to 'natural' disasters

A case study of Hurricane Katrina

Christine Eriksen

This article argues that Hurricane Katrina was not a 'natural' disaster. Human error caused the catastrophic flooding, and its impacts were magnified by the lack of resilience in large parts of the New Orleans population. Managing human vulnerability and coping capacity is key to disaster prevention

This article considers how natural hazards become disasters. It uses Hurricane Katrina as a case study to demonstrate how government policies, social injustice and people's everyday practices are directly linked to short- and long-term disaster vulnerability and resilience. It concludes that disaster prevention and recovery efforts should focus as much on people's **coping capacity** as on physical measures like flood-proof homes or river levées.

Hurricane Katrina: the impacts

Though it occurred 14 years ago, we still have much to learn from the ongoing catastrophic impacts of Hurricane Katrina. On 29 August 2005 Katrina wreaked havoc on the Gulf Coast of the USA. It caused extensive damage from Florida to Texas, but it is best known for the flooding of New Orleans, Louisiana, which mainly occurred after the eye of the storm made landfall east of the city.

A powerful surge of ocean water caused breaches in New Orleans' huge system of canal levées and floodwalls, due to substandard wall design and poor levée maintenance. It is estimated that 80% of the city was flooded,
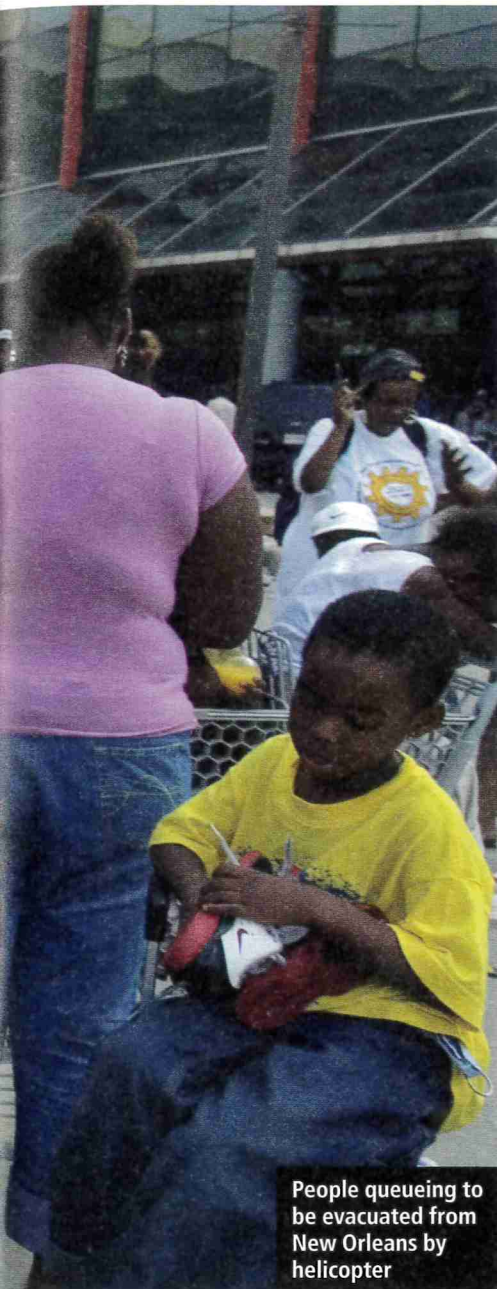
People queueing to be evacuated from New Orleans by helicopter

with some areas under more than 4 metres of water. The floodwaters did not drain for weeks and this became a disease threat. More than 1 million people were forced to relocate.

Of the 1,500 known deaths in Louisiana almost all came from the 10–20% of residents who remained in New Orleans in the face of danger. Most stayed due to family caring responsibilities or individual constraints, such as lack of transport, isolation from news, old age and poor health. To this day, people are still repairing and rebuilding homes, while many others chose never to return to New Orleans after they were displaced by Katrina.

When disaster strikes, it often has most impact on socially marginalised groups who are already under pressure. Social groups are defined by age, gender, sexuality, ethnicity, race, disability, class, education and religion (see Boxes 1–3). These social characteristics intersect in everyday life to make people more or less resilient. The more social groups in which a person is marginalised, the less likely they are to have the resources to respond and recover. People can be poor or rich in terms of **psychosocial**, economic and material coping capacity

Unequal human impacts

Hurricane Katrina therefore showed how people already living at the margins of society are more vulnerable to disasters. For example, lack of public transport in some neighbourhoods, combined with inability to afford a car, meant many people could not evacuate quickly enough. In New Orleans 25–33% of households had no access to a vehicle, and most of these households were socially marginalised African American families.

Across the USA, disproportionally more women and ethnic minority groups live in poverty. In the years before Hurricane Katrina, 56% of families in New Orleans were single mothers with children under the age of 18. Many of these were African American women on low incomes. Even with access to transport, disabled people (with or without carers) often were not mobile enough to evacuate. Hospitals in poorer neighbourhoods did not have adequate resources to evacuate citizens, and federal help from outside New Orleans was slow to arrive.

The social characteristics of the most badly affected people were shown in the survivors who fled to the Superdome — the NFL football stadium that became the main evacuation centre. Most of these evacuees were from ethnic minority groups and poor households, especially women, children and older people.

Long-term impacts for vulnerable groups

The disaster continued to have a negative impact on children's lives in the decade that followed Hurricane Katrina. It is estimated that for many schools up to 90% of children did not have access to formal education for over a year after the hurricane. Many schools destroyed by flood water were closed permanently. This affected the ability of children to catch up and continue their education in the longer term.

Further reading ⬇

'Understanding the root causes of disasters', *The Conversation* (June 2017): **www.tinyurl.com/y6xp3hoe**

10 Years After Katrina, *New York Times* (August 2015): **www.tinyurl.com/y389ursg**

The Lost Children of Katrina, *The Atlantic* (April 2015): **www.tinyurl.com/nmz7td6**

The factual information in this article is from a longitudinal study by Alice Fothergill and Lori Peek, who observed the impact of Hurricane Katrina on children in the 7 years following the disaster (*Children of Katrina*, University of Texas Press, 2015).

Glossary ⬇

Coping capacity The ability of people, organisations and systems, using available skills and resources, to withstand the impacts of a natural hazard and to recover from these impacts afterwards.

Psychosocial The influence of the surrounding social environment on an individual's mental wellness and their ability to function.

Social norms A social standard or behavioural pattern that is typical or expected (and often is taken for granted).

Children from families with lower incomes were more likely to be geographically displaced far from their homes and to move residences more often. This meant that they lost social support systems in the form of friends and family networks, and sometimes encountered bullying and discrimination in the places where they stayed outside New Orleans. A generation of children in and around New Orleans thus lost access not just to their schooling but to the knowledge and skills that could positively shape their future opportunities.

Unnatural disasters

Although Katrina was described as a 'natural disaster', it can be argued that it did not occur 'naturally'. Government error in the design and upkeep of protective measures made the flooding catastrophically worse. It was then flood-related causes (not the hurricane itself) that killed and harmed many of the population who were already socially marginalised. The long- and short-term risks before, during and after the hurricane were highly unequal in terms of the exposure of individuals and families, and their capacity to cope and recover. The hurricane stripped away the surface of social structure and revealed a grim picture of long-standing inequality on the basis of race, gender, age, sexuality, disability, class and education.

Unequal risk

Katrina provides an example of how extreme natural events, such as hurricanes, tsunamis, earthquakes and wildfires, are not disasters until a vulnerable group of people is exposed to the hazard. Determining people's level of vulnerability to natural hazards involves knowing:

- the level of individual and community exposure to a physical threat
- their access to resources that affect their coping capacity when the threat is realised

Katrina shows the links between socially marginalised groups and increased vulnerability to disaster. Vulnerability has increased internationally as a result of global environmental change and uneven wealth distribution in older and newly emerging economies. For instance, in regions like southeast Asia there are many new wealthy urban developments in hazard-prone areas which are protected by engineered safety measures such as dams, river levées and raised houses built with fortified concrete. These types of developments often displace socially marginalised communities to unsafe and unprotected areas, such as shanty towns built on landslide-prone slopes or swampy land that floods regularly.

Together with population growth, extreme climatic events put pressure on rescue services, systems of infrastructure and healthcare, and the communities that depend on them.

Who makes the decisions?

Historically, the dominant groups with most power in Western countries and beyond have been white, heterosexual men. Even when men are not dominant, there has been

a top-down 'expert' approach to hazard protection in many nations. This approach makes various assumptions based on **social norms**. Only in the last few decades have we started to question these powerful social norms, such as men being more natural 'leaders' than women.

Social norms — the prejudices we are so used to that we don't see them — help to hide discrimination and marginalisation, such as sexism, ageism and racism. Until recently many dominant groups have rarely been challenged to think about their own dominance. White, heterosexual men trained in science and engineering have traditionally

A woman being rescued from her home where she was trapped by flooding

dominated emergency management in organisations like rescue services, the armed services and the United Nations' Office for Disaster Risk Reduction. Social norms are written into disaster-management policies because they are mainly written by, and for, dominant groups.

In the case of New Orleans, it is clear that engineered measures, such as river levées and floodwalls, were seen as the best way to protect the city. No investment was made in improving the coping capacity of socially marginalised groups.

Conclusion

Inequality and injustice are magnified in disasters because those with more wealth and power have better access to resources and security, are better equipped to make decisions, and are less likely to have their support networks torn apart — temporarily or permanently. Examining the social imbalances that existed before, during and after Hurricane Katrina is crucial to understanding what happened, and how to avoid such socially uneven outcomes in the future. It is important to regularly take account of how, where, why and which social groups are more likely to be vulnerable before, during and after a disaster.

Flooding of residential areas in New Orleans after levées weakened by Katrina gave way

Questions for discussion

1 When does a natural hazard become a disaster?
2 What makes people vulnerable to the negative impacts of a natural hazard?

Dr Christine Eriksen is a senior lecturer in geography and sustainable communities at the University of Wollongong, Australia.

Key points

- The storm surge that followed Hurricane Katrina in August 2018 breached canal levées and floodwalls, resulting in extensive flooding, deaths and destruction.
- Hurricane Katrina was not a natural disaster. Human error was the root cause of why the natural hazard became a human disaster.
- Socially marginalised groups were disproportionally impacted by the disaster. The long- and short-term risks were highly unequal in terms of people's exposure to risk, and their capacity to cope and recover.
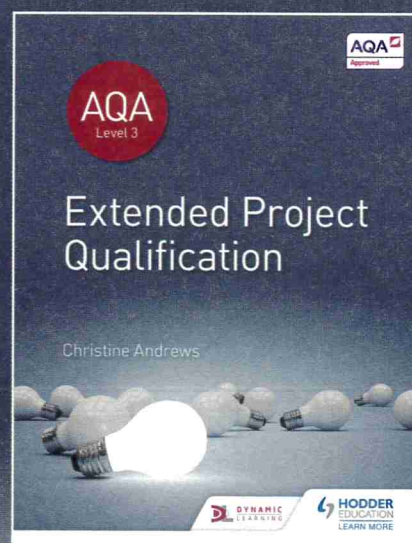
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Is Russia still a superpower?

A Russian nuclear submarine arrives at Gadzhiyevo naval base

Edward Holland and John O'Loughlin

The countries that have superpower status change over time. After the break-up of the Soviet Union Russia became less powerful. What role does it now play on the global stage and how does it oppose the USA?

In February 2014, following protests in Ukraine that ousted the country's president, Russian military forces covertly entered the Crimean peninsula (then part of Ukraine) and engineered a takeover of the region. In response, US president Barack Obama described Russia as 'a regional power that is threatening some of its immediate neighbours, not out of strength but out of weakness.' What did Russia's invasion and annexation of the Crimea signify? Is Russia today a global superpower or a regional actor trying to maintain its historical sphere of influence?

Competition between states with global reach, often referred to as **superpowers**, lies at the heart of geopolitics. With increased **globalisation**, global political influence is increasingly dependent on economic strength. Superpower states also use military strength and cultural persuasion — commonly referred to as **hard power** and **soft power** — to build and maintain their positions. These capacities alter over time — a state's ability to project power, both hard and soft, has changed over the course of history. Not all states are superpowers for the same combination of reasons.

The Cold War
The Cold War refers to the period between 1990 and the end of the Second World War (1945). The global system in this period was bipolar, dominated by the two competing superpowers — the USA and the Union of Soviet Socialist Republics (USSR, aka Soviet Union) — that had emerged as victors from the war. This order replaced a multilateral system, with a number of different powers, that had existed in Europe for much of the nineteenth and early twentieth century.

The rivalry between the USA and USSR was based on their competing political-economic world views: capitalism and communism. However, they were also competing for political dominance over other countries. The capitalist 'First World', including the USA, western Europe and other rich states (e.g. Canada, Australia and Japan), endorsed democracy, human rights and the free market. The communist 'Second World' (the USSR and members of the Soviet bloc, including states in eastern Europe as well as Mongolia and Cuba) believed in a strong central state that managed both the political and economic systems.

A so-called 'Third World'— a bloc of countries that were not formally aligned with either ideology — was the zone of competition between the superpowers. Conflicts between the superpowers during the Cold War did not include direct confrontation, but rather a series of 'proxy conflicts' in countries in Asia, the Middle East, Africa and Latin America.

Russia's independence
Russia was one of 15 independent states to emerge from the breakup of the USSR in 1991. Each of these newly independent countries had been republics in the larger Soviet federation (Figure 1). The other 14 countries are today referred to by Russia as the **Near Abroad** and

Figure 1 Map of the USSR, including the union republics

Alleged Russian soldiers in Simferopol, Crimea, in March 2014

The 14 states that make up the Near Abroad include the five 'stans' of central Asia (e.g. Kazakhstan), the south Caucasus states, Ukraine, Moldova, Belarus and the three Baltic States. Some of these countries — the Baltic states of Estonia, Latvia and Lithuania — are aligned with the liberal consensus of the West. They joined institutions such as the European Union and the North Atlantic Treaty Organization (NATO) shortly after the break up of the USSR. Others, such as Belarus and Kazakhstan, aligned themselves with Russia. Ukraine and Georgia have mostly pursued a pro-Western orientation, but it has partly depended on their leaders.

The contest for influence in these states has led to armed conflict, including the August 2008 war between Russia and Georgia. Russia has also supported a number of de facto states — unrecognised states that claim independence from the country from which they have seceded but do not have the recognition of the international community (Figure 3). These de facto states first secured their status through a war in which they had Russian support. Examples include Abkhazia and South Ossetia, both of which claim independence from the republic of Georgia.

Figure 2 2018 Estimated number of global nuclear warheads

Key
- Retired and waiting to be dismantled
- Stockpiled for military use
- Deployed on ballistic missiles and at bomber bases

De facto states
Annexed to Russia
Separatist controlled, April 2015

Figure 3 Map of the post-Soviet de facto states

are seen as part of its immediate sphere of geopolitical influence (Box 1).

After the collapse of the USSR, Russia was by far the most powerful of the 15 states. It had the largest territory and population, it took over the Soviet Union's seat on the United Nations Security Council and it controlled a large arsenal of nuclear weapons. Its nuclear weapons are the key to its continuing superpower status. Russia holds the world's largest arsenal of warheads, nearly 7,000, more even than the USA (Figure 2).

Economic and political difficulty

Russia's transition to independence was difficult. During the 1990s, it experienced rapid price inflation, with the devaluation of the rouble (the country's currency) in 1998. Wealth was concentrated in the hands of a small group of capitalists (known as the **oligarchs**) who profited from the sale of state resources. Politically, things were just as difficult. A war from 1994 to 1996 in the breakaway region of Chechnya, in Russia's southwest, left approximately 100,000 people dead. Russia's first president, Boris Yeltsin, barely won his re-election campaign in 1996, and only with the intervention of the oligarchs on his behalf.
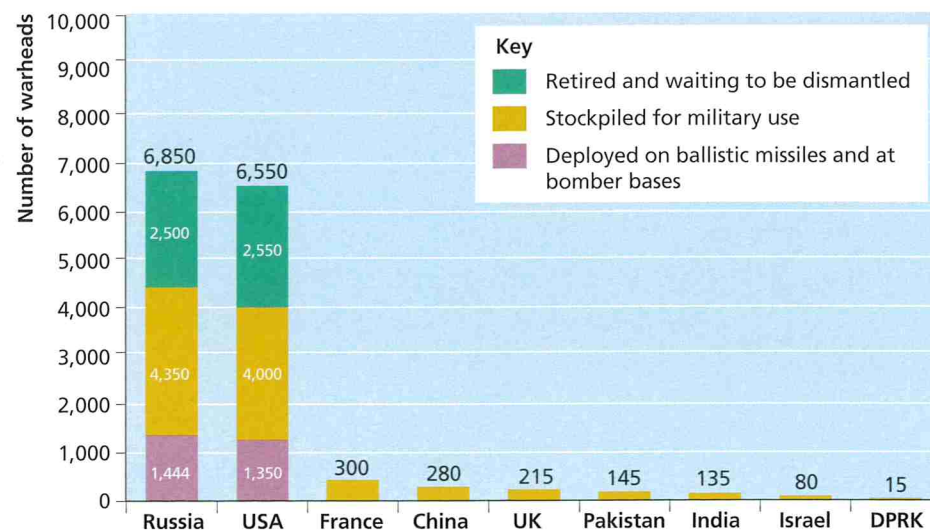
The devaluation of the rouble wiped out the savings of millions of Russians. It also marked a turning point in the country's economic growth. Using revenue from sales of oil and natural gas, Russia embarked on a decade-long economic expansion. Politically, the main beneficiary of this growth was Vladimir Putin, who was elected Russia's second president in 2000. While the Russian economy grew, the middle class expanded and living standards rose. Putin was able to recentralise power in the Russian state, win a second war in Chechnya and position Russia as an alternative to the liberal, capitalist consensus that emerged after the Soviet Union's breakup.

Conflict in Ukraine

The protests that led to the annexation of the Crimea and war in eastern Ukraine began in November 2013 in the country's capital, Kyiv. At that time, Ukraine's president, Viktor Yanukovych, decided to reject an agreement with the European Union and instead pursue closer economic ties with Russia. Box 2 explains the political background to these events.

Yanukovych was removed from office in February 2014 after violent clashes between the state and pro-European Ukrainian citizens opposed to closer ties with Russia. He fled the country, and Russia stepped in to claim the Crimea. The peninsula had been part of the Russian republic until the mid-1950s, after first

Russia under Putin is opposed to the existence of a dominant global power
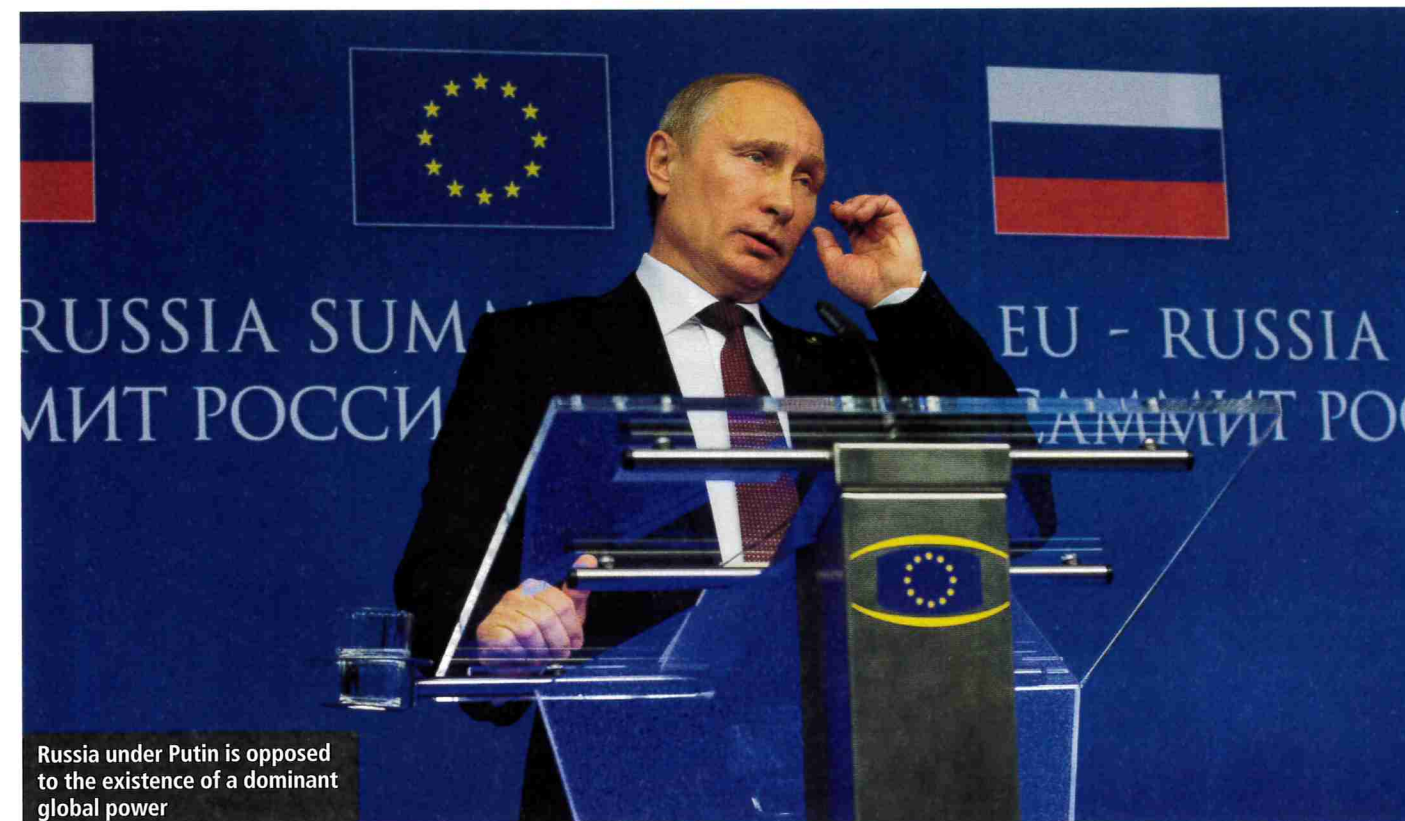
In 2013 tensions between Russia and the West had simmered since about 2005. Russia's view was that Western countries, particularly the USA, were interfering in its domestic politics and in the politics of the Near Abroad states. The expansion of NATO to the east, to include the Baltic states but also ten countries that used to be part of the Soviet bloc, had long been viewed within Russia as expansionist, confrontational and a violation of a promise by NATO not to expand after the unification of Germany in 1990.

From 2003 to 2005, a series of revolutions that deposed pro-Russian leaders occurred in Georgia, Ukraine and the central Asian state of Kyrgyzstan. The August 2008 war in Georgia and Putin's perception that the West wanted such democratic change in Russia had further heightened these tensions.

being incorporated into the Russian empire in 1783. Emboldened by Russia's actions, pro-Russian separatists in the eastern Ukrainian regions of Donetsk and Luhansk launched their own campaigns for independence, with Russian support. These actions drew a swift reaction from the Ukrainian state, and an armed conflict began in the country's east in April 2014.

The West's primary response was to introduce sanctions against Russia and many of its key political leaders. For example, EU and US energy TNCs, including Exxon and Shell, were barred from making new investments in Russia or working in partnership with Russian oil companies. Crimea became disputed territory, annexed by Russia but strongly disputed by an increasingly Western-oriented Ukraine with global support.

Fighting continues to this day in eastern Ukraine. More than 13,000 people have been killed and approximately 2 million displaced, either internally within Ukraine or across the border to Russia. Russia has never acknowledged direct involvement in this conflict (Putin has stated that Russians fighting there are 'volunteers'), though there is little doubt that such support has occurred. The break-away areas in Donetsk and Luhansk seem poised to join the other **de facto states** that have emerged in the Near Abroad over the past three decades.

Russia today

Russia today does not uphold a global ideology that rivals capitalism or even communism. Instead, Russia under Vladimir Putin is actively opposed to the existence of a dominant global power — that is, a unipolar system

Figure 4 US military bases surrounding Russia

where one state (in this case, the USA) shapes the international order (Figure 4). Russia seems intent on frustrating the USA's quest for power by:

■ increasingly close ties to another leading power, China
■ regional interventions in the US traditional sphere of influence (the Near Abroad) and just beyond (the Middle East)

Russia has been most successful in implementing its alternative worldview in those countries of the Near Abroad with which it is aligned, including Belarus and Kazakhstan.

Conclusion

Since the end of the Cold War the new global order has changed from a bilateral power struggle to dominance by a single power (the USA) which must contend with other significant players, one of which is Russia. Economically weaker than the USA, the EU and China, Russia under Vladimir Putin is attempting to be both a regional power and, more globally, a power that prevents a unipolar world order.

Russia's economic expansion has increased the middle class and benefited the wealthy

REFERENCE

Live map of the conflict in eastern Ukraine:
https://liveuamap.com/
The English-language *Moscow Times* newspaper: **www.themoscowtimes.com/**

KEY POINTS

■ Russia's transition to independence after the break up of the Soviet Union was difficult, both economically and politically.
■ The Near Abroad countries are a site of tension between Russia and the West. Recent conflicts in Ukraine, on the Crimean peninsula and in Russia's east underscore the tensions that revolve around territorial claims and spheres of influence.
■ Russia has the characteristics of a superpower in its nuclear arsenal but is economically and geopolitically much weaker than the former Soviet Union. In these areas it is more like a regional power.
■ Russia's actions do not endorse a rival worldview or geopolitical system. Instead, it seems content at frustrating America's design for an international order dominated by the USA and its allies.

Questions for discussion

1 Do you agree with the statement that Russia is today a regional power? Justify your view. Explain your view based on what has changed for Russia since the collapse of the USSR.
2 What is the timeline of Russia's post-independence experience? Identify two domestic and two international developments that have been relevant in shaping its current worldview.

Edward C. Holland is assistant professor of geography in the Department of Geosciences at the University of Arkansas. **John O'Loughlin** is college professor of distinction in the Department of Geography at the University of Colorado at Boulder.

From our foreign correspondent

Alastair Leithead, BBC foreign correspondent, describes how studying geography led to a life of travel and adventure, learning and discovery

When I was a child I traced a map of Africa on a piece of paper. I pencilled in the borders, shaded in the big rivers, marked the capitals and the first letter of each country, taking myself on a virtual tour of the continent. I never imagined that, years later, I would be taking people of all ages on their own virtual journey across the continent from their sofas or at their local libraries.

It all began at the Royal Grammar School in Newcastle with a tough, passionate and pedantic geography teacher called David Rhodes. My love of geography was cemented at The University of Manchester with Drs David Shimwell and Mike Robinson who persuaded me to research some human bone fragments from Ireland. The fragments turned out to be nearly 2,000 years old and helped spark a long journey of research and archaeology which led to their eventual reinterment.

My dissertation in 1992 on Irish historical geography was my first proper journalism project, taking me from the archives of Trinity College, Dublin to the fields of County Roscommon. Interviews with some of the older members of the community helped me piece together why one town doubled its population during the Great Famine, and how its agricultural system until 1972 resembled pre-enclosure Britain. For me, it wasn't so much the research, but the people — and the story — that I fell in love with.

Joining the BBC

Through the *Newcastle Evening Chronicle*, I joined BBC Radio Newcastle, regional television and what was then BBC News 24…and so began the journey to becoming a foreign correspondent. My first posting, fulfilling those childhood dreams with map and pencil, was to South Africa.

I have been fortunate enough to live all over the world — in Cape Town, Johannesburg, Miami, Kabul, Bangkok, Los Angeles, Nairobi…and now in a quinta in the Portuguese countryside. I've negotiated with drugged-up cross-dressing child soldiers in Liberia, travelled through postwar Iraq, arrived in New Orleans just before Hurricane Katrina and reached the Japanese coastline hours after the devastating tsunami. In Afghanistan, I came under fire with British soldiers deployed into Helmand province. In my most recent posting as Africa correspondent, I saw many new places — from the Sahel to St Helena — and told many stories along the way.

Geography was at the core of my learning and has been at the centre of my entire career. It is the source of my fascination with rivers and landscapes, maps and charts, wildlife, population growth and climate change.

Making the news

Today we have huge choice in how we tap into the news, which can sometimes feel too exhausting or depressing to watch. Clarity and simplicity are key in the various techniques used to engage an audience with a short attention span:

■ Visual or data-driven journalism uses graphs, charts and animation to reduce large amounts of data to digestible, manageable information.
■ Solution-focused or constructive journalism starts with a possible answer rather than the problem or a question — hope is uplifting.
■ During my time in Africa, I found that wildlife and conservation stories were a way into complex issues around government corruption, organised crime, population growth, climate change and the growing influence of China. Most of these topics are covered in A-level geography.
■ New technology allows us to create immersive, interactive and innovative digital storytelling.

Virtual reality

I recently spent a year at Stanford University as a John S. Knight Fellow studying ways to reach new audiences and increase the impact of our reporting. I think we achieved that with our virtual reality (VR) documentaries on the rivers Nile and Congo.

I'd wanted to tell the story of the Grand Ethiopian Renaissance Dam (GERD) since meeting an Ethiopian who told me his greatest fear was war with Egypt over water. When sanctions on Sudan were eased it became possible to follow the Blue Nile from its source near Lake Tana, to the dam close to the Sudanese border, up through the confluence with the White Nile in Khartoum and out into the delta through Egypt.

We lost a drone in Lake Tana, ate injera in Addis, toured the huge new dam site, went to a music festival near the Nubian pyramids in Sudan, took a balloon ride over Luxor and almost got arrested in Cairo. War over water, it turned out, was closer than we thought, and of the three countries it was the one we least expected — Egypt — that almost scuppered the whole project. Control over the River Nile was a really sensitive issue there.

Our final products were TV, radio and digital pieces across the BBC, but the centrepiece was *Damming the Nile* — the first BBC News full VR documentary. As a foreign correspondent my job is to transport people through words, sounds and images to places they may know little about, and to show them their complexity and beauty. For this task there is nothing like virtual reality. And it requires the skills of a geographer — to deeply research an issue, evaluate different sides of the argument, use maps and images to bring the data to life and produce the final report.

Geography is even more important today than it was when I was at school. It's an investment in the treasures of our world and creates the knowledge to inspire a new generation of storytellers.

FURTHER READING

Damming the Nile and our VR on the Democratic Republic of the Congo (which toured local libraries in the UK) can be seen at: **bbc.co.uk/virtualreality**
Some TV and radio versions of my stories are at: **alastairleithead.com**

Alastair Leithead

Changing places in Moss Side, Manchester

Evaluating regeneration

Narinder Mann

Regeneration of inner-city neighbourhoods brings both costs and benefits. In this case study of Moss Side, **Narinder Mann**, a resident of the area and a geographer, raises questions about the best approach to redevelopment for local people

Old and new housing at Maine Place in Moss Side, Manchester

In geography we are taught to regard change as positive. One of the ways change happens in urban environments is through gentrification and regeneration. These processes can bring positives such as new housing, infrastructure, jobs, lower energy consumption and greener travel.

However, when you live in the place that is changing you have a different perspective. Having lived in inner-city Manchester for over 15 years, I get first-hand experience of what change means to residents. The pressure new developments place on existing services can be high and residents start to question whether redevelopment was intended to bring benefits for *us* or if it was designed to attract new residents to the area.

At A-level you study people's engagement with places and learn how places are known and experienced, how their character is appreciated, and what happens when they change. This allows you to understand the way in which your lives, and those of others, are affected by continuity and change.

Change in Moss Side

Moss Side is an inner-city area of Manchester, approximately 3 km from the city centre. Its population is about 19,000. It has a rich and diverse community that has undergone considerable change. Moss Side is often represented as an area of crime, gangs, unemployment, deprivation and dereliction. I live in Moss Side and, for me, it means something very different: it is an area with affordable housing, great community spirit, and good transport links to the city and beyond.

As the area continues to experience regeneration I believe geographers need to critique what is happening. In other words, they need to question the motives behind change and evaluate its benefits and costs to local residents, employers and other stakeholders.

The history

Moss Side was named after a great moss that covered a number of areas in south Manchester. In the novel *Mary Barton*, published in 1848, Elizabeth Gaskell described it as a rural idyll

Developer-led regeneration in Moss Side: a tower block is demolished

with a 'deep clear pool'. By the late 1800s, however, Manchester's cotton industry had expanded. The population of Moss Side grew from 151 in 1801 to almost 27,000 by 1901.

In the late nineteenth and early twentieth century terraced houses were built in the area, attracting Irish and Polish migrants and other working people. Following the Second World War, migrants from the Indian subcontinent and the Caribbean settled in the community. By the 1980s, Moss Side was the hub of Manchester's Afro-Caribbean community.

At the same time, Moss Side began to feature in British news. In the 1970s and 1980s, gang violence increased and the area became known as 'gunchester'. In July 1981, mass riots broke out in Moss Side fuelled by racial tensions, high levels of unemployment and economic recession.

Since the mid-1990s, Moss Side has experienced substantial redevelopment and regeneration in an attempt to address urban decline.

What causes urban decline?

The loss of industry from inner-city areas in the late twentieth century led to a decline in those areas as jobs and income were lost. People had less money to maintain their houses, and to spend in local shops and amenities. In time, areas became run down and some people moved away.

Urban regeneration is a way of improving an area for local residents and attracting new residents by offering new or improved homes. Some schemes also have initiatives, such as reduced rent or tax, to attract new

industry. Regeneration schemes are often part government funded and part privately funded.

Development with public funds

In the 1990s, regeneration projects in and around Moss Side tended to focus on physical regeneration, usually housing, and were largely paid for with public funds. For example, the Moss Side and Hulme Partnership was established in 1997 by Manchester City Council to coordinate a 5-year programme of regeneration in these two neighbouring areas of Manchester. Projects included retail developments, improved housing and four new public parks costing about £400 million, paid for by the Single Regeneration Budget and the European Regional Development Fund.

The scheme tore down a large housing development called the Hulme Horseshoes. The open-plan design of walkways, lack of streets and poor lighting made these flats a crime hotspot (see Further reading). They were replaced with new houses and apartments designed to attract a variety of residents and eliminate crime. This development attracted a retail park, an ASDA, local community food stalls and services such as a gym.

Developer-led regeneration

More recently, Manchester has been at the forefront of developer-led regeneration. This is funded by the private sector and based on an assumption that property-led regeneration can address the problems of inner-city neighbourhoods. Private-sector investors aim to build houses quickly so that they can recoup their investment through rental or sale of properties.

In Manchester, much of the property-led regeneration is providing homes on brownfield sites close to the city centre. Manchester's skyline has been transformed with shiny metal and glass high-rise buildings that include facilities such as, bars, gyms and restaurants. This property-led transformation has been successful in many ways and Manchester has been ranked first in the UK in *The Economist* Global Livability Index every year since the index started in 2011. An estimated 50,000 new office work spaces have been built in the city alongside 40,000 new flats.

The down side

Despite its success, this type of development has been criticised. It does not always take into account the need for 'foundational services' such as access to transport, decent affordable housing, libraries, broadband and schools.

By 2018, there were still 80,000 people on the housing waiting list in Manchester and, despite the development of a tram network, 77% of people in Manchester still use their cars for commuting.

There are plans to create more affordable homes and social housing in inner-city areas like Moss Side. The effect of these developments could be 'social clearances' or 'ghettoization', meaning the residents of new housing developments are different from the historically settled population.

Moss Side today

Long gone are the primary and secondary industries that employed huge numbers of Moss Side residents. It is an area bustling with people and energy, which is attractive because:
■ Housing is still affordable: a two-bedroom property can be bought for £150,000 compared to a UK average of £230,000.
■ Transport links are good and Moss Side is close to one of the busiest bus routes in Europe.
■ Young families have a choice of both primary and secondary schools.
■ Access to amenities includes healthcare (Manchester Royal Infirmary), recreation (the Aquatics centre) and places of worship.
■ Moss Side is close to the main universities in Manchester, and many graduates settle there and work in the new industries of technology, biomedical sciences and advanced manufacturing.

Of course, there are challenges too:
■ Landlords have bought up properties in Moss Side to rent to the large student population. There is a shortage of housing in the city and this pushes up prices for working households and forces existing residents out.
■ Traffic congestion caused by commuters and school drop-off creates air pollution, and admissions to central Manchester hospitals for asthma are double the national average. Manchester ranks as the second worst city in England for PM10 particulate pollution which is linked to lung cancer and respiratory problems.

Successful regeneration needs to reflect the characteristics of an area. Moss Side is dominated by relatively deprived, single, transient people renting low-cost accommodation. Research suggests that up to 60% of households in Moss Side contain people who need high levels of support to manage their health.

Two development projects: pros and cons

In 2003, Manchester City Football Club moved from Maine Road, Moss Side to a new, larger site in east Manchester. This created an opportunity for more housing in the area. The developer Lowry Homes was given a loan

Cultural regeneration elsewhere in Manchester: the Imperial War Museum North at Salford Quays
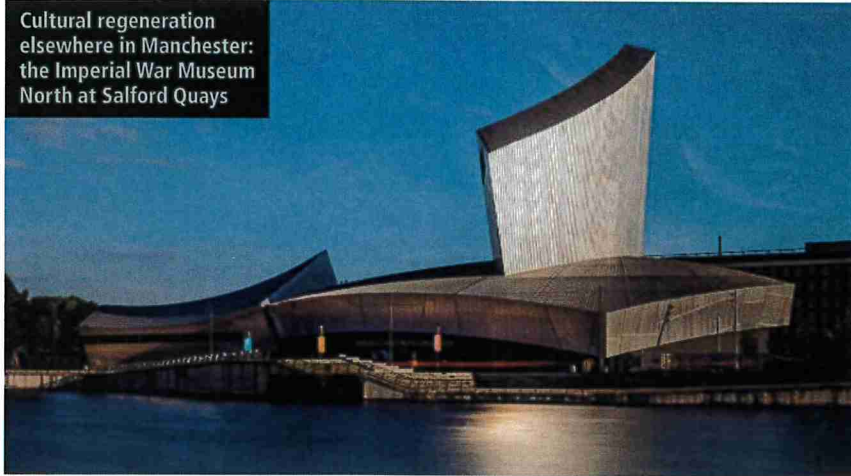
from the government to build 440 houses and apartments (including social housing) boasting eco-friendly technology, plus a new primary school.

The positives are obvious. There were some losses to the area too. Manchester City football club was a source of local pride, and income. When the weekly influx of 35,000 fans stopped, local shops and services were forced to close. The new homes were meant to attract long-term residents, but many properties have now been let by landlords taking advantage of Manchester's growing popularity as a city.

St Crispin's church was at the centre of the community with an active social club. It was closed in March 2010 as a result of falling numbers and the high cost of maintenance. Now, in its place are 50 or so houses and flats, and an Aldi supermarket. The community has lost a central place to convene, some open space and a sense of belonging. All the homes are occupied but again there is a lot of renting, low home ownership and increased traffic congestion.

These schemes clearly have benefits: they provide much-needed homes and they redevelop brownfield sites. But they do little to address the concerns of local residents: traffic congestion, fly tipping, air quality and health. There are questions around whether they provide homes for locals or draw in more affluent residents, and whether they recognise the cultural heritage of the area.

Culture-led regeneration

Could culture-led urban regeneration be the answer to the concerns left unanswered by property-led regeneration in Moss Side? City councils, with partners, can bid for titles such as UK City of Culture or European Capital of Culture, or to obtain funding from the Arts Council and National Lottery Heritage Fund. These schemes support economic and social regeneration by funding cultural activities,

and the overspill effect can benefit people right across a city.

A report by The Local Government Association in March 2019 found that culture-led regeneration could create employment, increase tourism, stimulate city-centre footfall, and develop the skills and confidence of local residents. Such schemes tend to enhance community cohesion and pride, support and enhance resident health, attract inward investment and enhance an area's image. Manchester International Festival in 2017 had 300,000 attendees, involved 4,000 local people and added £40 million to the local economy,.

Culture-led development has already happened in other parts of Manchester. In the city centre there has been investment in art galleries, and preservation of buildings and food culture. In Salford Quays, a previously industrial area, the Lowry Theatre and gallery provides an anchor for a site that houses the Imperial War Museum North, a shopping centre and both the BBC and ITV in Media City. A new footbridge encourages connectivity and this is a popular place to live.

FURTHER READING

An article about redevelopment of an area in Sheffield similar to the Hulme Horseshoes: Rowson, J. (2019) 'Changing the meaning of place: a rebranding study of Park Hill Flats, Sheffield', GEOGRAPHY REVIEW Vol. 32, No. 3, pp. 2–5.
Short article about the redevelopment of central Manchester and Salford Quays: Barlow, N. (2014) 'Greater Manchester: a prime example of culture-led regeneration':

Stafford, A., 'Is it time to move on from developer-led regeneration?' *Financial Times*:

Future developments could include two hotels, more skyscrapers, bridges and outdoor lidos.

What do you think might be the criticisms of this kind of regeneration in the future?

Conclusion

Moss Side is a former industrial area of inner-city Manchester. Following deindustrialisation in the 1980s, abandoned homes and industrial sites needed regeneration.

Most regeneration in this area has involved house building. Manchester has come under scrutiny for too much property-led development which ignores the other services people need. If redevelopment and regeneration of an area are to be successful, they need to provide for the culture, health, environmental and economic concerns of residents as well as their housing needs. Culture-led regeneration could be the answer for regenerating Moss Side successfully into the future, but in such a diverse area which cultures should be preserved?

Questions for discussion

1 What should be the main aim of regeneration activities? Should it be to focus on the people who already live in an area or to improve the infrastructure which may in turn attract new residents?
2 How would you regenerate an area, so that you address the challenges the area faces but build upon its identity?
3 Who should be ultimately responsible for success of regeneration? Developers or government?
4 What do you think might be the advantages and disadvantages of culture-led regeneration?

KEY POINTS

■ Moss Side in an area in inner-city Manchester with a rich and diverse population and history.
■ The area was built up during the Industrial Revolution and suffered degeneration after the deindustrialisation of the 1980s.
■ Regeneration in Moss Side is often property led, providing housing in the form of new apartment blocks.
■ This type of development can ignore the cultural significance of buildings it replaces, and prioritise housing over providing for a sustainable lifestyle.
■ Could a more cultural approach to regeneration be a better way of providing the facilities the area needs?

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Managing coastal risk in the UK

Coastal Change Management Areas

Rising tide flooding Bosham, a coastal village in West Sussex

Tim Poate, Christopher Stokes, Gerd Masselink and Josie-Alice Kirby

Managing the risk of coastal flooding and erosion requires planning well into the future. This article describes how Coastal Change Management Areas are used in the UK to increase resilience

Human pressure on coasts all around the world is increasing — as a place to live, work and visit. At the same time 17% of the UK coast is suffering from erosion, and in England and Wales 28% is experiencing erosion greater than 10 cm per year. Sea-level rise and vulnerability to extreme storm events are expected to increase due to climate change. This is likely to lead to a faster rate of coastal erosion. Strategic planning for vital infrastructure is needed so that coastal communities can adapt and coastal resilience can increase.

What are CCMAs?

Coastal Change Management Areas (CCMAs) were introduced in the UK in 2010 to reduce the impact of coastal change on vulnerable areas. CCMAs allow local planning authorities (in England this is the responsibility of local councils), to identify areas at risk from coastal change and designate them to ensure there is more control over future developments.

The National Planning Policy Framework (NPPF), which governs planning rules in England, defined CCMAs as 'An area identified in plans as likely to be affected by physical change to the shoreline through erosion, coastal landslip, permanent inundation or coastal accretion.' They usually take the form of an area(s) or line(s) on a map, marking the likely future position of the coastline or the potential extent of coastal flooding.

The aim of this designation is to help local councils limit the types of buildings that can be built along areas of coast that may be at risk from future erosion or flooding. Councils can also consider strategic infrastructure, such as hospitals or utilities, that may need to relocate in the future. It is not sensible, or even possible, to defend our entire coastline and stop all erosion or flooding. Therefore, we need to plan for changes due to sea-level rise to ensure future generations do not have to pay for coastal planning mistakes.

Shoreline management plans

Our coastline is 'managed' by local councils on behalf of residents and businesses in their areas. In the 1990s, the first shoreline management plans (SMPs, see Box 1) were developed. SMPs are large-scale reports assessing the risks associated with coastal processes, undertaken for sections of the coastline. They are intended to reduce the risk to people and property from coastal erosion and flooding. Each SMP considers future coastline change over three timescales:

- short-term (0–20 years)
- medium-term (20–50 years)
- long-term (50–100 years)

Defences under construction in Dorset, 2019

For each of these periods a 'management policy' is assigned for sections of the coastline. There are four policy options available for SMPs:

- **Hold the line (HTL)**: maintain or upgrade the level of protection provided by defences or natural coastline.
- **Advance the line (ATL)**: build coastal defences seawards of the existing defence line in order to reclaim land from the sea.
- **Managed realignment (MR)**: adjust the 'natural' configuration of the coastline, either seaward or landward, in order to create a future sustainable shoreline position.
- **No active intervention (NAI)**: do not invest in providing or maintaining defences or preserving the existing coastline.

The policy that is assigned to each section of coast shapes the management strategy that is adopted. For example, in an HTL area, coastal defences will have to be maintained to protect properties for the short, medium or long timescale. This has serious long-term implications for local councils, which need to find funds to manage these risks.

Mapping coastal change

When defining CCMAs we can split the coast into three landscape types:

- cliffs
- gravel and sandy beaches
- estuaries

Changes in cliffs and beaches are mainly driven by wave and tide processes that can cause erosion and move sediment, thereby changing the shape of the coastlines. In estuaries tidal processes are dominant. Here, the coastline change is more gradual and flooding is the primary concern. For all coastlines we apply the latest climate-change science, which is assessed in the UK Climate Projections 2018 (UKCP18) provided by the UK Met Office, to inform our application of future sea-level rise.

Box 1
Shoreline management plans

Shoreline management plans (SMPs) are large-scale reports, assessing the risks associated with coastal processes. They form part of the government's strategy for managing the risks of coastal erosion and coastal flooding to people, property and the historic and natural environment. They provide a blueprint for how the coastline behaves, and identify sustainable coastal defence options, to offer guidance to councils and the Environment Agency in decision making.

SMPs were undertaken for sections of the UK coast based on 'sediment cells': lengths of coastline within which the movement of sand and shingle along the coast is largely self-contained.

Coastal erosion near Weymouth, Dorset

Cliffs

The first step for cliffs is to accurately define the current coastline position using aerial **LiDAR** (accurate mapping of the landscape, see Box 2) and aerial photography. The second step is to map how the cliff position has changed over time. This is done by looking at historic aerial images and maps, combined with the latest aerial LiDAR data. We take profile 'slices' through the cliff and compare the volume change over time (Figure 1).

By comparing different historical cliff volumes we can calculate the retreat rate that occurred under past changes in sea level. This information allows us to predict the future position using the latest sea-level rise projections for different timescales (Figure 2). Generally speaking, historic cliff erosion rates will increase if the rate of sea-level rise increases.

Beaches

Cliffs shows progressive retreat, but beaches (gravel and sandy) erode and **accrete** significantly from year to year and even from decade to decade. This makes it difficult to use historic positions to predict future response.

We therefore use an equation to simulate how the beach profile, represented for example by the **mean high water line**, may respond to future sea-level rise. There are different equations for sandy/gravel beaches, so it is important to use the correct one for each section of coast. These equations usually assume there is space for the beach to move landward, termed accommodation

Figure 1 Aerial image of east Devon coastline with aerial LiDAR overlaid. The black line shows the current cliff-top position and the red lines indicate the position of profiles used to measure historic cliff loss

space, but this may not always be the case. For example, a beach may be backed by a coastal cliff or a sea wall.

Estuaries

For estuarine environments, the approach is slightly different. Here we are interested in the level of flooding that may occur in the future, depending on sea-level rise. We can use the most recent LiDAR data to create a digital elevation map (DEM) of the estuary. From the DEM we can then extract an elevation contour that reflects the 1:200-year water level, as defined by UKCP18 coastal extreme sea levels (Figure 3). This is the elevation which is expected to be flooded once every 200 years and provides the inland boundary

for areas likely to experience flooding during extreme sea surge events.

Line buffers

For cliffs and beaches, the predicted future coastline position can be broken down into three epochs as adopted by the current SMPs (short-term, medium-term and long-term). For each of these timescales it is recommended that a 'line buffer' is given which provides an 'uncertainty region' to reflect that beaches, and in particular soft cliffs, retreat intermittently, making it difficult to accurately predict retreat (Figure 2).

The degree of future sea-level rise is also uncertain. It depends on wider climate-change impacts, which result from global greenhouse-gas emissions. We cannot be sure which emissions scenario is the most likely, and the future rate of sea-level rise may be larger or smaller than expected.

Implementing a CCMA

When a CCMA has been decided on, in most places in England it needs to be included within the Local Plan for that area. Local Plans are documents that all local authorities must have. They set out the vision for development in an area over approximately the next 15 years, and may include policies to aid adaptation to climate change, housing demand and changes in transport.
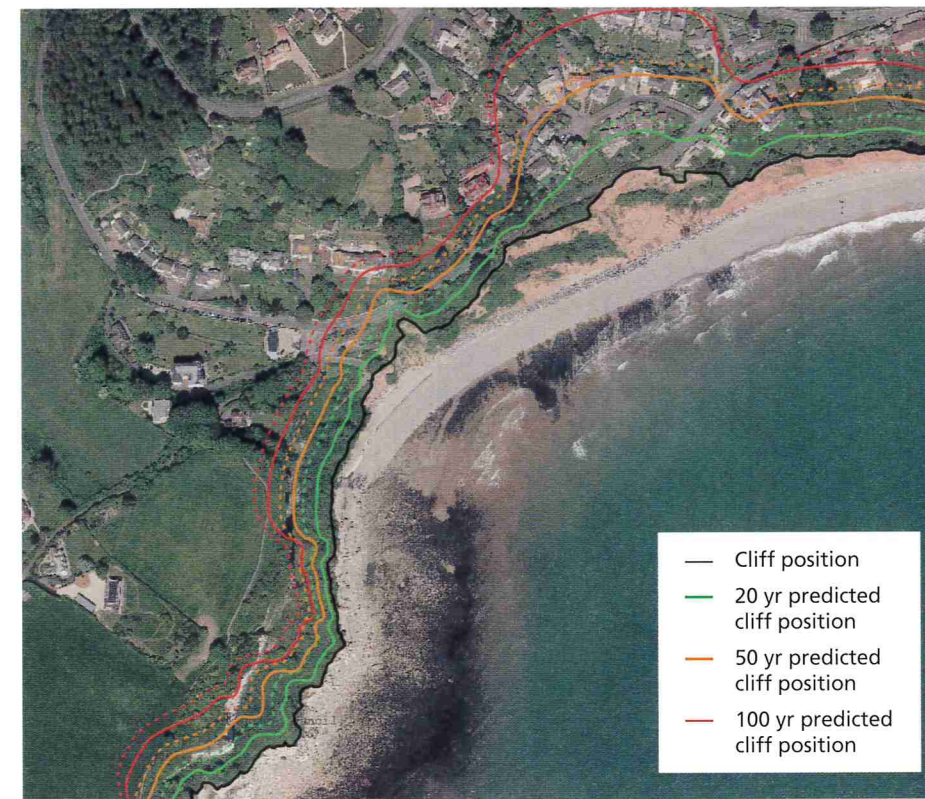
Exmoor National Park includes a CCMA at Porlock Weir within its Local Plan, which states that no permanent residential development is permitted. However, some changes of use may be allowed, for example:
- accommodating a business that requires a coastal location and provides benefit to the community
- essential infrastructure for which there is no other option
- adaptation to existing buildings to increase resilience

In this way the planning rules are versatile to reflect the pressure on a region.

Figure 2 The coastline in Figure 1 with the projected future cliff positions for the short term (green), medium term (amber) and long term (red). The dashed lines indicated the 'line buffers' and represent the uncertainty associated with the predictions

Normally a CCMA designation will be included in the environmental policy section of a Local Plan. Before a Local Plan is 'adopted' it goes through a public consultation, and examination by an inspector appointed by the secretary of state to check that it fulfils legal requirements.

Once the Local Plan that includes a CCMA has been adopted, it means that any development within the CCMA must adhere to certain restrictions. These may range from no development at all, to restricting commercial permits so a business can only be in a certain location for a number of years.

Questions for discussion

1 In addition to sea-level rise, can you think of other factors that influence coastal recession?
2 What are some of the benefits of defining a section of coast as a CCMA for coastal residents and businesses?

Figure 3 Aerial view of the Taw estuary in Devon showing existing flood boundary (light blue shading) and the projected future flood-level extent (red line) taking into account a 1 m sea-level rise

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