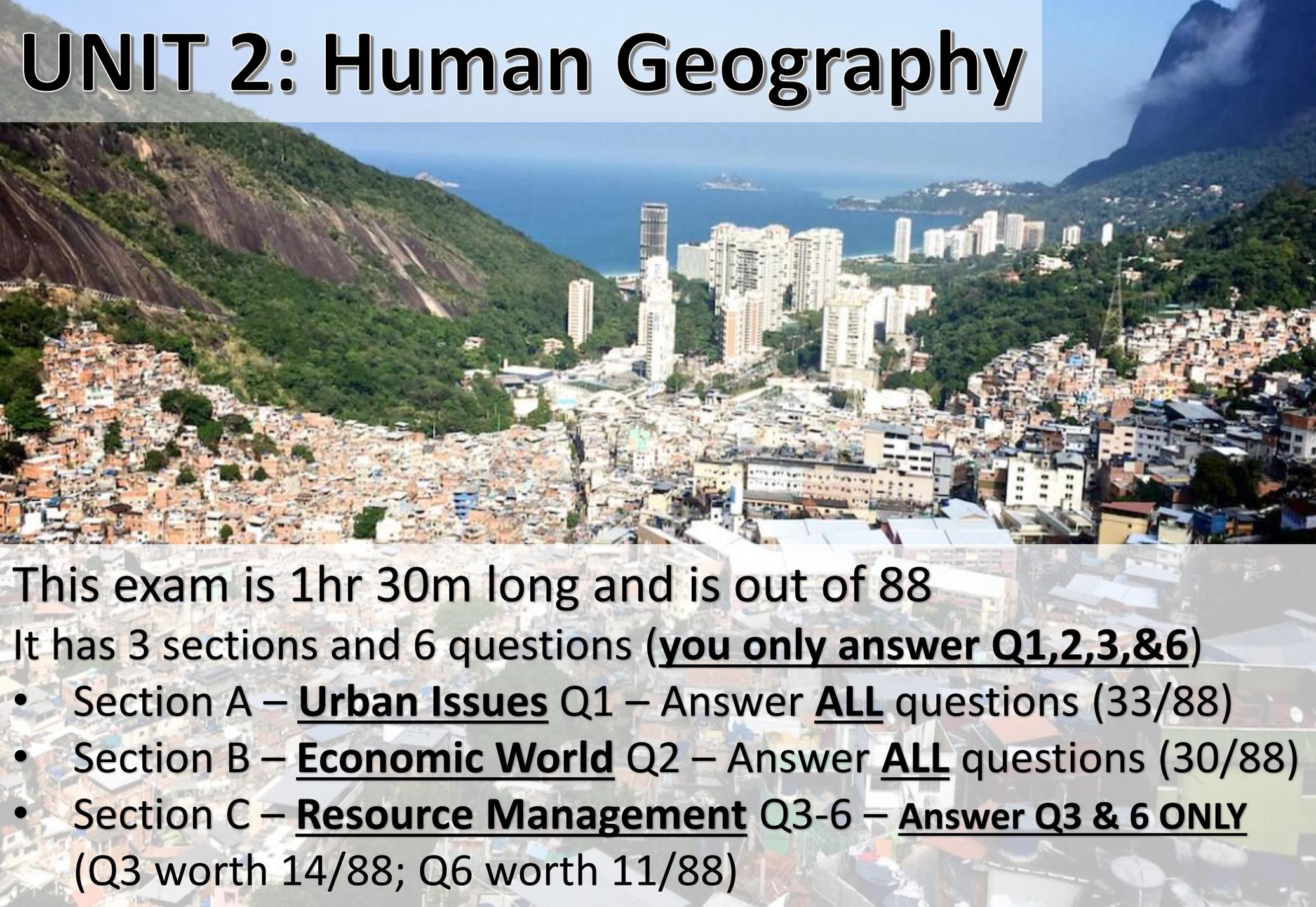


# UNIT 2: Human Geography

An aerial photograph of a city, likely Rio de Janeiro, showing a dense favela on the left and modern high-rise buildings in the center. The city is nestled between steep, green hills and a blue bay. The sky is clear and blue.

This exam is 1hr 30m long and is out of 88

It has 3 sections and 6 questions (you only answer Q1,2,3,&6)

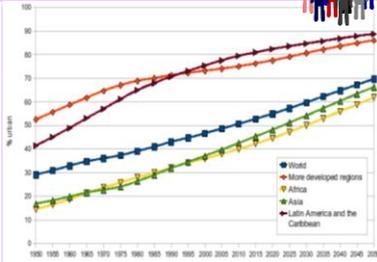
- Section A – Urban Issues Q1 – Answer ALL questions (33/88)
- Section B – Economic World Q2 – Answer ALL questions (30/88)
- Section C – Resource Management Q3-6 – Answer Q3 & 6 ONLY  
(Q3 worth 14/88; Q6 worth 11/88)

## What is urbanisation?

Urbanisation is the increase in the amount of people living in urban areas such as towns or cities. In 2007 the UN announced that, for the first time, more than 50% of the world's population live in urban areas.

### Where is Urbanisation happening?

Urbanisation is happening all over the world but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth, which is leading to increasing life expectancies, that they are experiencing.



## Causes of Urbanisation

<b>Rural - urban migration</b>	The movement of people from rural to urban areas.	
<b>Push factors</b>	<b>Pull factors</b>	
Factors that encourage people to move <b>away</b> from a place.	Factors that encourage to move people <b>to</b> a place.	
<ul style="list-style-type: none"> <li>Natural disasters e.g. drought.</li> <li>War and Conflict.</li> <li>Mechanisation.</li> <li>Lack of opportunities.</li> <li>Lack of employment.</li> </ul>	Factors are sometimes perceived. <ul style="list-style-type: none"> <li>More Jobs.</li> <li>Better education &amp; healthcare.</li> <li>Increased quality of life.</li> <li>Following family members.</li> </ul>	

**Natural Increase** When the birth rate is greater than the death rate.

**Increase in birth rate (BR)** **Lower death rate (DR)**

- Migration often involves young adults. When there is a high percentage of population of child-bearing age this leads to higher birth rate.
- In the UK migrant groups have higher fertility rates.
- Lack of contraception or education about family planning.
- A higher life expectancy is due to supplies of clean water, better living conditions and diet.
- Improved medical facilities help lower infant mortality rates and raise life expectancies.

## Types of Cities

**Megacity** An urban area with over **10 million people** living there.

More than two thirds of current megacities are located in either NEEs or LICs. The majority of megacities are located in Asia. The number of megacities are predicted to increase from 28 to 41 by 2030.

## Sustainable urban living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations can also use them. Sustainable living should ensure that all facilities necessary for people are available, and that areas are economically viable.

<b>Water Conservation</b>	<b>Energy Conservation</b>
<p><b>This is about reducing the amount of water used.</b></p> <ul style="list-style-type: none"> <li>Rainwater harvesting provides water for gardens and for flushing toilets.</li> <li>Installing water meters discourages water use. Dual flushes on toilets flush less water.</li> <li>Educating people on using less water.</li> </ul>	<p><b>Using less fossil fuels can reduce the rate of climate change.</b></p> <ul style="list-style-type: none"> <li>Promoting renewable energy sources e.g. solar panels, insulation.</li> <li>Making homes and appliances more energy efficient.</li> <li>Encouraging people to use less energy.</li> <li>Using wood in buildings instead of bricks.</li> </ul>
<b>Creating Green Space</b>	<b>Waste Recycling</b>
<p><b>Creating green spaces in urban areas can improve places for people who want to live there.</b></p> <ul style="list-style-type: none"> <li>Provide natural cooler areas for people to relax in.</li> <li>Encourages people to exercise.</li> <li>Reduces the risk of flooding from surface runoff.</li> <li>Reduces airborne particulates.</li> </ul>	<p><b>More recycling means fewer resources are used. Less waste reduces the amount that eventually goes to landfill. This reduces waste gases (methane) and contamination of water sources.</b></p> <ul style="list-style-type: none"> <li>Collection of household waste.</li> <li>More local recycling facilities.</li> <li>Greater awareness of the benefits in recycling.</li> </ul>

# Unit 2a AQA Urban Issues & Challenges

## Distribution of population & cities in the UK



The location of most UK cities is linked to the availability of natural resources (particularly coal), or near to the coast for imports, and the subsequent location of industry during the industrial revolution. This is because coal was the original source of power for the factories e.g. Glasgow, Newcastle, Nottingham and Cardiff.

Liverpool is a major anomaly to this trend. Instead its location on the River Mersey enabled resources to be imported across the Irish Sea. Imports from across the British Isles and the world were then used in industry.

## Integrated transport system

This is the linking of different forms of public and private transport within a city and the surrounding area e.g. Mersey Travel bus timetables coincide with train arrivals and departures. They also run all ferry lines as well.

## Brownfield sites

A brownfield site is an area of land or that has been developed before and, because it has become derelict, can be re-used e.g. old factories/warehouses in Liverpool are rebuilt as apartments. Brownfield sites are more expensive to develop than greenfield sites as derelict buildings must be removed first.

## Traffic management

Urban areas are busy places with many people travelling by different modes of transport. This has caused urban areas to experience traffic congestion that can lead to various problems.

### Environmental problems

- Traffic increases air pollution which releases greenhouse gases that is leading to climate change.
- More roads have to be built.

### Economic problems

- Congestion can make people late for work.
- Business deliveries take longer. This costs companies more money as drivers take longer to make the delivery.

### Social Problems

- There is a greater risk of accidents. This is a particular problem in built up areas.
- Congestion causes frustration.
- Traffic creates particulates that can affect health e.g. asthma.

## Congestion solutions

- Widen roads to allow more traffic to flow more easily and avoid congestion.
- Build ring roads and bypasses to keep traffic out of city centres.
- Introduce park and ride schemes to reduce car use.
- Encourage car-sharing schemes in work places and by allowing shared cars in special lanes.
- Have public transport, cycle lanes & bike hire schemes.
- Having congestion charges discourages drivers from entering the busy city centres.

## Traffic Management Example: London – Congestion charges

Introduced in 2003 and extended in 2007 and 2011 the London congestion charge covers an area of central London. Motorists are discouraged from driving in the zone by an £11.50 daily charge. Buses, taxis, emergency vehicles and low emission vehicles are exempt. The number of vehicles driving in the congestion zone is 10% lower than before its introduction. Evidence that the congestion charge has caused local business problems is limited.

## Greenbelt Area

This is a zone of land surrounding a city where new building is strictly controlled to try to prevent cities growing too much and too fast. Some developments are now being allowed on green belt. This is controversial.

## Urban Regeneration

The investment in the revival of old, urban areas by either improving what is there or clearing it away and rebuilding e.g. development of Liverpool One on old, waste land, or the conversion of warehouses into accommodation on the Albert Dock.

# Urban Change in a Major UK City: Liverpool Case Study



# Urban Change in a Major NEE City: Rio de Janeiro City Case Study



Location and Background
<ul style="list-style-type: none"> <li>Liverpool is a city in the north-west of England</li> <li>The greater urban area of Leicester (including areas on the outskirts like in Greater Merseyside) has a population of around 700,000, the city has a population of around 500,000.</li> <li>Liverpool's origins date back to the 3<sup>rd</sup> Century.</li> <li>It grew due to the emergence of the port</li> <li>Liverpool is a changing city affected by population growth and migration.</li> </ul>



City's Importance
<ul style="list-style-type: none"> <li>Liverpool is one of the main cities in the region.</li> <li>It is a truly multi ethnic city – from Black African/Caribbean to Chinese and other British ethnicities</li> <li>The city has 2 Premier League Football teams.</li> <li>The city has two major universities with a total student population of over 45,000.</li> <li>Music of Liverpool bands such as The Beatles and Gerry &amp; the Pacemakers are famous around the world.</li> <li>It played a major part in the Slave Trade</li> </ul>

Migration to/from Liverpool
<p>There is historic migration linked to the docks in the 19<sup>th</sup> century. This is associated with the building of large areas of terraced housing in the city.</p> <ul style="list-style-type: none"> <li>In the 1800's people of WELSH heritage moved to the city to help build the canals and railways. By 1850, 25% of the city was Welsh.</li> <li>Around the same time, there was the Irish Potato Famine that led to a massive influx of IRISH immigrants. Liverpool was the nearest major port and most Irish on their way to America came through here.</li> <li>The Liverpool was the first British port to trade with CHINA so it became the first home to a Chinatown</li> </ul> <p>The city has changed with each new group of migrants, incorporating their foods and traditions into the culture of the city. Including the "Scouse" accent</p> <p>As the docks declined, people left the city to search for work</p>

Opportunities in Liverpool
<p><b>Social:</b> The ethnic diversity of Liverpool brings a range of foods, festivals and experiences e.g. Liverpool's Chinatown attracts lots of people. The redevelopment of the Albert Dock and the £1bn Liverpool One project has provided many shops, restaurants and museums for recreation and entertainment.</p> <p><b>Economic:</b> Historically known for its docks, Liverpool's employment has changed to the tourism, service and research sectors. E.g. the Baltic Triangle has provided a space for creative arts as well as Liverpool Science Park.</p> <p><b>Environmental:</b> Urban greening has taken place in the city centre inc. a 5 acre Chevasse Park in Liverpool One. There has been investment in cycle paths and bus routes. Derelict buildings have been demolished to make areas more visually attractive.</p>

Challenges in Liverpool
<p><b>Social:</b> 50% of Liverpool's communities are in the most deprived 10% in the country. Esp. areas like Toxteth which experiences high crime, poor health (due to poor diets, drinking and smoking) and low education. As other parts are regenerated, this increases the inequality in areas as people gain access to different services</p> <p><b>Economic:</b> Higher unemployment (12%) than other areas of the north west. This is occurring due to the rapidly increasing population and a lack of low skilled jobs caused by the closing of the dockyards. Housing costs pushing people out of areas as they get regenerated with newer, more expensive houses.</p>

Urban Regeneration: Liverpool One
<p><b>What is Liverpool One?</b> Liverpool One has transformed the heart of Liverpool city centre. The 42 acre site includes over 30 new buildings; 165 shops; Over 500 apartments; Two hotels; 25 restaurants; A 14 screen Odeon cinema; 30,000 sq ft of offices; A revitalised five acre park; 3,000 car parking spaces and a public transport interchange.</p> <p><b>Why was it needed?</b> During the 70's and 80's, Liverpool was ranked 3<sup>rd</sup> in the UK for retail sales only behind London and Glasgow, but by the 90's it had dropped to 17<sup>th</sup>. It was losing consumers to Manchester, the Trafford Centre and Cheshire Oaks. Fewer visitors led to a dropping off of commercial, cultural and leisure activity. Two popular, separate areas of Liverpool (docklands and city centre) separated by derelict land</p> <p><b>What impact has it had?</b> It employs over 5000 people in the shops, restaurants and cleaning teams. Spreads the shops away from just Church St, where 50% of the retail is in the city centre. The development has improved the land from being derelict to useful public space. Bus Station built into the development to try and stop people from driving to the retail area. Mixed land-use by including retail, office and private accommodation above to make Liverpool One a more vibrant, 24hr area.</p>

<p><b>Environmental:</b> Urban sprawl from large housing estates (Croxth Park) and out-of-town developments (Knowsley Business Park) has led to increased pressure and decline of greenfield sites around the city (Aughton). Derelict areas around the CBD have been left to crumble. Waste Disposal is becoming a major problem and more waste and recycling projects needed.</p>
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Location and Background
<ul style="list-style-type: none"> <li>Located in south east Brazil, South America.</li> <li>It is on Brazil's Atlantic coast with mountain ranges on all other sides.</li> <li>Until 1960 it was the capital of Brazil</li> <li>It is the cultural centre of Brazil and is famous for the "Carnival"</li> <li>It hosted both the 2014 World Cup and 2016 Olympics</li> </ul>



Rio's Importance
<ul style="list-style-type: none"> <li>Brazil's 2<sup>nd</sup> most important industrial centre (5% of all Brazil's GDP).</li> <li>Stunning natural surroundings and beaches make it one of the most visited cities in the southern hemisphere</li> <li>It has 5 different ports – exporting coffee, sugar &amp; iron ore</li> <li>Christ the Redeemer is one of the Seven Wonders of the World</li> <li>It is the region's main finance and banking centre</li> <li>It has 3 airports transporting tourists and business people into the area</li> <li>It is a UNESCO World Heritage Site with famous landmarks like Sugar Loaf Mountain, Copacabana and Ipanema Beaches</li> </ul>

Migration to Rio
<p>Rio is the 2<sup>nd</sup> largest city in Brazil (behind Sao Paulo). The city has a population of 6.5 million and 12.5m in the local area. It has grown rapidly over the last 50 years to become a major industrial, commercial and tourist centre.</p> <p>These economic activities attract many migrants from Brazil and other countries, to be a racially mixed population. Migrants have come from:</p> <ul style="list-style-type: none"> <li>Rural Brazil e.g. the Amazon Rainforest</li> <li>Other South American countries e.g. Argentina &amp; Bolivia</li> <li>Businesspeople from South Korea &amp; China for new opportunities</li> <li>Common language attracts Portuguese people</li> <li>Rio's industry attracts skilled workers from the UK &amp; USA</li> </ul>

Rio's Opportunities
<p><b>Social:</b> People have more jobs available within the city than rural areas to improve living standards. They can also therefore afford more goods and services that improve their standard of living. Sewer systems have reduced diseases and access to health care has increased life expectancies</p> <p><b>Economic:</b> The growth of Rio's urban industrial areas has boosted the economy of the city. This has caused an improvement in transport, services and environment which attracts more foreign investment.</p> <p><b>Environmental:</b> Huge investments in redeveloping the favelas and cleaning up Guanabara bay, reducing pollution (both air and water)</p>

Rio's Challenges
<p><b>Social:</b> There is a massive inequality in the city. In the poorer parts of the city they have little access to health care so life expectancies are only 45 (just over half the city average). In Rio most children in poorer areas drop out of education at 14 to work/drug trafficking. The whole city suffers from blackouts due to a shortage of energy. Many poor people illegally tap into electricity supplies. Around 12% of Rio's population do not have access to running water.</p>

Urban planning to improve Quality of life for urb poor
<p><b>Favela Bairro Project</b></p> <p>A \$1bn site and service scheme where the government provides land and services for residents to build homes. For example in the Complexo do Alemao where there have been the following improvements. For example:</p> <ul style="list-style-type: none"> <li>Paved and formally named roads to improve on waste removal</li> <li>Access to basic services like electricity, water, sewage systems and weekly rubbish removal</li> <li>Building of new health facilities</li> <li>Hillsides secured to prevent landslides</li> <li>Installation of a new cable car system and residents given a free return ticket per day for access to work</li> <li>A Pacifying Police Unit (UPP) set up to patrol the favela to reduce crime</li> <li>Daycare centres and after school schemes to look after children so that parents can work and add to the economy</li> <li>Training schemes to give adults more employment skills</li> </ul>

<p><b>Economic:</b> Unemployment rates are as high as 40% in the favelas and as low as 2% in richer areas. A high number of informal jobs (50% of workers) with low pay and no tax contributions e.g. in Rocinha favela. Most favela dwellers work in the informal sector. Brazil's GDP is estimated to be 3-4% lower than expected due to the informal economy.</p>
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<p><b>Environmental:</b> Air pollution from heavy traffic, congestion and factories causes the deaths of 5,000 people per year in Rio. Guanabara Bay is highly polluted and has caused a 90% reduction in commercial fishing. The water pollution comes from open sewers in the favelas (200 tonnes per day). 50 tonnes of industrial waste and oil spills from oil refineries add to the pollution. Rio produces enough waste per month to fill the Maracana Stadium (one of the world's biggest) every month. The collection is difficult in the favelas, so is dumped in the rivers</p>
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<p><b>Has it been successful? –YES</b></p> <ul style="list-style-type: none"> <li>The standard of living of residents has improved</li> <li>Property values in the favelas has increased by 80-120%</li> <li>The number of local businesses in the favelas has doubled</li> </ul> <p><b>Has it been successful? –NO</b></p> <ul style="list-style-type: none"> <li>Budget of \$1bn not enough to cover every favela</li> <li>New infrastructure not being maintained</li> </ul>
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<p><b>Has it been successful? –NO</b></p> <ul style="list-style-type: none"> <li>Budget of \$1bn not enough to cover every favela</li> <li>New infrastructure not being maintained</li> </ul>
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## Measuring Development

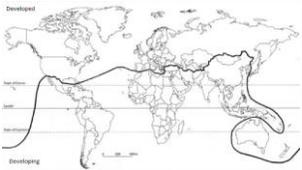
Development measures how economically, socially, culturally or technologically advanced a country is. It suggests: advancement, evolution, expansion, growth, improvement, increase, maturity, progress, changes for the better.

### Development Indicators

<b>GNI</b>	Gross National Income (Money earned by residents of a country including money earned abroad).
<b>HDI</b>	Human Development Index. Calculated using life expectancy, education, and per capita income.
<b>Infant mortality</b>	How many children per 1000 die before they are 1.
<b>Literacy rate</b>	The % of adults that read and write acceptably.

You must know advantages and disadvantages of each of these measures.

## Classifying the World's Development



- An HIC has a GNI per capita of over \$12,000.
- A NEE has an economy that is rapidly progressing.
- A LIC has a GNI per capita of below \$800.

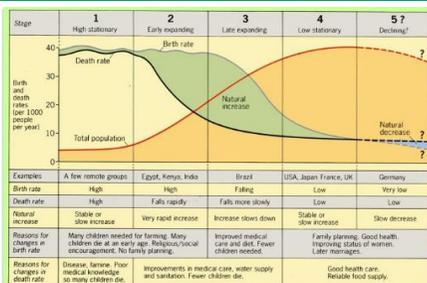
In the 1980's, Dr Brandt classified the world into the rich north and the poor south. He drew this line called the Brandt Line or the North-South Divide. However, over time countries in the south began to develop e.g. Singapore and China, and the line became outdated.

### Key terms

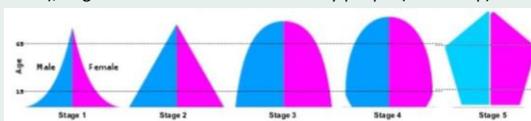
**Standard of living** refers to the economic level of a person's daily life. **Quality of life** is a social measure of well being.

## Measuring Population

The demographic transition model shows how a country's population changes as it becomes more developed, from subsistence farming cultures (LICs) to HICs.



Population pyramids change over time too – from having a lot of babies (a wide base), to good healthcare and more elderly people (a wide top).



## Factors Causing Uneven Development

### Physical Environment



- Soil erosion, desertification, climate (and climate change), overgrazing and infertile soils affect farming.
- Areas without fertile land, natural resources, water and energy suffer.
- Natural hazards make little progress with development e.g. Haiti.



### Trade

- Trade blocs favour member states.
- Primary products sold by LICs are sold for cheap prices that can fluctuate. HICs make more expensive products so earn more.
- Poor infrastructure or conflict means some people cannot sell their goods at all.

### Health



- Diseases can make people too weak to work or go to school.
- 80% of all developing world disease is water-related. 2 million die a year.
- LICs are unable to invest in good quality health care



### History

- Colonialism: Many countries in Asia, South America and Africa have spent a lot of time and money on civil wars and political struggles for power since being made separate from European superpowers.
- Many LICs haven't had time to develop fully.

## Unit 2b

# The Changing Economic World



## Solutions to Uneven Development

TNC investment	Aid
Industrial Development	Intermediate Technology
Fair Trade	Debt Relief
Microfinance loans	Tourism

## Tourism in Kenya



**Background:** Kenya is an equatorial country on Africa's eastern coast. It is an ex-British colony. It has a population of 48 million and has a life expectancy of 61, literacy rate of 80% and low GNI

**Attractions:** Beach holidays with beautiful sandy beaches and clear seas in places like Mombasa on the Indian Ocean. Inland safaris to see the "Big 6". High temperatures 25°C all year. Mountainous landscapes.

### Positive Impacts

- Tourism is 12% of Kenya's GDP.
- 600,000 jobs are directly created by tourism. 10% of all employment
- Infrastructure has been improved to cater for tourists. Locals benefit as well
- Money charged to enter national parks goes towards protecting wildlife
- HDI increased from 0.45 to 0.55

### Negative Impacts

- Economic: jobs in tourism are often poorly paid. Many hotels are owned by TNCs and much of the profit goes to HICs.
- Social: Investment in water supplies and sanitation are focussed on tourist areas, not locals. Maasai people pushed off land
- Environmental: Tourism generates waste. Safari vehicles destroy vegetation

## Sustainable Tourism



Sustainable tourism aims to support local communities socially and economically whilst causing no harm to the environment e.g. small scale lodge developments employing local people and using local foods in Kenya.

## UK Links

Ports	Air	Roads
<ul style="list-style-type: none"> <li>The UK's port industry is the biggest in Europe due to our large coastline.</li> <li>There are 120 ports in the UK. Dover is the largest and Teesport is the 3<sup>rd</sup> biggest.</li> <li>12 million people and 700,000 freight lorries travel from Dover a year.</li> </ul>	<ul style="list-style-type: none"> <li>Heathrow is the UK's busiest airport with 1 plane taking off every 45 seconds.</li> <li>300,000 people are employed in UK aviation.</li> <li>As well as large international airports small centres e.g. Cambridge airfield allow internal flights.</li> </ul>	<ul style="list-style-type: none"> <li>The first motorway the UK was opened in 1958.</li> <li>By 2008 there were 2,200 miles of motorways allowing rapid movement around the country.</li> <li>The A1 is the longest road in the UK and connects London and the north-east.</li> </ul>



## UK Global Links

### Political

**Commonwealth**

- In 1922 Britain ruled over an empire of 458 million people (about 20% of the world's population and 53 countries).
- Many expats (Brits who live abroad) live in these ex-colonies.
- Many of these ex colonies are part of the Commonwealth, choosing to keep close ties.

**EU**

- The UK joined the EU in 1973 with the aim of becoming part of the common market and improving trade between countries.
- The UK opted to leave in 2016. Brexit negotiations are ongoing and outcomes are unsure.
- About 50% of exports and imports are to the EU.

**Other links**

- The UK is a member of the G8, a group of 8 countries whose leaders meet to discuss important issues.
- The UK is a member of NATO (North Atlantic Treaty Organisation) a group of European countries and the USA. Leaders meet to keep peace.
- The UK is a member of the UN Security Council in which 15 countries meet to keep peace.

**Trade**

- 50% of the UK's exports go to EU countries, and 50% went to non-EU countries such as the USA and China. The USA takes the most.
- A lot of trade is now finance and communications following deindustrialisation.

**Transport**

- More than 750,000 international flights depart from the UK annually to 400 airports in 114 countries.
- Heathrow is the 4th busiest airport in the world.
- Eurotunnel links Britain to Europe.

**Culture**

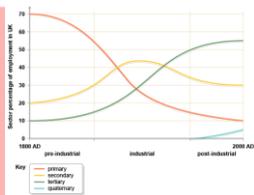
- Spoken English has helped create strong links with countries.
- British exams can be sat abroad; recognised for their quality.
- UK TV productions have a global audience.
- We are a culture of immigration leading to a unique and multicultural society.

**Technology**

- The UK is a centre for submarine internet cables connecting the whole world.
- 18 million British businesses run from home.

## Economic and Industrial Change in the UK

Industrialisation took place in the UK during the 1800s. Most early manufacturing industry took place in areas with coal fields which provided energy. This was a break of bulk location, reducing transport costs.



De-industrialisation is the decline in secondary (manufacturing) industries, and the subsequent growth in tertiary and quaternary employment.

The UK has experienced de-industrialisation changing into a post-industrial economy; with more tertiary & quaternary industries. Secondary industries has moved to cheaper countries e.g. China.

Industry in the North East of England was characterised by heavy industry, including coal mines, iron and steel industry and ship building and petrochemicals. As raw materials were used up, and it became cheaper to produce steel and ships abroad, these heavy industries fell into decline.



The ICI plant in Middlesbrough closed making 30,000 people redundant. The Easington colliery (coal mine) closed in 1993 making 1400 people in a town of 5,000 unemployed. A lack of transferable skills made it hard for these people to find jobs.

De-industrialisation has many socio-economic impacts.

High unemployment leads to the decline of services in affected areas. Reliance on benefits leads to a decline in housing quality. Life expectancy in de-industrialised areas is lower than the national average. Average GCSE grades are also lower in these areas.

### Modern industrial developments in the UK

For years the UK thrived due to its secondary industries. However it is now a post industrial economy; one where most manufacturing jobs have been replaced by jobs in the service industries. A new sector that is growing rapidly is the quaternary industry. Quaternary jobs are those that involve highly skilled people who carry out research, provide information and give advice e.g. financial advisers, research scientists.



Located to the north-east of Cambridge the site is home to over 1,500 IT and bio-technology (quaternary) companies. Location factors include closeness to a major junction of the A14 which provides rapid access to the M11, and thereafter Heathrow and London. It is on cheaper land at the edge of the city. This land is flat and there is room for expansion. The proximity to Cambridge University promotes strong working relationships and access to the best University graduates.

#### Toyota, Burnaston

1.5 million cars are manufactured in the UK by 7 large TNCs. Toyota are attempting to become more sustainable in a number of ways.

- They have installed 17,000 solar panels and introduced more efficient practices. They aim to reach zero carbon emissions at the plant by 2050.
- They are reducing water use, using rainwater harvesting methods and ensuring that all water used is purified before being returned to the environment.

### The North-South Divide



Most areas affected by de-industrialisation are in the north and west of the UK. The areas of industrial growth tend to be in the south and west. The divide has led to social and economic differences. Unemployment in the north east is 5.5% higher than the south east. Average pay is £4,000 higher in the south and life expectancy is 2.5 years longer. In attempt to reduce the differences between the north and south governments have supported a number of schemes.

#### HS2 / HS3

HS2 and 3 are High Speed rail links that will run from London to Birmingham, and then on to Manchester and Leeds. Benefits - reduced travel times to the north will encourage the location of industry in the north. 100,000 jobs will be created. Problems - The scheme will cost over £50 billion, lead to 600 homes being demolished, and 150 nature sites being affected.

#### Roads

£6 billion will be invested in northern roads to reduce congestion. Benefit - This will encourage industrial location as it will reduce the cost associated with longer transport times. Problem - We should be discouraging road use.



### Other UK Transport Improvements

#### London Gateway

Only 30 miles from Central London. It should handle 3.5 million containers per year. Benefit: It will reduce the need for over 2,000 lorries to collect and deliver from Southampton port.

#### Heathrow Expansion

Heathrow is operating at full capacity with 480,000 flights each year. A third runway, costing £20 billion will allow more flights. Benefit - Encourage more industry to locate in the UK. Problems - Cost, noise pollution and one village demolished.

## Economic and Industrial Change in Nigeria

### History, Landscape & Context

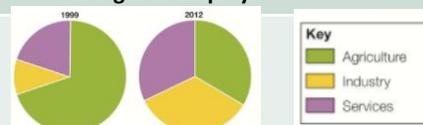


**HISTORY** - Nigeria was a major source of slaves between 1600 and 1800. It was a British colony for 80 years from 1883 to 1960 when it gained its independence. From independence until 1999, Nigeria suffered from many years of in-fighting and civil war.

**LANDSCAPE** – The landscape of Nigeria changes massively across the country. The north of the country is semi desert, then moves to savannah grasslands and tropical rainforest as you move south.

**CONTEXT** - Without Nigeria Africa would struggle to develop on its own. In 2014 it had the largest GDP in the continent. It has a population of 184 million- the highest in Africa. Nigeria supplies the world with 2.7% of its oil. Nigeria is one of the fastest growing economies in Africa.

### Changes in Employment Structure



- Today, the employment sectors are fairly equal
- A large number of people in rural areas are still employed in the primary sector, although this sector is continuing to decrease.
- Secondary industry contributes greatly to the country's GNI and has increased as investment in infrastructure has encouraged manufacturing.
- Tertiary increased as tourism has

### Industry

#### Crude Oil

Crude oil dominates Nigeria's exports. USA used to be biggest oil customer, but now it is India. Between 2013-14, sales to India, China, Japan and South Korea has gone up 40%. The oil here is good quality with less than 42% sulphur. This makes it good for refining into petrol.

#### Agriculture

Although 40% of the population is employed in this sector, the reliance on crude oil has reduced the importance of farmed products. Nigerian cotton is the countries biggest agricultural export, followed by cocoa and rubber. The biggest for cotton are Australia and Indonesia.



### Trans National Corporations (TNC's) in Nigeria: Shell

**Shell – or Royal Dutch Shell** – is one of the world's largest oil companies. It is an Anglo-Dutch company with its headquarters in the Netherlands. Since the discovery of oil in 1958, its operations in the Niger Delta have been controversial. The swampy river delta is one of the most difficult places to extract oil. As a TNC, Shell has been able to invest huge amounts of money and expertise into extracting oil here.

#### Social issues:

- Local workers sometimes poorly paid
- Management jobs go to foreigners
- Local militant groups disrupt oil supply and steal supplies causing social problems e.g. conflict

#### Economic issues:

- Make major contributions in taxes
- Provide direct employment to 65,000 Nigerians and a further 250,000 indirectly
- 91% of contracts given to local comp

#### Environmental issues:

- Oil spills cause water and soil degradation which reduce fishing and farming yields
- Frequent oil flares send toxic fumes into the air



### Aid to Nigeria

- Nigeria receives about \$5bn per year from various countries in the form of aid. Most comes from the UK and USA
- Aid from the USA and UK helps to educate and protect people from the spread of AIDS/HIV and provide health in rural areas
- In 2014 the World Bank approved a \$500m project to fund development projects and provide long-term loans to reduce dependence on oil.
- The NGO "Nets for Life" provide information on malaria prevention and distributes anti-mosquito nets to many households.
- The USAID-funded Community Care in Nigeria project to provide support packages for orphans and vulnerable children

### Impacts of Development in Nigeria

- Improvements in quality of life
- Nigeria has one of the highest improvements in HDI in the world over the last decade
- Access to safe water increased by 18% in the last 25 years
- Corruption has caused the oil wealth not to be spread as it should have been
- The lives of the Ogeni tribe have been devastated by Niger Delta oil spills

Year	Life Expectancy	GNI per Capita	Death Rate
1990	46	\$1780	213
2013	52	\$5900	117

# What are Resources?

Key term	Definition
<b>Resources</b>	Materials that have value for people. They may be needed for basic survival e.g. water, or appreciated as something that improves quality of life e.g. coffee.
<b>Resource management</b>	The control and monitoring of resources so they don't become depleted or exhausted.
<b>Surplus</b>	When there is more of a resource than is needed to meet demand.
<b>Deficit</b>	When there is not enough of a resource to meet demand.

## Global inequalities in the supply and consumption of resources

**Food**

- Average UK calorie consumption is 3200 calories per person per day.
- Average calorie consumption in Mali is 2590 calories per person per day.
- Areas of greatest population growth have highest levels of undernourishment.
- Demand depends on changing diets and increasing population.
- Supply depends on climate, soil and level of technology.



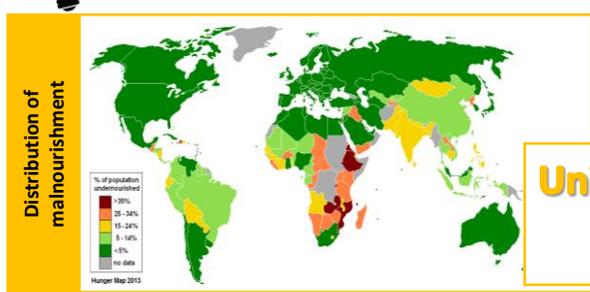
**Water**

- Fresh water is unequally distributed.
- Water footprint is the amount of water used per day.
- Global average is 1240 litres per day
- Bangladesh is 896 litres per day, USA is 2483 litres per day.
- Water scarcity (where demand is greater than supply) can be physical e.g. reduction in rainfall or economic e.g. lack of money to enable access to water.
- 1 in 5 (more than 1.2 billion people) live in areas of water scarcity.
- 1 in 3 (2.4 billion people) have no access to clean drinking water.



**Energy**

- The richest 13% of people globally use 50% of the world's energy.
- The poorest 13% of people globally use 4% of the world's energy.
- Countries import and export energy.
- Some countries do not have their own sources of energy.

# The significance of food, water and energy to economic and social well being

**Water food and energy are key for human wellbeing. All lead to social and economic benefits, which all increase the standard of living and quality of life.**

**Food**

- Calories provide energy.
- Availability of food depends on climate, soil and level of technology.
- Malnourishment leads to disease and death. In children it can lead to underperforming at school which decreases economic wellbeing in life. In adults they will be less productive (less able to work).
- Globally more than 1 billion people are malnourished.
- 2 billion are undernourished (poor diet).
- Obesity is an issue in some areas, mainly HICs.



**Water**

- Used for survival, washing, food production, industry.
- Clean, safe water enables development and allows people to break free from the cycle of poverty.
- Globally 2 billion people drink from contaminated water sources. Over 500,000 people a year die because of diarrhoeal diseases linked to contaminated water supplies.



**Energy**

- Traditionally we get energy from oil, coal and wood.
- Many different sources are generated by changing technology.
- Used for electricity production, heating, transport and for water supply (e.g. wells).
- Supports industrialisation and development.



## Changing demand for Energy in the UK creates opportunities and challenges

**The changing energy mix**

UK Energy mix in 2015 :

- Fossil fuels (65%) Coal 31%, Gas 25%, Nuclear 19%, Renewable sources 22%. In 1970 91% from fossil fuels.
- The UK has invested in renewable energy e.g. solar energy and subsidies are given by the government.



**Decreasing domestic supply of oil, coal and gas.**

- Reserves of North Sea oil and gas are declining.
- EU regulations on gas emissions has led to a decrease in fossil fuel use.
- Energy efficient appliances and industry mean less energy is used in homes and industry.

**Economic and environmental issues linked to energy use.**

- It is cheaper to import coal into the UK than to mine it.
- Nuclear Power Stations are being decommissioned and all current plants will close by 2023 – there are issues of contamination and disposal of nuclear waste.
- Economic issues – costs, jobs, set up costs, research, reliability.
- Environmental costs – ecosystems, waste, noise, emissions, pollution, radiation leaks.

# Changing demand for food in the UK creates opportunities and challenges

**The growing demand for high value food exports from LICs and all year demands for seasonal food and organic produce.**

- Food used to be seasonally and locally sourced. Now we eat globally sourced foods all year.
- In 2013 47% of UK food was imported.
- More disposable income has led to an increased demand for greater quantities and wider choice.
- Not all foods can be grown the UK, and some foods can only be grown at certain times e.g. strawberries in July and August.
- High quality products are five times the price of similar products e.g. Madagascar vanilla, gourmet coffee.
- Positive impacts : Jobs and wages for those in LICs, more tax income leads to a better quality of life.
- Negative impacts – less land for locals to farm for themselves, high water use and exposure to chemicals (pesticides and fertilisers).
- Organic – no pesticides or fertilisers used. Since the 1990s there has been an increase in demand. Now worth £2 billion a year in the UK.



**Larger carbon footprints due to the increased number of food miles travelled.**

- Food can be grown more cheaply elsewhere.
- Production and transport create a carbon footprint.
- 17% of the UK's carbon footprint is due to food.
- Tomatoes have less of a carbon footprint being grown in Spain and imported to the UK than if we grew them in the UK where greenhouses would have to be heated.
- Annual food miles travelled by UK food imports is 18.8 billion miles.
- 68% of food imported to the UK is from within the EU, 32% from the rest of the world.
- UK are now encouraging buying local and having an allotment.



**A trend towards agribusiness.**

- Agribusiness is a farm run as a business with the main aim being profit.
- Agribusiness has significant impacts on the environment as they are associated with heavy use of pesticides and fertilizers leading to reduction in wildlife and eutrophication.
- East Anglia has a lot of agribusinesses.

## Managing Water Supply in the UK creates opportunities and challenges

**The demand for water varies across the UK**

The places with good supply aren't the same as those with high demand

- The north and west of the UK have high rainfall and a water **SURPLUS**
- The south and east have low rainfall and high population and a water **DEFICIT**
- Demand for water increasing as populations are expected to rise

**Water Pollution needs Managing**

Polluted or low quality water reduces the amount available to use. Problems are

- Nitrates from fertilisers on farms washing into rivers and groundwater
- Pollutants from vehicles/industry going in water sources as surface runoff
- 50% of groundwater supplies now too polluted to use
- Regulations now on fertilisers used and drainage systems to help

**Water Transfers can help supplies**

One solution is to transfer water from areas of surplus to deficit. But these can cause issues.

- Dams and aqueducts are expensive to build
- It can affect wildlife that lives in rivers
- Political issues as people might not want their water transferred elsewhere




# Unit 2c The Challenge of Resource Management



## Resource Security

Key term	Definition
<b>Energy security</b>	When the demand for energy is lower than the supply of energy there will be a <b>surplus</b> . This means that a location is energy secure.
<b>Energy insecurity</b>	When the demand for energy is greater than the supply of energy there will be a deficit. This means that the location is water insecure. This may also be referred to as energy <b>scarcity</b> .
	Security and insecurity can be used to describe access to food and water as well.

## Energy Production

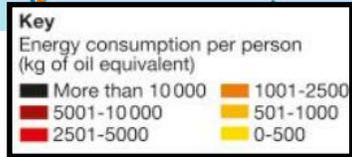
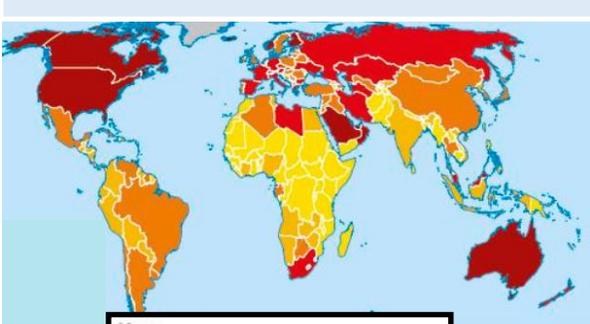
Some countries produce lots of energy because they have large energy reserves and the money to exploit them. E.g.

- Iran, Saudi Arabia – large **oil** reserves
- China, Australia – large **coal** reserves
- UK, Russia – Large **oil & gas** reserves



Some countries produce little energy because they have few resources or are unable to exploit their resources due to lack of money or instability

- Sudan – Political instability and little money
- Ireland – few resources to be exploited



## Energy Consumption

There is a strong link between wealth and energy consumption

- Wealthy, developed countries tend to consume a lot of energy per person because they can afford to. Most people have access to electricity and heating, and use energy-intensive devices like cars and personal electronics.
- Poorer, less developed countries consume less energy per person as they are less able to afford it. Less energy is available and lifestyles are less dependent on high energy consumption than in wealthier countries e.g. Burkina Faso, Mongolia



## Global Demand for Energy is Increasing

There are 3 main reasons why the global demand for energy is increasing.

- The world's population is increasing – in 2011 the world population was at 7bn and it's expected to rise to 9bn by 2040. More people means more energy is needed
- Poorer countries are becoming more developed so they can afford more things that use energy e.g. cars, TVs etc.
- Technological advances means more devices that all need energy e.g. mobile phones and tablets.

## Factors Affecting Energy Supply

<b>PHYSICAL</b>	<ul style="list-style-type: none"> <li>- There is an unequal distribution of fossil fuels. And some are difficult to extract due to geography</li> <li>- Variations in climate and geography affect whether solar/wind/hydro can be used</li> <li>- Some natural disasters affect energy infrastructure</li> </ul>
<b>TECHNOLOGICAL</b>	Some countries cannot afford technology to exploit their resources. E.g. Niger has large uranium reserves but does not have the resources to build nuclear power plants
<b>ECONOMIC</b>	<ul style="list-style-type: none"> <li>- The cost of building new power plants may be too high</li> <li>- The extraction of fossil fuels is too expensive</li> <li>- The price of oil/gas changes quickly and causes problems</li> </ul>
<b>POLITICAL</b>	<ul style="list-style-type: none"> <li>- Wars can be fought over energy scarcity</li> <li>- Climate change laws reducing the need for fossil fuels</li> <li>- Worries over nuclear power safety makes the cost of building power plants higher</li> </ul>

## Strategies to Increase Energy Supply - Renewable

Renewable energy can be a good option to increase energy supply. They won't run out and produce little waste products	<b>Wind</b> Turbines use the energy of falling water trapped behind dams. To turn turbines. Dams can damage env. and are expensive to build	<b>Hydro</b> Uses the energy of falling water trapped behind dams. To turn turbines. Dams can damage env. and are expensive to build	<b>Wave</b> Wind makes waves which generate electricity. These are expensive and calm conditions = no energy
<b>Biomass</b> Wood, plants or animal waste is burnt or used to produce biofuels. It doesn't need much technology so good for LIC's	<b>Solar</b> Energy from the sun is used to heat water or produce energy through solar panels. Solar cookers and water heaters cheap for LIC's	<b>Tidal</b> Currents caused by tides turn turbines. It can't generate electricity all day, but tides are predicted and are regular	<b>Geothermal</b> Water is pumped into the ground where it is heated and he steam turns the turbines. Cheap. But only in tectonic areas

## Strategies to Increase Energy Supply – Non-Renewable

<b>Fossil Fuels</b> The supply of fossil fuels can be increased by searching for new reserves to exploit or by exploiting reserves that have been discovered but not yet used. As technology develops, it has become possible to extract resources that were too costly/difficult to use e.g. fracking	<b>Nuclear</b> Nuclear power generates a large amount of energy from a small amount of fuel. However, nuclear power plants are expensive to build and the waste needs to be safely stored for 1000's of years. Accidents can also be catastrophic. Efficiency of the reactors is improving and producing more fuel.
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## Impacts of Energy Insecurity

Environmental Pollution	Food production	Industrial output	Conflict
As fossil fuels get used up, reserves in more difficult and environmentally sensitive areas are exploited. This damages these areas and risks env. damage	Demand for cleaner and cheaper energy sources increases demand for biofuels. Growing biofuels takes up land that could be used for growing food.	Energy shortages and rising costs reduce industrial output. Factories have to produce less or relocate to places with better energy security.	Countries can be in conflict if they have energy surplus/deficit. E.g. gas supplies have been disrupted to Europe due to conflict between Russia and the Ukraine.

## Conserving Energy

**Sustainable energy** provides energy today without preventing future generations from meeting their energy needs. Due to this we need to find ways to reduce the amount of energy that we use. These are:

<p><b>Sustainable Design</b> - Homes, workplaces and transport can be designed to use energy better.</p> <ul style="list-style-type: none"> <li>INSULATION – Less heat lost = less energy used</li> <li>MODERN BOILERS – More efficient = less energy</li> <li>ELECTRIC TRANSPORT – More efficient</li> <li>SOLAR PANELS – Fitted to roofs, renewable, clean</li> </ul>	<p><b>Demand Reduction</b> – Can reduce the amount of electricity needed to be generated.</p> <ul style="list-style-type: none"> <li>Encourage people to turn off lights when they are not needed. Use more energy efficient appliances</li> <li>Improve public transport and encourage walking or cycling. Reduces energy demand for transport</li> </ul>
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**Increase Efficiency** – Doing the same job but using less fuel conserves energy.

- HYBRID TECHNOLOGY – Hybrid cars, vans and trains combine diesel and electric power to increase efficiency. E.g. Hybrid trains use electricity when possible and diesel when no overhead lines to use
- REGENERATIVE BRAKING – Road vehicles store the energy lost under braking and use it later
- ENGINES – Engine makers are making more efficient engines in response to laws and rising fuel costs
- POWER STATIONS – Power stations are becoming more efficient by switching to gas and using Gas Turbine Combined Cycle technology.



## Rice Husks are used to Generate Sustainable Power in India

Bihar is a rural state in north-east India (a NEE). 85% of the people in the state are not connected to the electricity grid. In 2007 they started a biomass scheme to supply the people with electricity from RICE HUSKS.

- Rice husks are collected and used to generate electricity in small local power plants
- It supplies energy to people in a 1.5km range
- By 2015, 84 of these power plants were in use supplying 200,000 people with electricity.
- It has reduced the need for diesel generators = lower fossil fuels
- It has also provided employment in the area for local people in maintaining, operating and managing the power plants.
- The government now offers money to help set up new plants



## Fracking – Opportunities and Challenges

<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Shale gas is readily available in UK.</li> <li>- Will act as a bridging fuel until alternative technologies are developed.</li> <li>- Increased cost of fuel makes fracking now affordable.</li> </ul>	<p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>- Contaminated water is pumped back into the ground and can affect water supplies.</li> <li>- Fracking uses a lot of energy.</li> <li>- 3% of gas extracted is lost to atmosphere; this is methane, a greenhouse gas.</li> </ul>
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