GCSE Geography Consolidation Revision Booklet

Top tips:

- Use the green CGP revision guide to help you to complete the sheets (the page numbers are mostly at the top left of the pages).

- Use these revision materials to complete as many questions as possible in the Consolidation Exam Questions booklet
  - The mark schemes are there too!

- Create flashcards and your own mindmaps on any key terms or content you find difficult so you can practise going over it!

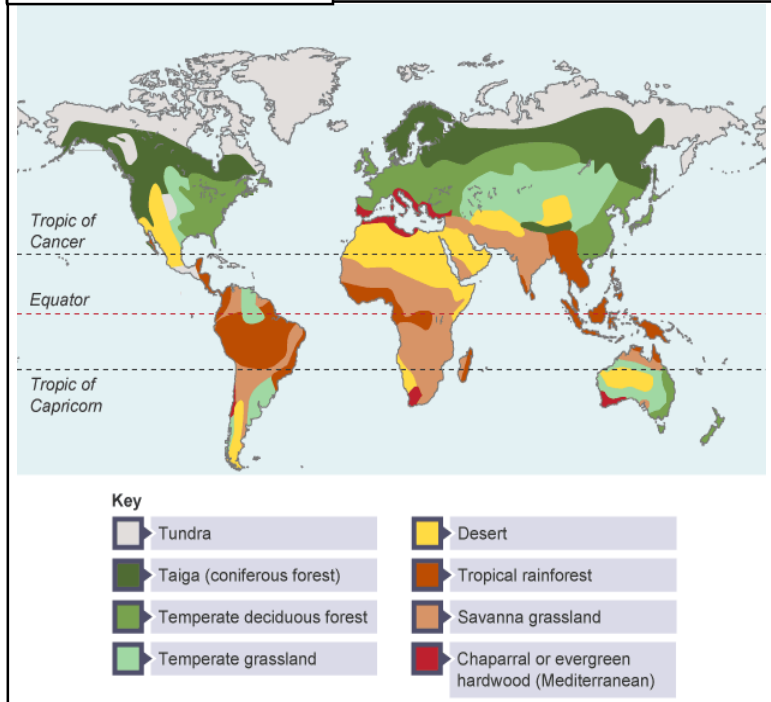
PAPER 1: ECOSYSTEMS

Pages 57-73	**Ecosystems, Biodiversity and Management** Specification Checklist - Knowledge Organisers

Key idea	Content	Revised?
Location of important large-scale ecosystems	**Distributions** and **characteristics** of the world's **large-scale ecosystems** (tropical, temperate and boreal forests, tropical and temperate grasslands, deserts and tundra).	
	The **role** of **climate** and **local factors** (soils and altitude) in influencing the **distribution** of different large-scale **ecosystems**.	
The biosphere is a vital system	How the **biosphere** provides **resources** for **people** (food, medicine, building materials and fuel resources) but is also increasingly **exploited** commercially for **energy**, **water** and **mineral resources**.	
UK ecosystems	**Distribution** and **characteristics** of the **UK's main terrestrial ecosystems** (moorlands, heaths, woodlands, wetlands).	
	Importance of **marine ecosystems** to the **UK** as a resource and how **human activities** are **degrading** them.	
Tropical rainforests	**a.** **Biotic** and **abiotic** characteristics of the **tropical rainforest** ecosystem (climate, soils, water, plants, animals and humans). b. The **interdependence** of **biotic** and **abiotic** characteristics (climate, soils, water, plants, animals and humans) and the **nutrient cycle** (**Gersmehl model**). c. Why rainforests have very **high biodiversity** and how **plants** (stratified layers, buttress roots, drip tips) and **animals** (strong limbs, modified wings and beaks, camouflage) are **adapted** to that environment. d. Examples of **goods** and **services** provided by **tropical rainforest** ecosystems (food stuffs, medicines, timber and recreation). e. How **climate change** presents a **threat** to the **structure**, **functioning** and **biodiversity** of **tropical rainforests** **f.** **Economic** and **social causes** of **deforestation** (conversion to agriculture, resource extraction, population pressure). **g.** **Political** and **economic** factors (governance, commodity value and ecotourism) that have contributed to the **sustainable management** of a rainforest in **a named region (Amazon rainforest).**	
Deciduous woodlands	**a.** **Abiotic** and **biotic** characteristics of the **deciduous woodland** ecosystem (climate, soil, water, plants, animals and humans). b. The **interdependence** of **biotic** and **abiotic** characteristics (climate, soil, water, plants, animals and humans) and the **nutrient cycle** (**Gersmehl model**). c. Why deciduous woodlands have **moderate biodiversity** and how **plants** (leaf size and structure, water conservation in winter) and **animals** (migration, hibernation and food storage) are **adapted** to that environment. d. Examples of **goods** and **services** provided by **deciduous woodlands** ecosystems (timber, fuel, conservation and recreation). e. How **climate change** presents a **threats** to both the **structure**, **function** and **biodiversity** of the **deciduous woodland** ecosystem. **f.** **Economic** and **social causes** of **deforestation** (urbanisation and population growth, timber extraction and agricultural change). g. Different approaches to the **sustainable use** and **management** of **deciduous woodlands** in a named region (**New Forest**)	

Pages 57-59

KNOWLEDGE ORGANISER – Global Ecosystems



Global distribution of ecosystems:

1) Where are tropical rainforests located?
2) Where are temperate deciduous forests located?
3) Where are deserts located?
4) Why is climate important?

Local factors affecting ecosystems:
How does altitude affect ecosystems?

Where are thin soils found? Why is this important for ecosystems?

Tropical rainforests:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Temperate forests:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Boreal forests:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Deserts:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Tropical grasslands:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Temperate grasslands:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

Tundra:
What is the climate like?

Characteristics:
1. Plants?
2. Animals?
3. Soils?

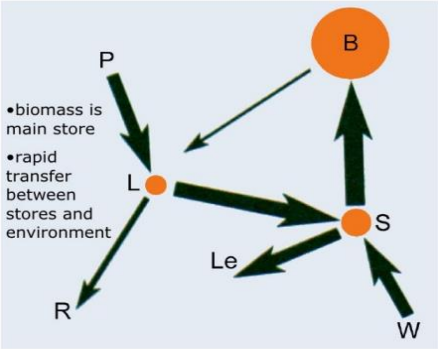
Pages 63-66
Pages 68-71

KNOWLEDGE ORGANISER – General information: Amazon (Tropical Rainforest) vs New Forest (Deciduous Woodland)

The Amazon Rainforest:

Location:

Gersmehl model:



Plant and animal adaptations:

Animal	Plant

Goods and services:

Causes of deforestation:
Economic:

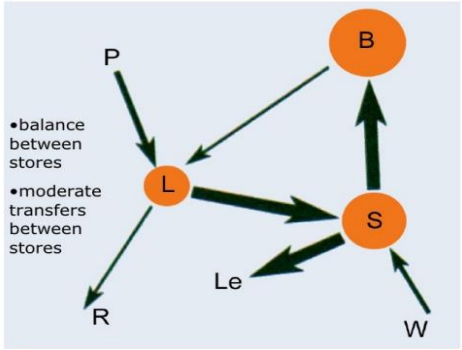
Social:

Impact of climate change:

The New Forest:

Location:

Gersmehl model:



Plant and animal adaptations:

Animal	Plant

Goods and services:

Causes of deforestation:
Economic:

Social:

Impact of climate change:

Pages 63-66
Pages 68-71

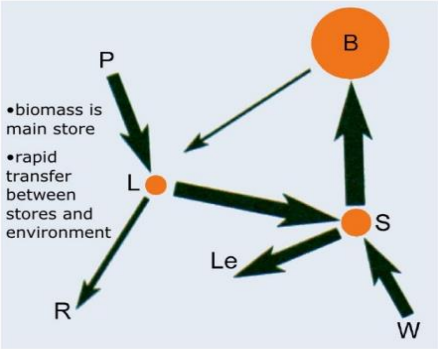
KNOWLEDGE ORGANISER – General information: Amazon (Tropical Rainforest) vs New Forest (Deciduous Woodland)

The Amazon Rainforest:

Location:

- Located near the equator = climate is the same all year round (very hot and rainy)

Gersmehl model:



- Decomposition occurs fast and transfers nutrients from litter to soil quickly
- Biomass is by far the biggest due to lots of trees
- Leaching is high due to high rainfall = less nutrients in the soil store (explains the reason for buttress roots)
- Dense vegetation means nutrients are taken up quickly from the soil

Plant and animal adaptations:

Animal	Plant
Sloth – strong limbs to climb trees; slow to save energy	Buttress roots – roots on top of soil as nutrients are here; strong roots to hold up tallest trees
Poison dart frog – poison to keep predators	Drip tip leaves – allow excess water to go off

Goods and services:

- Food – coffee, bananas, sugar
- Medicine – plants provide chemicals
- Timber – for construction
- Recreation - tourism

Causes of deforestation:

Economic:

- Agriculture – selling crops/cattle farming
- Resources – timber/gas or oil/gold

Social:

- Urbanisation – more land for building homes
- Fuel – trees can be burned for cooking food

Impact of climate change:

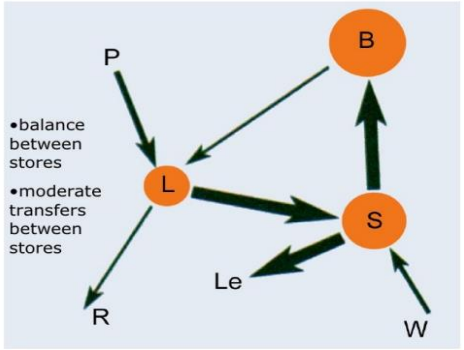
- More droughts which can increase forest fires = destroys habitats = decreases biodiversity
- Some plants and animals may not be able to survive new conditions = food chain is disrupted

The New Forest:

Location:

- Located in mid-latitudes (between equator and the North Pole) – this means the climate is temperate

Gersmehl model:



- Biomass is the largest store
- Litter and soil stores are bigger than in a tropical rainforest
- This is because decomposition happens slower, and there is lower rainfall (less leaching) and uptake from the biomass
- Trees lose all their leaves in autumn which adds a lot of nutrients to soils

Plant and animal adaptations:

Animal	Plant
Red fox – camouflage with fallen leaves; dig underground to stay warm in winter	Oak leaves – wide to catch sunlight and water; roots are strong to withstand windy weather
Hedgehogs – hibernate during winter	Roots go underground to gather nutrients/water

Goods and services:

- Timber – construction
- Fuel – wood/charcoal for cooking
- Conservation – look after endangered animals
- Recreation – hiking/biking

Causes of deforestation:

Economic:

- Timber extraction – selling (furniture)
- Agriculture – clear land to grow crops to sell

Social:

- Urbanisation – more houses
- Timber extraction – used for construction

Impact of climate change:

- Higher rainfall which could cause more nutrients to be lost
- Higher temperatures could cause new species to live there and disrupt the food chain

Pages 63-66

KNOWLEDGE ORGANISER: Tropical rainforests

What is temperature and rainfall like in tropical rainforests?

Describe the soil in tropical rainforests.

What does intercepted mean?

Plants:
1) Describe the height of trees.

2) How much light reaches the floor?

Animals:
1) Do tropical rainforests have more or less species than other ecosystems?

2) Name two examples of animals.

For each, write next to the word if its biotic or abiotic:
Animals

Plants

Soil

Water

Layers of the tropical rainforest:
Describe the shrub layer:

Describe the under canopy:

Describe the main canopy:

Describe the emergents:

Explain how plants leaves have adapted to tropical rainforests.

Explain two ways animals have adapted to tropical rainforests:

Nutrient cycle:
1) What is the name of the model?

2) What are the three stores of nutrients?

3) Where are most nutrients stored?

4) Why does decomposition happen quickly?

What four goods and services are provided by tropical rainforests?

How is climate change impacting temperature and rainfall in tropical rainforests?

Explain two economic cause of deforestation in tropical rainforests.

Explain one social cause of deforestation.

Pages 68-71

KNOWLEDGE ORGANISER: Deciduous Woodlands

What are deciduous woodlands made up of?

Where are deciduous woodlands found?

Abiotic (non-living) features:
Climate:

Soil:

Water:

Biotic (living) features:
Plants:

Animals:

Humans:

Layers of the deciduous woodland:
Describe the canopy layer:

Describe the shrub layer:

Describe the herb layer:

Animal adaptations:
Provide one example of an animal and its adaptations.

The nutrient cycle is slower than deciduous woodlands:
1) Which store is the largest?

2) Describe the litter store.

3) Describe the soil store.

4) Why do nutrients transfer slower?

What are the four goods/services?

Climate change and deciduous woodlands:
- Weather hazards (e.g. drought) may result in trees growing slower or dying.
- Animals may have less time to hibernate which means the food web is impacted and there will be less food for animals.
- Warmer weather may result in more insects that degrade biodiversity such as trees and plants.

Why are deciduous woodlands less vulnerable to climate change?

Explain two economic cause of deforestation in deciduous woodlands.

Explain one social cause of deforestation.

Page 67 (Amazon) but not NF	**KNOWLEDGE ORGANISER**– Management of the Amazon and the New Forest

The Amazon Rainforest:

Sustainable management definition:

Top down:

Bottom up:

Ecotourism:

The New Forest:

Management strategies:

- Electric car hire
- Public transport improves
- Replanting scheme
- Tourism scheme

Conservation:

PAPER: **1**
TOPIC: **Ecosystems, Biodiversity and Management**
CASE STUDY: **Amazon Rainforest**

Tropical Rainforests
-Human uses and impacts
-Management in the Amazon

Sustainable
Ecotourism
Top down
Bottom up

Location: North of South America, covers 9 countries including: **Brazil, Peru, Ecuador, Colombia**

Human uses and impacts

Human uses: Goods and Services

Food: Rainforests provide everyday foods we eat in the UK (e.g. cocoa and coffee)
Medicines: Many human medicines come from rainforest plants
Timber: Rainforest trees provide popular kinds of wood
Recreation: Lots of people visit rainforests for their beauty.

Impact of Climate Change

Climate change will cause temperatures to increase and rainfall to decrease: leading to more droughts meaning…

1. Plants will grow more slowly or die and could become extinct.
2. Litter will decompose more slowly meaning fewer nutrients for plants
3. Reduction in biodiversity as rainforests won't be able to support specialised plants and animals.

Causes of Deforestation

Agriculture: Forest is cleared for farms (subsistence and commercial)
Resource Extraction: Trees are felled for furniture and construction.
Road building: For logging and trading
Minerals: E.g. Gold/Copper/Iron – make space for mining.
Population pressure: More settlement is needed and trees are used as fuel for cooking.

Management (Amazon Rainforest)

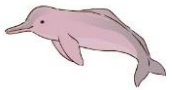
Top-down Strategies

Amazon rainforest is a World Heritage Site meaning it is protected by international agreements under the UN

In some parts, there are strict limits on hunting, logging and fishing

Selective logging**:** Only felling some trees so that the forest can regenerate. This also saves logging companies money because they don't have to replant as many trees

Bottom-up



Local community project to protect river species, e.g. the Amazon river dolphin.

Teaching local community about how to protect endangered species.

Local fishermen collect information about the number and distribution of species and report any illegal hunting or fishing.

Ecotourism

Ecotourism is tourism that minimises damage to the environment and benefits local people.

-Ecolodges made in some places so that farmers can earn extra income
-Ecotourism employs local people so that they have a reliable income. It also promotes conservation
-Tourists are in small groups so there isn't much damage when they are there
-Tourists have to pay entrance fees – and the money is reinvested into education projects to promote conservation./

PAPER: **1**
TOPIC: **Ecosystems, Biodiversity and Management**
CASE STUDY: **New Forest**

Deciduous Woodlands
-Human uses and impacts
-Management of New Forest

Sustainable
Functioning
Conservation

Location: South of England, covers Hampshire and Wiltshire counties

Human uses and impacts

Human uses: Goods and Services

Fuel: Humans use wood or make charcoal to heat homes and for cooking
Conservation: Deciduous woodlands are home to rare/endangered species that need to be conserved.
Timber: Deciduous trees provide hardwood for furniture
Recreation: Woodlands are used by humans for walking, zip-wires etc.

Impact of Climate Change

Deciduous woodlands are less vulnerable to climate change as they are found in temperate climates (less extreme weather). Species can also adapt easy.
Negative impacts:

1. Structure: strong winds can knock trees down (important wildlife habitats)
2. Functioning: Animals may come out of hibernation earlier where there are less sources of food.
3. Biodiversity: Decline due to pests surviving in winter and new invasive species moving in.

Causes of Deforestation

Agriculture: Woodlands are cleared to make bigger fields (more efficient)
Timber Extraction: Deciduous trees are slow growing so they are often cut down more quickly that they can be replaced.
Urbanisation & Population pressure: Woodlands are cleared to make space for building roads and houses

Management (New Forest)

Sustainable Management Strategies (1)

Electric car hire: 95% of visitors come by car – those touring by car can hire electric cars to reduce CO2 emissions

Improvement in public transport: To reduce car usage

Replanting scheme: Every 100 years, old trees are felled and replaced by new trees

Tourism scheme: Farms have turned old barns into cafes where they sell what they grow and make which brings more income

Sustainable Management Strategies (1)

Awareness: raising awareness by NPA – education centres, leaflets, posters - on importance of sustainability in the New Forest

Fragile areas: Careful management by National Park Authority (NPA) with dedicated walking and cycling routes in more fragile areas

Pesticides: Pesticide use limited to prevent damage to the natural ecosystem

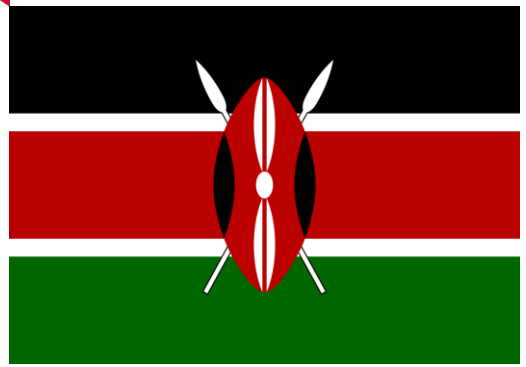
Conservation

There are 20 conservation areas in the New Forest National Park. There are planning controls over what householders can do in a conservation area. Theses cannot affect the character or appearance of the conservation area. Trees are also protected by preservation orders.

Money is reinvested into conserving and looking after the natural habitat.

High amounts of deforestation during the 1800s and 1900s took place and some schemes aim to plant more trees.

PAPER 2: RESOURCE MANAGEMENT



KNOWLEDGE ORGANISER: Natural resources

Classification of resources

1) Define biotic:

2) Define abiotic:

3) Define renewable:

4) Define non-renewable:

People exploiting the environment:

1) Fossil fuels

2) Fishing

3) Farming

4) Deforestation

5) Water

Environmental impacts of resource extraction: Water and air quality

1) Fossil fuels:

2) Fishing:

3) Farming:

4) Deforestation:

5) Water

Environmental impacts of resource extraction: Biodiversity

1) Fishing:

2) Farming:

3) Deforestation:

4) Water

Environmental impacts of resource extraction: Water and air quality

1) Farming:

2) Deforestation:

Page 98-100

KNOWLEDGE ORGANISER: UK Distribution and Global Distribution and Consumption of Resources

Natural resources are unevenly distributed across the UK:

Soil and agriculture:

1) Sheep farming:

2) Cattle farming:

3) Arable farming:

Fossil fuels:

1) Geology:

2) Onshore:

3) Offshore:

Forestry:

1) Coniferous forest:

Water:

1) North west:

2) Aquifers:

3) Hydro-electric power station:

Rocks and minerals:

1) Limestone (sedimentary):

2) Granite (igneous):

3) Slate (metamorphic):

Global distribution of resources vary:

1) Soil and agriculture:

2) Forestry:

3) Fossil fuels:

4) Water:

5) Rocks and minerals:

Global energy consumption is unevenly distributed:

1) Describe the consumption of
- Developed countries:
- Developing countries:

2) Industrial activities:

Global water use varies significantly:

1) Where uses the most water?

2) What does water consumption depend on?

Global food consumption varies across the world:

1) Where produces a lot of food?
2) Where produces only small amounts of food?
3) What affects food production?

4) How does development of a country impact food consumption?

1 – Key definitions

<u>Define the following key terms:</u>

Biotic:

Abiotic:

Renewable:

Non-renewable:

<u>Name 5 ways people exploit the environment for food, water and energy:</u>

1

2

3

4

5

2 – UK Distribution of resources

What are the UK's natural resources?

How are UK resources unevenly distributed across the UK?

3 – Global distribution of resources

How are the following resources distributed across the world? Think about development level of the country, the types of jobs in the country and give examples to support this.

1. **Food:**

2. **Water:**

3. **Energy:**

4 – Global water distribution

Define the following:

Water surplus

Water deficit:

Give examples of countries with a water surplus and water deficit:

5 – Global water consumption

What do developed countries use water for?

What do developing countries use water for?

7 – Water supply problems

Why does the demand for water vary across the UK?

Why does the demand for water vary across emerging and developing countries?

What is desalination?

What are the advantages and disadvantages of desalination?

8 – Stakeholders

What views do the following stakeholders have about sustainable water management?

Individuals:

Organisations:

Governments:

8 – UK vs Kenya

What are the problems with water management in the UK?

Give 3 examples of how the UK is attempting to sustainably manage water

What are the problems with water management in Kenya?

Give 3 examples of how Kenya is attempting to sustainably manage water

Page 110-111

KNOWLEDGE ORGANISER: Sustainable Water Management

Sustainable energy:
1) Define sustainable water management:

Individuals' attitudes:

Organisations' attitudes:

Governments' attitudes:

UK – Water resource management

Kenya – Water resource management

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KNOWLEDGE ORGANISER – Sustainable Water Management: UK (developed) vs Kenya (emerging)

UK:

Issues with water supply:

Location:

Strategies to increase water supply:

Government/ organisations	
Regional	
Individual	

Kenya:

Issues with water supply:

Location:

Strategies to increase water supply:

Government/ organisations	
Regional	
Individual	

Problems with water supply in Kenya

Key terms

How is the Kenyan government/other organisations sustainably managing water ?

Case study of sustainable water management in a developed country: Kenya

How is Kenya managing water on an individual scale?

How is Kenya managing water on a regional scale?

How have NGOs helped Kenya to manage their water?

Problems with water supply in the UK

Key terms

How are the UK government/other organisations sustainably managing water ?

Case study of sustainable water management in a developed country: UK

How is the UK managing water on an individual scale?

How is the UK managing water on a regional scale?

Resource Management

Causes of resource exploitation

1) Fossil fuels
2) Fishing
3) Farming
4) Deforestation

Impacts of resource extraction on the environment

1) Biodiversity – deforestation destroys animal habitats
2) Soil erosion – over farming damages the soil which causes soil erosion
3) Overfishing – disrupts the food webs in oceans

UK distribution of resources

Farming:
- South of England (flat land)

Forestry:
- Some northern areas where soil can't be used for farming

Fossil fuels:
- North Sea oil drilling

Water:
- North and west of the UK – most rainfall

Global distribution of resources

Farming:
- Places that receive rainfall and sunlight – South America, USA, South Asia

Forestry:
- Tropical rainforests (e.g. Amazon rainforest – Brazil)

Fossil fuels:
- Middle East (oil)

Water:
- Along the equator and mid-latitudes (e.g. UK)

UK and Kenya case studies

UK – Developed Country	Kenya – Emerging Country
Problems: Greater demand than supply and overconsumption. **Strategies:** Gov: UK signed up to EU Water Framework Directive Funded Plug-it scheme (water-efficient plumbing Abstraction licenses issued **Organisations**: Regional boards introduced hosepipe bans. Water companies introduced water transfer schemes **Individuals**: Water meters, water-efficient installations and farmers adopted new technology.	**Problems: Arid climate , lack of improved sanitation** **Strategies:** Government: Kenyan law to have access to safe water Gov set up Water Services Trust Fund (water projects e,g. water kiosks and toilets) **Organisations:** Oxfam set up water ATMs in cities, local communities form associations to monitor water quality in their areas **Individuals:** Sand dams built in rural areas.

Water supply and demand

	What is water used for?	What are the problems with water supply
Developed countries	71% for Domestic purposes (e.g. washing machines and showers) Can invest in technologies to manage water efficiently Cheap and plentiful access to water	South East = water deficit (higher demand than supply) Seasonal imbalances (low supply in summer) Ageing infrastructure
Developing/emerging countries	Low water consumption Mainly used for agriculture (developing) and industry (emerging) No convenient or affordable access to clean water	Poor water treatment facilities Water pollution Less strict laws to keep water clean Low annual rainfall

Desalination plants – Removing salt from seawater

Advantages	• - Can be used during droughts rather than being main source of water • Can provide freshwater for farming • Reduces pressure on freshwater supplies
Disadvantages	• Expensive • Disposal of salt is an issue and can kill marine life • Often powered by fossil fuels

Consumption of resources

Resource	Why?
Energy	**Developed** countries **consume more energy** due to the ability to afford more **technology**. **Emerging** countries have **more factories** so they use lots of fossil fuels. **Developing** countries are mainly in **agriculture** so use less energy.
Water	People in **developed** countries have toilets, showers, dishwashers etc that use **more water**. But, **factories**, **farming** and mining also use **lots of water**.
Food	**Developed** countries consume the **most food** as they have **more income** to buy it. **Central Asia** and **Africa** also only produce smaller amounts of food so **consume less**.