

In what ways can river basins be  
a multi-use resource?

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In what ways can river basins be a multi-use resource?

River landscapes provide opportunities for a number of human activities, including:

- industrial development;
- transportation;
- residential development;
- energy development;
- water supply;
- recreation and leisure;
- conservation.

The study of at least **two** contrasting river environments to illustrate:

- the range of activities found in these areas;
- the reasons for the growth and development of these activities;
- that differing land-uses may conflict in these areas.

# The Thames Basin

- It is the most developed part of the UK, with a population of about 12 million (approx 1/5 total UK population).
- Covers an area of over 13000km<sup>2</sup> and includes 14 counties, 58 district councils, 33 local planning authorities.
- Much of the upper region, particularly in the west, is rural in character, where the dominant land use is agriculture. In contrast, the lower reaches of the Thames Basin, in the east, are more urbanised and industrialised.

# The Mekong

- SE Asia's biggest river and the world's 8<sup>th</sup> largest
- Value as a resource is immense
- Six countries share the Mekong = conflicts
- Pressure of a burgeoning population and fast population growth is only just beginning to have an impact on the Mekong

# Water supply

## Thames

- Approx 4700 million litres of water is abstracted per day
- Rain falling in the Cotswolds can be used up to 8 times before it reaches the Thames Estuary
- Region has seen continued growth in housing, commercial development and mineral extraction putting more pressure on water resources and the water environment.
- Over past 30 years demand for public water supplies has increased by about 1.7% per year.
- Factors influencing demand are:
  - Use of water in home and garden
  - Losses through leakage from distribution systems and consumers' plumbing
  - Population growth and household size
  - Development pressure and economic activity

## Mekong

- Home to 55 million people
- Population rising increasing pressure on water supply
- Disposal of raw sewage in river can pose a health threat

# Industrial Development

## Thames

- Area contains much chalk, limestone, sand and gravel = mineral extraction
- Main industrial use of the river is for transport: imports and exports of raw materials and finished goods
- Many traditional heavy industries (e.g. car manufacturing, iron/steel works) located on flat floodplains as land was cheap, water for cooling purposes and river for trade

## Mekong

- Industrial development limited in early 20<sup>th</sup> century but now accelerating
- Mekong is located on the Pacific Rim and governments of China and Vietnam are keen to develop their economies

# Residential Development

## Thames

- Most major settlements are built near rivers, esp in lower course. This is because it provides a source of drinking water, good potential for trade and communications, relatively flat land for residential and industrial development, and, in the past, silt which is good for farming
- Many settlements built on high ground e.g. Oxford to reduce risk of flooding and areas that are at risk of flooding are left for farmland/recreational use
- But some settlements are in danger of flooding e.g. Thames Gateway which is built mainly on floodplain. Reason for demand is high demand for housing in SE England due to high availability of jobs in London
- Much of the conflict relates to demand for more housing

## Mekong

- Home to 55 million people who each year have to deal with widespread flooding
- Population expected to rise rapidly

# Farming

## Thames

- Lower parts of river are popular for farming due to the supply of water, relatively gentle slopes for use of machinery.
- Lower Thames Basin arable farming dominates as animals can be led to higher ground in times of flood

## Mekong

- Hampered by large seasonal floods that can occur each year.
- But, 80% of rice farming in Lower Mekong Basin depends on water, silt and nutrients provided by the flooding of the Mekong.

# Transportation and Trade

## Thames

- Many of the world's greatest cities lie on important trade routes. With trade there are jobs in transport, storage and logistics, and there are multiplier effects such as demand for housing for workers and retail, education and health services. More trade = more jobs.
- River valleys (esp in lower course) are relatively flat and make transport routes easy to build e.g. main railway line from London to Oxford follows the Thames.

## Mekong

- Transport development along the Mekong is limited because the river is not navigable much beyond Phnom Penh.
- In the dry season, when river levels are low, there are reefs and shifting sandbars. When the water level rises, the many rapids of Si Phan Don or 'Four Thousand Islands', form an obstacle to shipping

# Energy Development

## Thames

- Not used for HEP as it is not steep enough and there's not a sufficient 'head' of water to drive turbines but has been used for water power in the past e.g. mills to grind grain
- Thames also used indirectly to generate power. Much of London's waste is carried by barge to huge incinerators in east London which convert municipal waste into electricity

## Mekong

- HEP potential of the Mekong and its tributaries is considerable, mainly due to its steep relief and the large volumes of water
- Only 5% of the Lower Mekong Basin's HEP potential has been development and all projects have been on the tributaries
- Dams generate valuable electricity, aid irrigation and regulate flooding. However, in the process, they have caused irreparable damage to what was, until recently, the Mekong's most valuable resource: its fisheries.
- Dams built further upstream e.g. by China, siphon off water needed by countries such as Laos

# Recreation and Leisure

## Thames

- Fishing, swimming, canoeing, rowing, sailing, cruising, guided tours, and walking and hiking
- Oxford region: valleys of the Cherwell and Thames are used for sports ground, farmland, Oxford's Botanical Gardens and allotments. River used for punting and water sports.
- Cotswolds Water Park is made up of many lakes which are used for a wide range of water-based recreation and other forms of recreation attracting many visitors. Thames Path runs through.

## Mekong

- One of the fastest growing tourist destinations in the world, Mekong basin is benefitting from economic growth.
- Development of tourism has the potential to conflict with requirements of the local residents and traditional activities such as fishing
- Region is receiving funding from the Asian Development bank to help conserve the natural environment and implement sustainable development strategies.

# Conservation

## Thames

- Cotswold Water Park a pressure point because of the variety of developments which focus on this environmentally sensitive area
- Mineral extraction is a particular concern but the park itself wouldn't exist without this history
- Wide diversity of wildlife and habitat features of acknowledge national and international importance
- SSSIs
- Mudflats: seen as an eyesore, ripe for industrial development but actually they are biodiversity hotspots

## Mekong

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