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| Case Study Name: China's Pearl river delta | | Key Terms: | |
| Section of the Specification: Chapter 3.7 Environmental risks of economic development | | (COD)- Chemical Oxygen Demand | |
| Location: <u>Town/City/Region:</u> The Pearl river is located in the south-east of China, draining into the South China Sea with major cities such as Macau and Hong Kong being situated at its delta. Shunde, Shenzhen, Dongguan, Zhongshan, Zhuhai and Guangzhou are all major industrial centres located near the river. | | Continent: Asia | |
| Country: China | | Causes/Theory: | |
| Key Information: | | What? | |
| When? Since the industrial revolution Chinese economy has continued to grow, causing major problems in pollution. This is especially visible in the Pearl river delta, which has recorded some of the country's worst water and air pollution from 2007 to 2011. | | | |
| Why? The more frequent occurrence of acid rain has been fuelled by the high concentration of factories, power stations and the growing number of cars in the province. Most urban areas have overexploited their neighbouring uplands, causing a reduction in vegetation. This has caused considerable erosion. | | Facts and Figures: In 2011, the Pearl river delta accounted for: • 4.2 % of China's population • 9.2 % of China's GDP • 26.7% of China's total exports In 2007 45% of the province's rainfall was classified as acid rain. 50% of waste water is left untreated before being deposited into the river, unlike the national average which is said to be 40%. The region employs 30 million people in manufacturing industries. | |
| Effects: | | Solutions: | |
| Political The environmental protection bureau has classified the situation as severe and are saying that the government are taking measures to reduce pollution. The cause has been related back to the local government officials, who are still trying to achieve a high level of economic growth. | | What has/could be done? By whom? The environmental protection bureau says the government is committed to taking the necessary measures to reduce pollution such as: 1. Higher sewage treatment 2. Stricter pollution regulations on factories 3. Tougher national regulations on vehicle emissions | |
| Economic While the economy is still growing, pollution may negatively affect said growth. Air pollution can affect the health of factory workers and food production. Tourism may also be reduced as cultural landmarks could be destroyed by acid rain. Lastly, water pollution will impact tourism, property values, recreational businesses, commercial fishing and industry in general, as industry often relies on a clean water supply. | | Are they Sustainable? Why/Why not? 1. Higher sewage treatment has been proven to be sustainable, as the nutrients in the organic matter are recycled and used as fertilizer. Additionally energy is also generated with close to zero emissions. 2. While stricter pollution regulations may reduce pollution, it can also be more expensive for factories or reduce their production output. While it is environmentally sustainable, it might have a negative economic effect. 3. Tougher national regulations on vehicle emissions are definitely sustainable as there are enough alternative less environmentally damaging methods of transportation. | |
| Environmental Water pollution can cause the oxygen levels in water to be reduced by such an extent that fish can no longer breathe. If small fish absorb pollutants, it can affect the entire food chain as they are then consumed by larger fish. Air pollution is known to cause excessive CO2 emissions, causing a greenhouse effect. This leads to a rise in temperature, which can have a negative effect on native flora and fauna, which are adapted to specific environmental conditions. Lastly, Acid rain leaches aluminum from the soil. That aluminum may be harmful to plants as well as animals. Acid rain also removes minerals and nutrients from the soil that trees need to grow. At high elevations, acidic fog and clouds might strip nutrients from trees' foliage, leaving them with brown or dead leaves and needles. The trees are then less able to absorb sunlight, which makes them weak and less able to withstand freezing temperatures. | | Social The pollution in the Pearl river delta may have disastrous effects on human health, as infectious diseases can be spread through contaminated water. Breathing polluted air also puts you at a higher risk for asthma and other respiratory diseases. Although acid rain cannot directly harm humans, the sulphur dioxide particles in the air can encourage chronic lung problems, like asthma and bronchitis. | |
| Possible Exam Question: Paper 12 2016 Oct_Nov | | For a named area you have studied, describe the economic activity which takes place and explain how it is threatening the local natural environment. | |