

Environmental issues and their management in Beijing

Urban environmental issues and management 3.2.3.7

Beijing, China

Beijing's population has grown from 3.9 million in 1950 to approximately 21.7 million by 2016. The growth has been at around 20% per decade and some experts believe that by 2050 the population will reach 50 million people. Beijing is China's cultural and political centre and in the last two decades of the twentieth century it was transformed into a bustling commercial and tourist centre. As a result, large numbers of rural migrants moved to Beijing in search of a secure future.

As a consequence of the increasing urban growth there are many environmental issues and some strategies to tackle the problems:

Poor air quality

Over 5 million cars travel on Beijing's roads every day leading to high quantities of particulate matter forming a smog layer over the city. This combines with industrial emissions and smoke from coal-fired power stations resulting in many days where visibility is very poor and health risks to people are high. Solutions to this have included relocating some of the power stations to the outskirts of the city; however, winds blowing from the north still blow the smoke towards central Beijing. To tackle the number of cars on the roads, the government has introduced a system whereby half of the city's cars will be removed from the roads on days when levels of pollution are high. This is done based on number plates whereby even numbers may travel one day and odd numbers the next.

Restaurants which offer open-air barbecues will be ordered to close temporarily and fireworks will be banned throughout the city and for red warning days schools will be closed. In the month before the Beijing Olympics of 2008 heavy emission factories and road traffic was ordered to cease in order to clear polluted air over the city that was thought to pose a risk to marathon athletes, such was the health-hazard posed by poor air quality.

Waste

With an increasing middle-class consumer population, waste is on the increase. Lack of available space in the city itself has resulted in the waste being dumped on the rural urban fringe. An example of a suburb affected in this way is Thongzhou. Beijing produces 23,000 tonnes of waste each day, equivalent to the weight of nine filled Olympic-size swimming pools. The city generates trash at a rate that has risen twice as fast as its population growth over the past few decades. Much of the waste contains chemicals which contaminate the soil, leaving

former agricultural land potentially hazardous. An attempt to tackle the waste problem has been agreed. Incineration will reduce the size of landfills but there is concern that whilst the waste issue will be improved, the air quality will deteriorate as a result.

Acid rain

With China being the biggest user of coal power stations, the sulphur dioxide emissions are high and are impacting on the natural and built environment. Many old colonial buildings are stained yellow as a result of acid rain and are deemed unattractive, with a potential long term impact upon tourist numbers. Lakes around the city have become toxic with raised acidity. To solve this problem, the government has phased out the older less efficient power stations and replaced them with newer power-generation technology that produces fewer emissions.

Water pollution and sewage issues

This is an increasing problem with large amounts of pollution coming from chemical and pharmaceutical enterprises. Untreated, these wastes can lead to high levels of carcinogens in the drinking water and often the water is being left untreated. Not only is this a health problem but is contaminating fresh water courses and affecting biodiversity. Soil is also affected and many of the contaminants bio-accumulate and their impact on farming produce could still be having an impact on health in many years to come. More robust regulations would obviously ensure that waste is cleaned before being released into the environment, however, it is believed that city officials may be adjusting data so that the city appears cleaner than it actually is.

Exam style questions

- 1. Evaluate the extent to which government strategies can improve the urban environment (9 marks)**
- 2. 'There are more challenges than opportunities associated with improving the environment in urban areas.' To what extent do you agree with this view? (20 marks)**

1. Evaluate the extent to which government strategies can improve the urban environment (9 marks)

Using Beijing as a case study will enable the candidate to assess the specific environmental problems it faces, address how they are being solved and to evaluate to what extent it has been successful.

Ideally, the candidate needs to look at a range of strategies to tackle the issues, but it is fine for the candidate to only look at one issue.

EXAMPLE – Air pollution is the most well-known environmental problem in Beijing. A range of solutions, regarding closure of services, reducing cars and building new, more efficient power stations can be discussed and their impact evaluated. A range of stakeholders should be considered when the evaluation is being written. Consider the national government, local authorities and planners, business owners as well as the affluent and less-affluent people who live there. This will enable a detailed evaluation to take place.

An overall conclusion should be applied analysing the extent to which the strategies have been successful.

2. ‘There are more challenges than opportunities associated with improving the environment in urban areas.’ To what extent do you agree with this view? (20 marks)

There is a need to have knowledge of specific environmental issues within a named urban area. Beijing is an ideal case study as reference can be made to waste and issues with disposal, water quality and sewage as well as poor air quality. The basis of the question is to give an overview of the issues but then to evaluate the solutions to the problems and to form a discussion around the solution – does it work? Are there too many challenges to overcome to solve the problem?

The order in which to answer is as follows:

1. An overview of the range of environmental issues facing Beijing and why this has occurred, with reference to large-scale rural-urban migration and the growth of a middle class consumer population.
2. For the three issues chosen – waste, water quality and air quality, outline the reasons for the issues and the impacts they have on the environment.
3. For each issue discuss the potential solution and evaluate their success:
 - Waste disposal – Waste is disposed in Beijing’s suburbs and much waste is now being incinerated to reduce the impact on the natural environment. Air quality has reduced as a result so an evaluation needs to be made of this solution. Is it worth the impact on the air?
 - Water quality – Industrial contamination causes public health concerns regarding drinking water and potential impacts on natural water sources and the soil. Regulations and laws are in place but concerns have arisen regarding their implementation and whether companies are adhering to these rules.

- Air quality – This is largely unmanageable for two reasons: urban growth continues, meaning that there is increased traffic on the roads and the overuse of coal powered power stations to generate power for industry and increasing energy use by the rich population is an issue. Improving the technology in the power stations is going some way to improving air quality, however, as population increases again and the coal power stations work harder, that technology will then stop being so efficient and particulate levels in the air will increase once more. Government strategies to reduce cars have caused social problems as city residents believe they are being penalised for a country-wide problem and that richer people will simply buy two cars (one even number and one odd) to defeat the system.
4. Finally, a conclusion should be reached evaluating the extent to which environmental issues in Beijing can be solved.