
Section A**Cluster 1: Sustainable Future and Climate Change**

- 1** Resource 1 shows India's urban population from 1911 to 2011. Resource 2 shows percentage of Gross Domestic Product (GDP) by employment sector in India, 1950 to 2010. Resource 3 is a factfile giving details about Cairo and Singapore.

- (a)** With reference to Resource 1, describe the changes in total urban population in India and the percentage of India's population in urban areas from 1911 to 2011. [4]

Answer Guide:

- Total urban population increased by 335 million [2m]
- Percentage of India's population in urban areas increased by 21% [2m]

- (b)** With the aid of Resource 2, suggest reasons for the change in urban population in India as shown in Resource 1. [4]

Things to note:

- Award 1 mark for an explanation using data from Resource 2 on the change urban population in India.
- Award a maximum of 1 additional mark for further development of each explanation.

Answer Guide:

- 40% decline in GDP by employment in agriculture might have encouraged more rural-urban migration [1m]
 - As agriculture is predominantly found in the rural area, a decline in employment in this sector causes rural population to seek employment in the urban areas instead. [1m]
- 28% growth in GDP by employment in services might have encouraged more rural-urban migration [1m]
 - The growth of services, which are usually urban-based, includes more education provision, better health care and even more shops. These become powerful pull factors for the rural population who are attracted to these services. [1m]
- 13% growth in GDP by employment in manufacturing might have encouraged more rural-urban migration [1m]
 - As manufacturing can be labour-intensive and often urban-based, it offers potential for employment, which would be a strong pull factor for the rural population to move to the city. [1m]

- (c) Explain how the change in urban population in India may pose challenges in its progress towards sustainable urban development. [4]

Things to note:

- Award 1 mark for each explanation of how the change in urban population in India may pose challenges in its progress towards SUD
- Award a maximum of 1 additional mark for further development of each explanation.

Answer Guide:

- Challenge for the environmental dimension - generation of massive amounts of untreated and uncollected waste [1m]
 - The escalating urban growth rates and lack of finances suggests that services such as waste collection may be inadequate to meet the needs of a large urban population. [1m]
- Challenge for the economic dimension – poverty [1m]
 - Lack of opportunities for formal sector employment, especially since the working age population is growing much faster than gainful employment opportunities. [1m] Hence, many may be involved in the informal sector, which leads to unstable and/or low incomes. [1m]
- Challenge for the social dimension – health issues/ lack of access to education/ healthcare services [1m]
 - Due to unsanitary living conditions (due to lack of infrastructure/ waste collection services), people may be more prone to certain diseases [1m]
 - Due to unstable/ low incomes, children may not be able to access educational opportunities/ people may not be able to access healthcare services. [1m]

- (d) Using Resource 3, suggest why the percentage of solid waste being collected is lower in Cairo than in Singapore. [6]

Things to note:

- Award 1 mark for an explanation using data from Resource 2 on the change urban population in India.
- Award a maximum of 1 additional mark for further development of each explanation.

Answer Guide:

- Higher population in Cairo (12 mil) compared to Singapore (5.75 mil) **OR** Higher population density in Cairo (19 386 pp per km²) compared to Singapore (7997 pp per km²) [1m]
 - The higher population/ population density in Cairo suggests that the city might be significantly more crowded and generates more waste in general, which could pose a greater challenge for the city in terms of waste collection [1m]
- Higher % of population living below UN defined poverty line in Cairo (8%) vs SG (0%) [1m]
 - Due to the difference in wealth level, it is likely that Cairo is less able to finance an extensive waste collection service for the city. [1m]
 - Individual households are also likely to be unable to afford paying for waste collection services due to their low/ unstable income [1m]

- Higher number of informal slum settlements in Cairo (9) vs SG (0) [1m]
 - Slum settlements indicate a lack of financial resources to provide public housing and thus also an inability to provide for waste collection services [1m]
 - These slum settlements would also unlikely be part of any waste collection route due to their informal and disorganised nature. [1m]

(e) Explain the limitations of landfills as a waste management strategy. [4]

Things to note:

- Award 1 mark for identification of each limitation.
- Award a maximum of 1 additional mark for further development of each explanation.

Answer Guide:

- Leakage of toxic leachates - This can result in the contamination of both surface and groundwater, posing environmental and health-related challenges.
- Infestation by rats and fermentation bacteria -This results from leaving refuse open to air, causing health risks, as well as may generate methane to the extent of causing a fire hazard.
- Landfill sites place pressure on available space – limits development of land for other purposes, potentially limiting economic and social development.

Cluster 1: Sustainable Future and Climate Change

- 2 Rotterdam is a city in the Netherlands. Once a bustling port city, manufacturing and port employment started to decline in the 1980s. As such, the government decided to improve the image of Rotterdam through redeveloping public areas and residential neighbourhoods. Two neighbourhoods which had undergone redevelopment were Oude Noorden and Spangen.

Resource 4 shows the changes in selected neighbourhood characteristics in Oude Noorden and Spangen. Resource 5 shows photographs of the Kop van Zuid, a port district close to the city centre that has undergone redevelopment. Resource 6 shows the increase in property tax values in Rotterdam from 2000 to 2008.

- (a) Compare the changes in the neighbourhood characteristics of Oude Noorden and Spangen as shown in Resource 4. [4]

Answer Guide:

Oude Noorden	Basis of Comparison	Spangen
Similar decrease in unemployment percentage (from 10% to 6% in Oude Noorden)	Change in unemployment percentage	Similar decrease in unemployment percentage (from 11% to 6% in Spangen)
Similar extent of increase in share of immigrants (7% increase in Oude Noorden)	Change in share of immigrants	Similar extent of increase in share of immigrants (5% increase in Spangen)
Similar trend of change, but extent of increase is smaller in Oude Noorden (17% increase)	Change in share of inhabitants satisfied with their area	Similar trend of change, but extent of increase is larger in Spangen (35% increase)

- (b) Explain the economic reasons for urban reimagining efforts in cities like Rotterdam. [6]

Answer Guide:

- **Improve the negative image of the city due to the negative economic effects of deindustrialisation**
 - Post-industrial cities like Rotterdam have experienced deindustrialisation because of:
 - Closure of factories in cities. In many industrialised nations, this happened because the inner city zones of these urban areas were increasingly characterised by high labour costs and issues corresponding to the rise of labour unions, resulting in them losing their attractiveness as prime manufacturing locations and the eventual closure of factories.
 - Migration of jobs to other areas of the country and/or abroad. This happens as suburban and rural locations in the country and/or urban areas of other countries (usually newly industrialised economies and emerging economies) became more attractive to foreign firms and investors as factory locations for manufacturing, due to lower labour costs, weaker labour unions, and attractive incentives by the governments of those locations.

- Replacement of jobs with technology. E.g. Integration of automation with manufacturing processes meant that fewer workers were needed to work in manufacturing plants, and the consequent reduction of the manufacturing sector's importance to the local economy.
- As a result of deindustrialisation, these cities started to face deterioration of urban environment and associated negative socio-economic impacts that result in negative images of these cities.
- **Improve urban image in response to heightened competition between cities for global investments**
 - As cities around the world become increasingly interconnected, largely due to improvements in transport and info-communications technologies (processes that facilitates globalisation), the ease of comparison between cities as places for investment, work and play means increases the need to improve their attractiveness to foreign firms, investments and workers in order to stand out among other cities and drive economic development in their cities.
 - As such, such cities implement strategies for urban reimagining to promote specific positive images of cities that function as unique selling points to attract urban tourism, people, and investments into the city.

Note: Max of 4 marks if only one distinct economic reason is covered.

- (c)** Suggest how the redevelopment of the Kop van Zuid district has improved the urban image of Rotterdam as seen in Resource 5. [4]

Answer Guide:

- The change of the area from port district to business district has created a modern and refreshed image of the city that is welcoming to businesses and investors.
- The change of the area from industrial buildings and warehouses with ships to an area with modern architecture and skyscrapers in a waterfront district has made the area more aesthetically pleasing. This has then improved the urban image of Rotterdam to investors and tourists.
- The change of the area to include a bridge connecting two parts of Rotterdam, where previously there was none, has improved the accessibility of people moving across the city and hence its urban image.
- The change of the area to incorporate more greenery in the urban landscape has improved the environmental quality of the area as well as the aesthetic environment, thus improving its urban image.

Note: 1 mark for identification of change, and 1 corresponding mark for explaining how the change has improved urban image.

- (d)** Describe the variations of the percentage increase in property tax in the city of Rotterdam seen in Resource 6. [3]

Answer Guide:

- Majority of the area experience a property tax percentage increase of 60% – 100%.

- The highest property tax percentage increase in the North-Central and Central area of Rotterdam, near and around Oude Noorden, with some places exceeding 120%.
- Lowest property tax percentage increase in the Eastern part of Rotterdam – along the Eastern boundary of Rotterdam, the increase is less than 60%.
- Western Rotterdam experiences greater increase in property tax rates as compared to Eastern Rotterdam. In Western Rotterdam, the increase in property tax rates can reach to nearly 120% or higher, but in many sections of Eastern Rotterdam, particularly its eastern boundary, increase of property tax rates are less than 60%.

(e) With reference to Resources 4 to 6, explain the possible impacts of urban reimagining on sustainable urban development of Rotterdam. [AO2]

[5]

Answer Guide:

- **Urban reimagining has possibly improved economic sustainability of Rotterdam:**
 - [From Resource 4] The decrease in unemployment percentage by 2010 shows that urban reimagining has likely increased the number of jobs available for locals in the area, and a higher rate of employment and improved wages would directly increase the amount of money circulating in the local economy, ensuring economic sustainability in the long run.
 - [From Resource 5] The redevelopment of Kop van Zuid district is likely to have attracted more foreign investors and businesses to invest in the city, and with the increase in foreign direct investments (FDI), this would ensure economic sustainability of Rotterdam.
- **Urban reimagining has possibly improved social sustainability of Rotterdam [1]:**
 - [From Resource 4] This is evidenced from the increase in share of residents that are satisfied with the neighbourhood since reimagining happened.
- **However, urban reimagining has also possibly had negative implications on socio-economic sustainability:**
 - [From Resource 6] Most areas of Rotterdam have seen an increase in property tax, which has direct implications on home owners and home rentals, since the cost of housing is likely to have increased rapidly. This would mean that homes are likely to become less affordable, reducing economic sustainability especially for the poorer residents of the city, and reducing therefore access to proper and safe housing in the long run.
 - [From Resource 4] The increase in number of immigrants in redeveloped neighbourhoods may cause heightened social tensions between locals and new immigrants, especially if the new immigrants are of a higher socio-economic status relative to the locals in the same neighbourhood.

Section B**Cluster 1: Sustainable Future and Climate Change**

- 3** Evaluate the extent to which strategies to improve the lives of slum dwellers can be successful.

[13]

Strategies for consideration:

- Improvements to existing standards of living of slum dwellers
- Resettlement
- Large-scale public housing
- Site-and-services schemes

Possible approaches:

Candidates could approach the question by making a judgement on whether some strategies are more effective than others through comparing the strategies in relation to criteria such as spatial extent/ scale of benefit, sustainability of benefits, degree to which root cause is addressed, etc.

Candidates could also approach the question by making a judgement on whether the same strategies have been more effective in some places than others through a consideration of two or more case studies. Candidates could evaluate whether the strategies in each case achieved the intended aims. Candidates could also analyse the unintended negative impacts of the strategies. Candidates could also analyse the contextual factors such as the scale of the issues, the political will of the authorities and the resources available, which may have contributed to the variations in success between these places.

Levels marked using Generic Level Descriptors for 13m H1 essays.