



# **GCSE Edexcel B Case Studies with Exam Prep**

## **Topic 3: Challenges of an Urbanising World**

**Megacity in an Emerging Country: São Paulo, Brazil**

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## Teacher's Introduction

This resource has been developed to provide case studies and exam preparation material to support the GCSE Edexcel B specification (1GB0) **Topic 3: Challenges of an Urbanising World**.

This detailed case study is on **São Paulo, Brazil** representing a **Megacity in an Emerging Country**, one with **high human development** based on the Human Development Index (HDI) classifications.

The case study includes a main content section which can be used as part of a lesson plan or distributed to students for self-guided research; a selection of ICT interactive links to further students' research around each topic and a set of Springboard Images and discussion questions (also available as a PPT file accessible by digital download) which makes a fantastic starter activity.

*A webpage containing all the links listed in this resource is conveniently provided on ZigZag Education's website at **zzed.uk/8834***



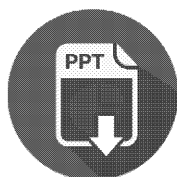
*You may find this helpful for accessing the websites rather than typing in each URL.*

The exam preparation section which follows the case study contains a summary table, bringing together all of the key facts and figures relating to the case study; rapid-fire revision questions (with answers) to help recall and retention of the main points; and an exam-style question and mark scheme, written in the style of the Edexcel B sample material, so that students can practice answering questions relating to case studies and applying relevant knowledge in their answers.

The resource may be used as a source of reference for the required case studies for individual study, or for group work leading to discussion or debate. Subheadings in the information sections are designed to enable tabulated comparisons of social, economic and environmental impacts.

Another detailed case study is available for this topic area representing a megacity in a developing country, one with low human development:

- Nairobi, Kenya



**A PowerPoint presentation containing the Springboard Images starter activity to accompany this resource is available as a free digital download. Just register for free updates using the link below to download all available content for your school or purchasing site.**

November 2018

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## Part 1: Case Study



### Content

#### Background



Figure 1 – location of Brazil in the world

São Paulo is a city in the state of São Paulo. It is located in the south-east of Brazil, on the edge of the Brazilian Highlands and close to the Atlantic coast. Along the coast to the north is the famous city of Rio de Janeiro; while along the coast to the south is the **sustainable** city of Curitiba. Together, these areas form one of the most densely populated and economically active parts of Brazil.

#### Significance

The Globalization and World Cities Research Network categorises São Paulo on the level of London or New York in terms of significance, but vitally important world together through flows of money, people and information. São Paulo has been a global city since 2002.

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São Paulo is important...

Nationally	Regionally	Globally
It has the largest GDP of any city in Brazil – \$136 billion in 2011.	It has the largest GDP of any city in Latin America.	It has the tenth largest GDP in the world.
Much more ethnically diverse than other areas of Brazil – in particular São Paulo has large Italian and Jewish communities.	It is the largest urban area by population in all of the Americas – 11,895,893 people live here!	Predicted to be the largest urban area in the world between 2011 and 2021.
36% of Brazil's goods and services are produced in the wider São Paulo state.	Largest healthcare hub in Latin America – with 217 hospitals and many specialist research centres.	The São Paulo region is responsible for 60% of Brazil's exports and imports.
It acts as the financial capital of Brazil, and houses the headquarters for many banks and financial companies.	It is the largest fashion week in Latin America.	63% of the foreign operations in Brazil are based in São Paulo.
São Paulo has much lower crime rates than other Brazilian cities, making it popular for business travel and tourism.	In the top three of most visited cities in Latin America.	It has the largest carnival parade in the world.

### Connectivity

São Paulo has largely grown without any urban plan – with housing and businesses in a relatively haphazard way. The roads around São Paulo reflect this, as you can see in Figure 3. There are many roads circling the city, connecting it to the interior of Brazil, the coastal port cities of Rio de Janeiro and Curitiba. Figure 3 also shows the two airports and the highway to Santos, São Paulo, which encourage goods and people to flow through the city.

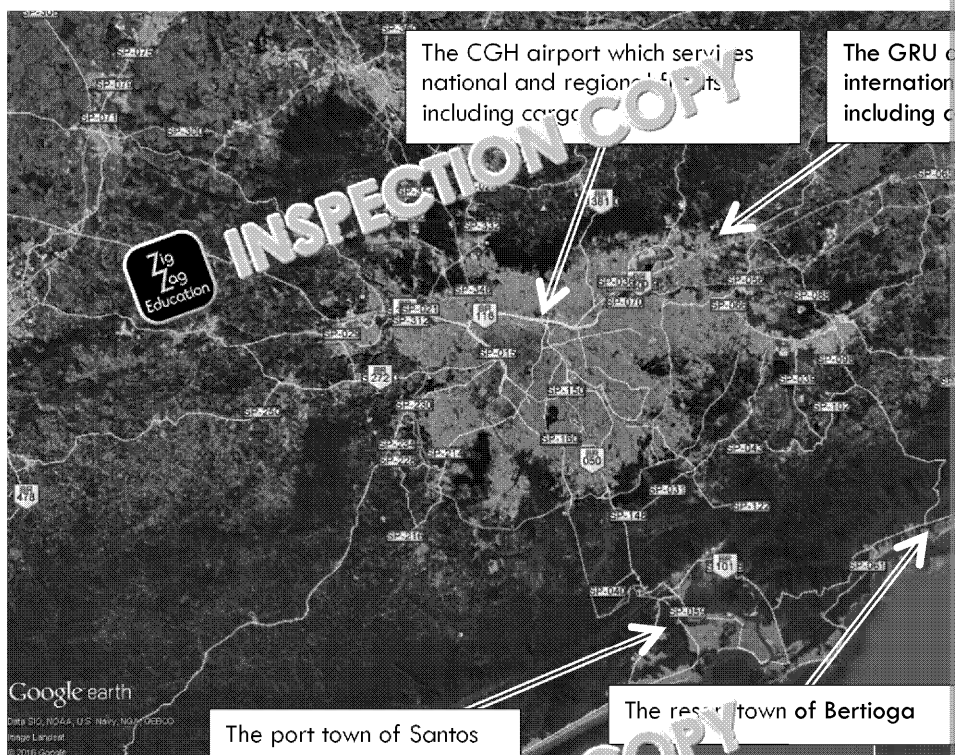


Figure 3 – A satellite map of São Paulo

Residents in São Paulo also stay connected with the wider world through use of the internet and mobile phones like smartphones. As it is a communications hub and technology centre, São Paulo has a high level of internet use, and young people especially will use social media to communicate with people all over the world.

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## Structure and function

São Paulo has a slightly different urban structure than cities in western countries. It has grown so fast that often the city cannot keep up with the planning that is needed. High-income commerce are located along key **infrastructure** routes, while low-income residential areas are in the outside areas. Recently, industrial parks and malls have sprung up along the outskirts.

Figure 4 shows a model of what São Paulo's urban structure looks like. Models were developed in the 1980s and 1990s to show how Latin American cities differ from cities in western countries. São Paulo is along the coast, the actual locations of these zones vary – if you look at the zones on a map of the city, it wouldn't look exactly like this!

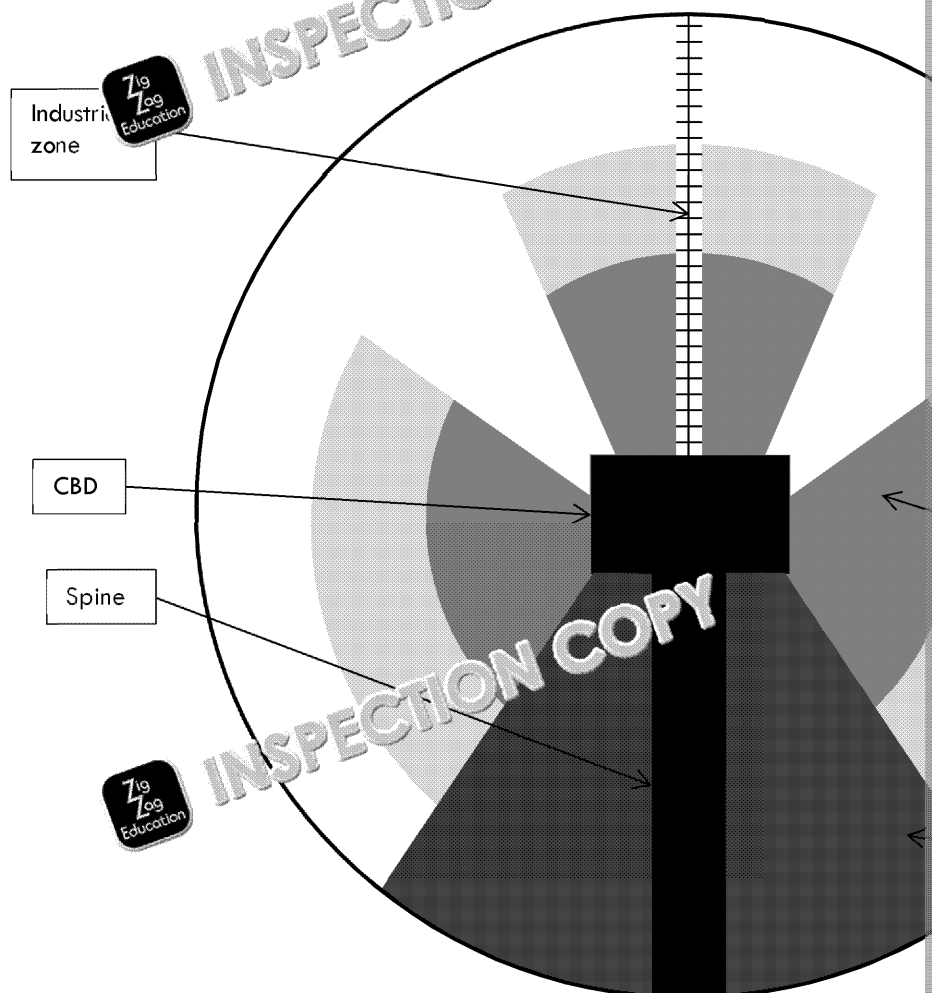


Figure 4 – model of São Paulo's structure

	Description	
<b>CBD</b>	The main hub of the city, with shops, offices and entertainment. Buildings are historic. See Figure 5.	Down the coast
<b>Spine</b>	Similar to the CBD, but this has grown up along a major transport route. The buildings here are usually more modern due to redevelopment.	West of the CBD
<b>Industrial zone</b>	Areas of the city that grew in the 1970s as factories sprung up.	South of the CBD, the industrial zone
<b>Elite housing</b>	Areas of expensive housing, for the richest inhabitants. Excellent infrastructure and services.	South of the CBD, the elite housing
<b>High-class housing</b>	Areas of good housing, with good infrastructure, usually inhabited by the middle class.	North of the CBD, the high-class housing
<b>Low-class housing</b>	Areas of poor housing for lower-income inhabitants. Infrastructure is patchy, and houses are likely to date from the 1970s.	Far east of the CBD, the low-class housing
<b>Squatter settlements</b>	Self-made houses on poor or marginal land, built from the 1990s. People here are likely to be low-income, working in the informal economy or rural migrants. See Figure 6.	South of the CBD, the squatter settlements

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Figure 5 – São Paulo's CBD

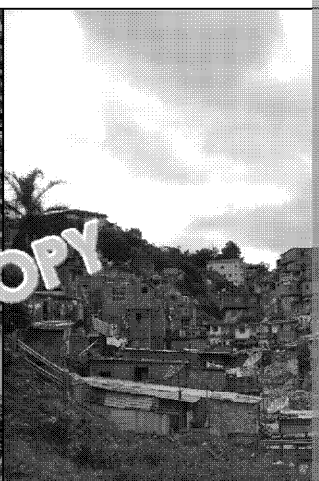


Figure 6 – Pariásópolis – a

## Urban Change

### History of São Paulo's growth

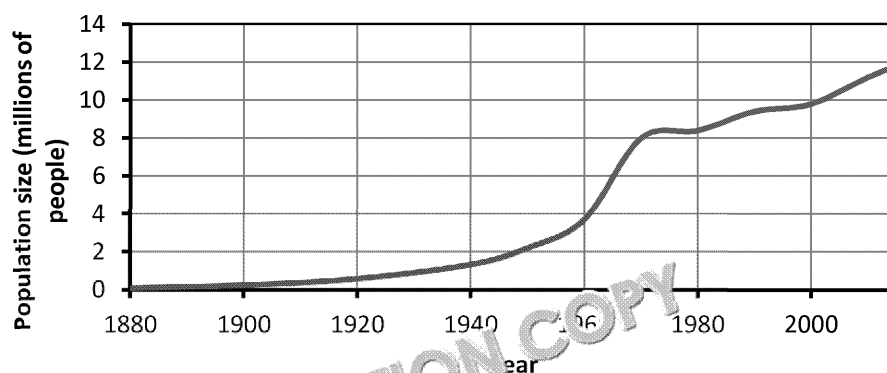
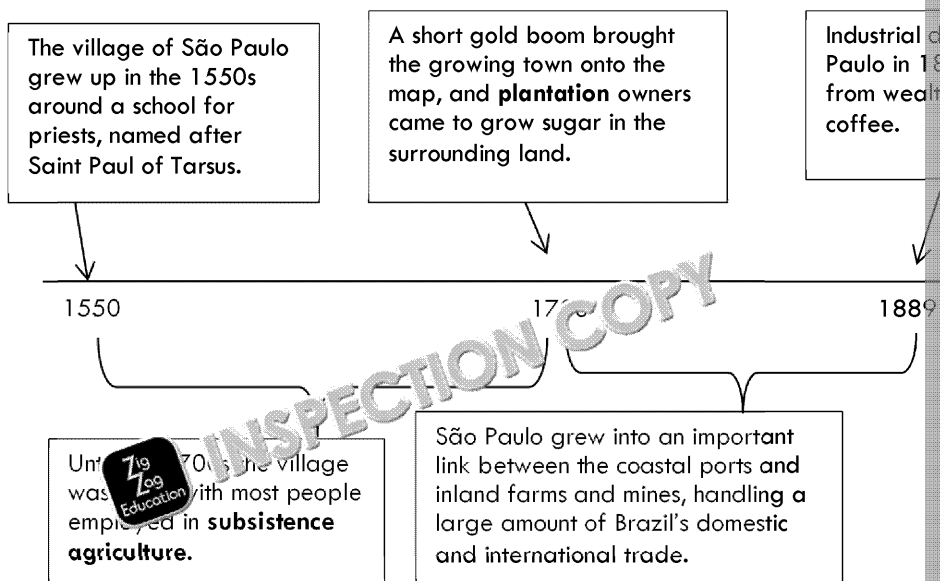


Figure 7 – population change in the city of São Paulo (not the wider urban area)

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## Causes of growth

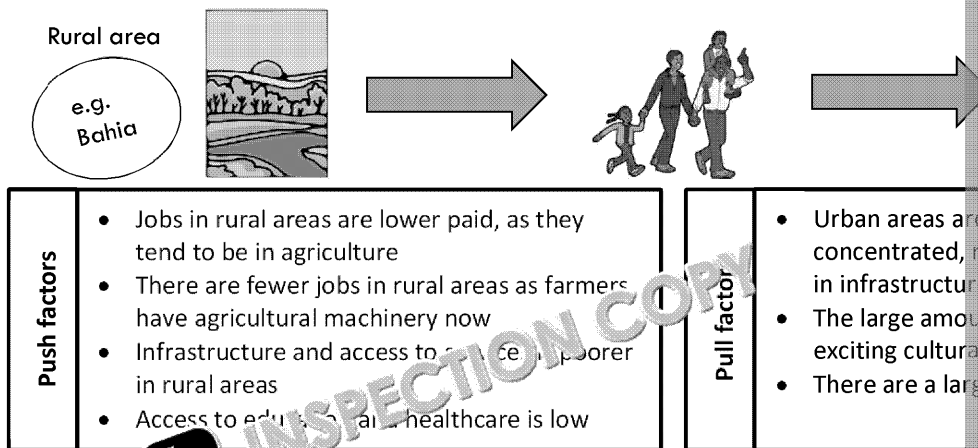
There are two causes of population increase in São Paulo: natural increase and migration.

### Natural Increase

The birth rate in Brazil is low, only 15 people per 1,000, but the death rate is even lower, at only 6 people per 1,000. This is due to increases in life expectancy, reductions in maternal mortality and infant mortality, which are due to improved healthcare. Cities are often targets for healthcare initiatives as a large population can be accessed easily, and infrastructure is often more plentiful.

### Migration

Migrants have come to São Paulo from other countries and from within Brazil. International migration increased after industrialisation in the 1890s, with many people leaving Europe for the opportunities offered. São Paulo offered a large population of Japanese people, of whom many migrated from 1908. São Paulo experiences lots of international migration. Recently, rural-urban migration has been a major cause of the population growth.



## Impacts of migration

São Paulo is the most multi-racial city in Brazil, due to its historic waves of migration. 60% of people in the city have Italian ancestors, and the culture of European cities. In the São Paulo dialect there is much Italian slang. Incoming migrants make the city relatively youthful, as it is people aged 20–40 who are more likely to migrate for work.

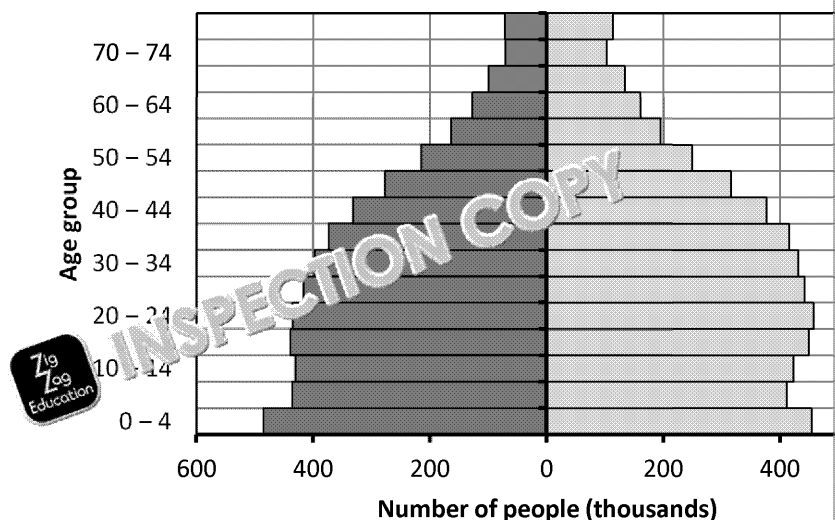


Figure 8 – population structure of São Paulo in 1998



Immigrants have contributed to positive aspects such as cultural life, and  **sprawl** and **congestion**. At peak times, you could be in a 150 mile traffic jam! The road network has not been able to keep pace with the huge population growth. There is a lot of pressure on housing – prices for houses in São Paulo grow by around 10% per year. It is more expensive to rent an office in São Paulo than it is in New York! Such expensive squatter settlements, called favelas in Brazil, where people build their own houses on land around the city. Clean water supply, something which is already under pressure, has been made worse by the population growth.

### Impacts of growth

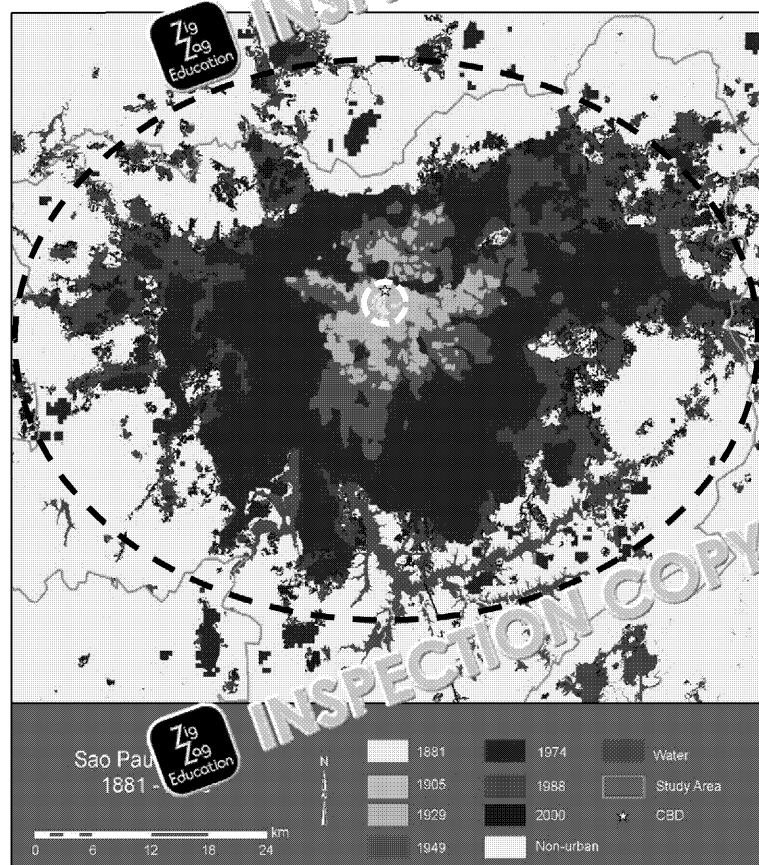


Figure 9 – the growth of São Paulo

Figure 9 shows a small city (which was a very large city in the USA, has the same population as São Paulo today, has 100 people per square kilometer as Shanghai).

However, as the city grows, it demands large areas of land in the suburbs, the experience of urban growth is driven by the need for land.

There is also a fringe, as natural areas are converted into urban areas down for timber and environmental degradation.

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## Opportunities

The city provides many opportunities to its residents in terms of access to jobs and services. Some of these are outlined in the table below.

<b>Employment</b>	São Paulo is home to the headquarters of many Brazilian companies, and is also the regional base for many foreign MNCs – there is a great number of jobs here.
	The well-developed tertiary sector hosts around 90,000 companies, and the city hosts the catering and events industry.
<b>Access to healthcare</b>	Healthcare is free for all Brazilian citizens, although many people choose to use private healthcare.
	São Paulo is home to 105 hospitals, and some of the best in the country, meaning that people come here from all over the country for treatment. 90% of children receive vaccinations.
<b>Access to education</b>	School is compulsory for all Brazilian citizens, and in 2015 the city launched an ambitious redevelopment programme which hopes to make the education system more efficient.
	The universities in São Paulo are world-renowned.
	95% of adults in São Paulo have basic standards of literacy.
	Children from low-income families can be eligible for free school supplies and transport to school.
<b>Access to resources</b>	97.8% of homes have access to electricity, although in some areas there is an illegal connection.
	There are few power outages in São Paulo, unlike in more rural areas.
	98.4% of the population of São Paulo have access to clean water.

## Economic Development for Brazil

While Rio de Janeiro may be the laid-back tourist destination, and Brasília the government capital, São Paulo is the Brazilian city of business. São Paulo is an important driver of economic development as a whole. The city is responsible for around 30% of Brazil's GDP, and its well-developed tertiary sector and specialisms in banking. Although the city is no longer the major employer in the city anymore, São Paulo is surrounded by smaller municipalities where trading deals and finance deals are conducted in the city. Having attractive infrastructure is key to the development of Brazil as a whole.

## Challenges

### Housing

Housing shortages and low incomes in São Paulo mean there are two types of housing:

	Name	Number	Definition	Notes
1	<b>Favelas</b>	1,600	Self-made housing on informal land (usually on the <b>periphery</b> ), with few services	These have only really developed in São Paulo, but have spread to other cities. Even efforts to resettle people from a favela is cleared only to be replaced by another.
2	<b>Corticós</b>	1,900	Slum <b>tenement</b> buildings in the city centre	Where low-income families live. Many of these are over 100 years old.

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São Paulo is home to 25% of all the favelas in Brazil – nearly 11% of the city. They are characterised by small streets, self-made houses, and a lack of services. Some have existed for a long time, some services may have been installed, either through illegal tapping of water pipes and electricity lines, and some people live in houses made from cardboard to bricks. Favelas are usually inhabited by the poor. People who live in them are vulnerable to disease.



Figure 10 – favelas in São Paulo

Many people living in these squatter settlements are from rural areas, but many also come from favelas from other areas in São Paulo itself. High living costs and shortages of services mean that if someone loses their job, families may have no option other than to move to a favela.

**Favela do Moinho** is a small favela in central São Paulo – 6,000 people live between two poor-quality self-made houses, and most of the inhabitants live in houses made of cardboard from the street. This creates a dangerous fire risk, and the lack of ventilation causes diseases like **dengue fever**. Water and sanitation services are only supplied through illegal 'tap ins' to existing infrastructure around the water pipe, this means that some people have no water at all. The community campaigns for better infrastructure, but are reluctant to do more than temporary measures, as they would rather these people stay in the favela than move to the outskirts of the city. For people who have lived here all their lives, however, moving would be a difficult decision.

Many people blame poor urban management for the growth of favelas. Although migration plays a role, it is argued that in the 1950s the official policy of the government was to focus on economic development and the promotion of industry rather than improving the living conditions of the poorest.

### Services and infrastructure

- Healthcare**  
 Healthcare is of a reasonably good standard in São Paulo, although many high-income residents opt for private healthcare of better quality than the public healthcare. Because not all drugs are on the Brazilian government's universal healthcare list, residents in São Paulo are often forced to sue the government in order to access medicines like insulin. Additionally, waiting times in hospitals and clinics are long. Many people from rural areas travel to São Paulo for healthcare.
- Education**  
 Although education is free in São Paulo up to the age of 14, many children do not attend school. Attendance in the city is actually falling even as the population rises. Children are less likely to go to school, as there are fewer schools near their homes. Many children have to work for a living. A lack of education can perpetuate a cycle of poverty. Many children have low-paying jobs when they grow up, and may have to stay in the favela.

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- **Water and sanitation**  
Providing access to clean water and sanitary services is also a challenge in São Paulo. Many sewer systems in the city are old, and have illegal additions, meaning that they break and overflow often. Many favelas have no sanitary facilities at all, meaning that human waste is washed into the city's rivers.

**Did you know...**  
**Paulistanos** are very wealthy. On average each person uses more than 100 litres of water a day, more than citizens in Germany.

Up to 40% of the city's water supplies in São Paulo are lost through leakage, in part due to old systems, but also due to people syphoning off illegal supplies. Additionally, water is not used **efficiently**, due to city authorities not wanting to impose limits on the population, as this would be unpopular. In times of drought, São Paulo comes under strain, leading to water shortages. In low-income areas, people wait for their taps for several days at a time.

collected,  
untreated  
35%

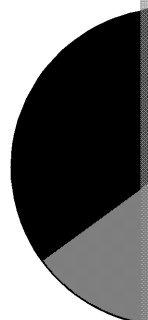


Figure 11 – treatment of wastewater

- **Energy**  
São Paulo city alone consumes 17% of Brazil's energy, and much of this is **power**. In times of drought the turbines can't generate enough energy, meaning people may suffer power outages. Fire safety is an issue as electricity supply is illegally taken from overhead cables.

### Jobs and crime

In 2016 the unemployment rate in São Paulo was quite low, only around 4.33% of the population. However, as recently as the start of 2015 it was only 4.33%, so this shows a recent increase in unemployment. People in São Paulo report having to queue just to get into a job centre, and the lack of work and social security provision means that when people don't have jobs they often can't pay their rent, and so are forced to live in the favelas.

Lack of jobs centres  
– people are left  
other way to  
behind by the  
infamous for g  
Organization  
'epidemic' level

In many cases, it is not that there are not jobs in São Paulo, but that people don't have the skills for the jobs that there are. As manufacturing businesses are no longer in the city, and the service sector demands high levels of education, low-income workers or people who may have left school are at a disadvantage in the job market.

For those left behind, the informal economy is often the only way that these people can survive. It is estimated that 43% of jobs in São Paulo are in the informal sector. The informal economy encompasses **street vendors**, people who sell goods, crafts-people, repair workers, or people who work for employers. Informal work is bad for both people and the government – because there is no formal education, but it means they have few employment opportunities and can survive. For the city, having so many people in the informal economy means a loss of tax revenue.

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## Environmental issues

- Waste disposal

São Paulo has a waste problem – nearly 10% of Brazil's waste is generated every day. São Paulo has strict environmental laws, meaning that the **landfills** in the city are not in use at the moment, meaning that trucks must travel to neighbouring towns to dispose of waste. The formal waste recycling sector of this is done by informal waste pickers.

The waste problem is caused by two things: increasing amounts of waste and a lack of infrastructure to manage it.

- Increasing amounts of waste are caused by increasing population in the population size of São Paulo, as well as the growth of the middle class and adoption of **consumer culture**.
- Lack of infrastructure such as waste collection services and waste recycling plants are caused by a lack of planning and funds. The city authorities in São Paulo spend less on waste collection than New York, Tokyo and Mexico City. From 2002 to 2006 there was a tax on city residents to pay for these services, but this was abolished as it was unpopular.



Figure 1

Poor waste management impacts the whole of the city – contributing to water pollution, and increasing the emission of **greenhouse gases**. This leads to **environmental degradation** and negative impacts on human health. The presence of litter can also put off tourists and business people from visiting the city.

- Congestion  
São Paulo is a city of cars, they are seen as a **status symbol** for the middle classes, and are much more reliable and fast than the over-stretched public transport of buses and underground trains. Because the roads in the city were built without an overall city plan, many people find they have to commute right through the centre of the city, leading to big traffic jams.

- Air pollution

Air pollution in São Paulo is very bad, with most people in the city saying it is a major concern for them. In the 1980s this was caused by factories burning fossil fuels for energy, but as there are few factories in the city anymore, over 90% of air pollution comes from cars.

The large volumes of traffic in São Paulo emit all kinds of dangerous gases, reducing the air quality and increasing the amount of particulates in the air to twice the safe level recommended by WHO. Because of the climate conditions and topography of the area, this air pollution gets trapped in the city, leading to smog. This can be damaging to people's health. Children and elderly are particularly at risk. In 2011, it was estimated that 4,655 people died from air pollution in São Paulo – that's more than the deaths from AIDS and breast cancer combined.

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- Water pollution

Although there are legal protections around the reservoirs which supply the city, these are not well enforced, and so favelas have grown in many of these areas, discharging sewage directly into the rivers. Of the sewage that is collected, only 58% is treated. Of the courses in São Paulo have been badly polluted since the 1970s, and although the two main rivers – the Tiete and the Pinheiros – have prompted outcry in recent years, the improvement in their condition have been slow.

### Inequality

São Paulo is a very unequal city, as can be seen in Figure 14.

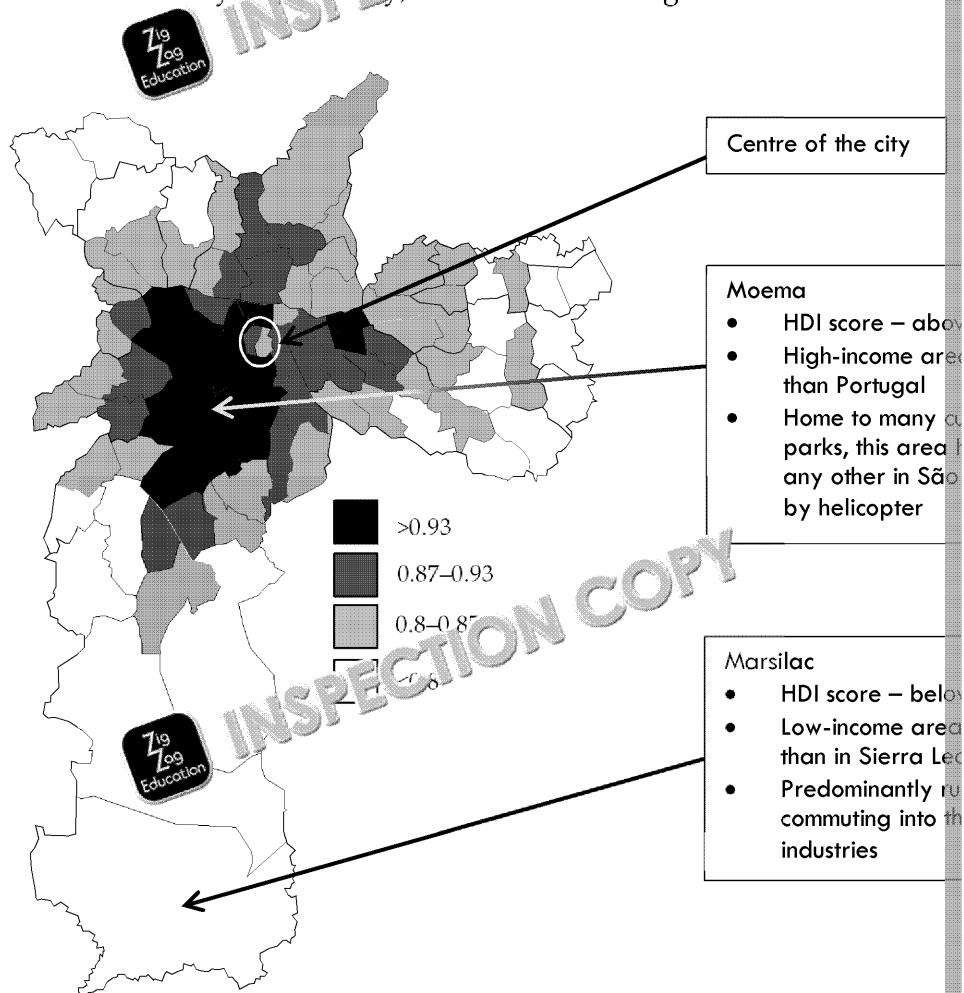


Figure 14 – variation in HDI scores for 2007 – a high score shows the area is more developed

The periphery in São Paulo is one of marked inequality when compared to the centre. This is because in the 1960s, urban redevelopment favoured knocking down low-income housing and moving families to the outskirts of the city. These suburbs had few services and high levels of deprivation and resentment. This pattern of core-periphery inequality is still evident today.

However, where favelas still exist in the inner city, these are usually very close to the centre. In São Paulo, the rich live in the city centre. Fear of crime often leads the richest people to live in separate gated communities, travelling by helicopter and living and working in gated compounds with their own private security guards.

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## Urban Planning

Historically, São Paulo has grown without any urban plans. This is one of the problems that favela settlements are such a problem. Growing public pressure and increasing urbanisation have forced the city authorities to look at ways of improving the lives of people living in favelas.



Figure 15 – slum upgrading in São Paulo

Since the 1980s, slum upgrading has been the focus to improve lives in favelas. This has been made available from national, state and city governments to implement the process. Figure 16.



Figure 16 – how slum upgrading works in São Paulo

Of particular importance is stage 3, which gives people living in the favelas a legal address, fight for goods and services. It also allows them to enter into the city economy. Once they have a registered address, can set up legal businesses and pay taxes. The Barrio Legal project in São Paulo has won rights for 40,000 families, and won awards from the UN for its work.

Slum upgrading is not only easier and often cheaper, but avoids breaking up communities and moving people from their places of work. In the favela of Paraisópolis, many people live in the high-income areas of the city, so to move these people out to the rural-urban fringe would increase commuting costs. The importance of community empowerment and leisure time has been recognised by the city government, and they encourage favelas to vote in the municipal elections with local authorities. Slum removal still occasionally occurs in the city once the land rights cannot be assigned (e.g. the landowner does not want to sell their land on a steep hillside), or the land is environmentally important (e.g. it surrounds a park).

There are two main reasons why São Paulo has not been able to remove the poor from the city:

1. Slum removal is expensive.
2. Slum removal is often resisted by the poor.

Slum removal is expensive because São Paulo has a high cost of land. Removing the poor from the city would require viewing the land as a commodity, needed to be sold to the people who can afford it. The peripheral areas of the city are the most expensive transport links.

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## Sustainable Management

The role of government policies in improving the quality of life within the city.

Top-down		
Description	The São Paulo city government are responsible overall for the management of the city. They collect taxes from residents and receive funds from the Brazilian and São Paulo state governments.	Comprehensive
Urban issues tackled	<ul style="list-style-type: none"> <li>Large scale infrastructure, e.g. water supply, sewerage, electricity, waste, transport.</li> <li>Standards and monitoring, e.g. air pollution.</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>
Example of urban plan	The <b>BRT</b> (Bus Rapid Transit) system that was installed in 2004 had a large budget, and some of the infrastructure upgraded – such as specialised bus corridors and new ticketing systems.	In the built work
Advantages of this type of urban planning	<ul style="list-style-type: none"> <li>The city government sets law and planning regulations in the city, so can make sure projects are complemented by law.</li> <li>The city government have much larger funds – from taxpayers as well as the state and national governments.</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>
Disadvantages of this type of urban planning	<ul style="list-style-type: none"> <li>City mayors change every four years, and so each one may change the urban plans for the city, e.g. from 2008 to 2012, the focus in public transport was for rail systems, whereas the mayor from 2012 to 2014 pushed the expansion and upgrading of bus systems.</li> <li>The city officials are unlikely to have local knowledge about the areas that really need improving.</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>

**The 2014 Arco do Futuro** – combining top-down and bottom-up planning?

The next stage in São Paulo's urban planning is the creating a master plan, also known as the Arco do Futuro (Arch of the Future). This plan will focus on offering affordable housing and community space in many areas of the city, to solve the problems that local communities were actually facing. It involved identifying issues and solutions, and the city government ran thousands of consultations with residents.

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## Fact Table

Population	11,895,893 people – nearly 12 million
Population density	7,000 people per square km
Founded	1550s
Date of industrialisation	1880s
Population growth rate since 1950	150,000 people per year increase
GDP	\$136 billion in 2011 – tenth largest city by GDP
Number of ports	Two
Increase in house prices	10% each year
Economy	Mainly based on the tertiary sector
Proportion of children receiving vaccinations	90%
Adult literacy rate	95%
Proportion of homes with access to electricity	97.8%
Proportion of population with access to clean water	98.4%
Number of squatter settlements	3,500 = 1,600 favelas, 1,900 corticos
Proportion of the urban population living in favelas	11%
Number of people living in Favela do Moinho	2,000
Proportion of water that is collected and treated	21%
Energy consumption	17% of Brazil's energy
Unemployment	8.33% in 2016
Level of crime	'epidemic' according to WHO
Proportion of jobs that are in the informal sector	43%
Waste generated	10% of Brazil's waste
Number of cars	7 million
Deaths from air pollution	4,655 in 2011
Budget for slum upgrades	£450 million
Number of families the Barrio Legal programme helped	40,000

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<b>Age structure</b>	The proportion of people in different age groups
<b>Alpha city</b>	A globally significant city in terms of financial and economic power
<b>BRT</b>	Bus Rapid Transit – a system of public transport using dedicated lanes on specialist lanes
<b>Congestion</b>	The slow-flowing of traffic, caused by a lack of transport capacity
<b>Consumer culture</b>	Increased levels of shopping and general leisure time
<b>Corticos</b>	Slum tenement buildings in the city centre
<b>Dengue fever</b>	A virus spread by mosquitos that can be lethal
<b>Dumps</b>	Open air areas where waste is left
<b>Efficiently</b>	Using the least amount of resources to do something
<b>Environmental degradation</b>	The quality of the environment decreases due to habitat loss, or pollution
<b>Favelas</b>	Self-made houses on marginal land (usually without basic services)
<b>GDP</b>	The total value of the services and goods produced in a country over the course of one year. Expressed as US \$
<b>Greenhouse gases</b>	Carbon dioxide and methane – gases which contribute to global climate change
<b>Hydroelectric power</b>	The production of power, e.g. electricity, through the use of flowing or falling water
<b>Inequality</b>	Difference in quality of life, income or other resources between different groups of people
<b>Informal sector</b>	Business activities and transactions that are not regulated and do not have contracts or regulations
<b>Infrastructure</b>	The services and structures needed for social and economic development
<b>LGBTQ</b>	Lesbian, Gay, Bisexual, Trans, Queer
<b>Literacy</b>	Reading and writing skills
<b>Megacity</b>	Urban area with a population density over 10 million
<b>Migration</b>	The change in residence of an individual or group. It can be either permanent or semi-permanent
<b>Natural increase</b>	Birth rate is higher than death rate
<b>NGOs</b>	Non-governmental organisations – groups of people or community groups which are not controlled by the state
<b>Paulistanos</b>	People from São Paulo city
<b>Periphery</b>	Area on the edge of the city
<b>Plantation</b>	Large farms that grow one crop for selling
<b>Secondary sector</b>	A type of industry focused on the manufacture of goods
<b>Segregation</b>	Separation due to nationality, race, ethnicity or religion
<b>Status symbol</b>	Something that shows someone is high class
<b>Street vendors</b>	People who sell things on the street
<b>Subsistence agriculture</b>	Farming on a small scale, only producing enough to feed the family

<b>Sustainable</b>	Something that can be continued for a long time without negative environmental or social impacts
<b>Temperate</b>	Climates with moderate temperature, usually quite
<b>Tenement</b>	Large blocks of housing built to house low-income
<b>Tertiary sector</b>	A type of industry focused on services: e.g. retail, to
<b>TNCs</b>	Transnational Corporations – firms that have opera than one country: e.g. headquarters in the UK and China
<b>Topography</b>	The height and shape of the land's surface
<b>Urban sprawl</b>	The physical expansion of cities, and the decreasing
<b>Waste incinerators</b>	Machines that burn rubbish
<b>WHO</b>	World Health Organization – a branch of the United Nations deals with global health issues
<b>ZEIS</b>	Zones of special interest – areas in São Paulo that ca special measures and funding to develop them



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## ICT interactive page

Rather than type out these web

### Useful websites:

- Use these series of graphs to compare São Paulo and other megacities  
<https://lsecities.net/media/objects/article/5/rising-megacities-compared>  
<https://lsecities.net/media/objects/article/5/articles/comparing-performance-in-wealth/en-gb/>  
<https://www.theguardian.com/cities/2014/jun/11/São-paulo-urbanists-week>  
 this guide to the city from a blogger who lives in São Paulo

### Videos:

- The impacts of economic growth on people in São Paulo – a fascinating story of a city that grew up in the city:  
<https://www.youtube.com/watch?v=Bcg7j2-vqMQ>
- This video is about the informal waste recyclers who work in São Paulo and the challenges of informal work and environmental issues in São Paulo:  
<https://www.youtube.com/watch?v=M3qfbsHH4Mg>
- How one artist is helping make waste recyclers jobs a little more enjoyable:  
<http://www.bbc.co.uk/news/magazine-28203419>
- How urban planning can contribute to a city's redevelopment:  
<https://www.youtube.com/watch?v=5x6gGSI9oo0>

### News stories

- This news story covers one woman's campaign to compost more food waste:  
<http://www.mysinchew.com/node/114958?tid=10>
- Life in Favela do Moinho during the 2015 water crisis:  
<https://www.theguardian.com/cities/2015/apr/15/São-paulo-water-crisis>
- The announcement of the Arco do Futuro master plan for the city in 2013:  
<https://www.theguardian.com/global-development/2013/jun/05/São-paulo-problems>

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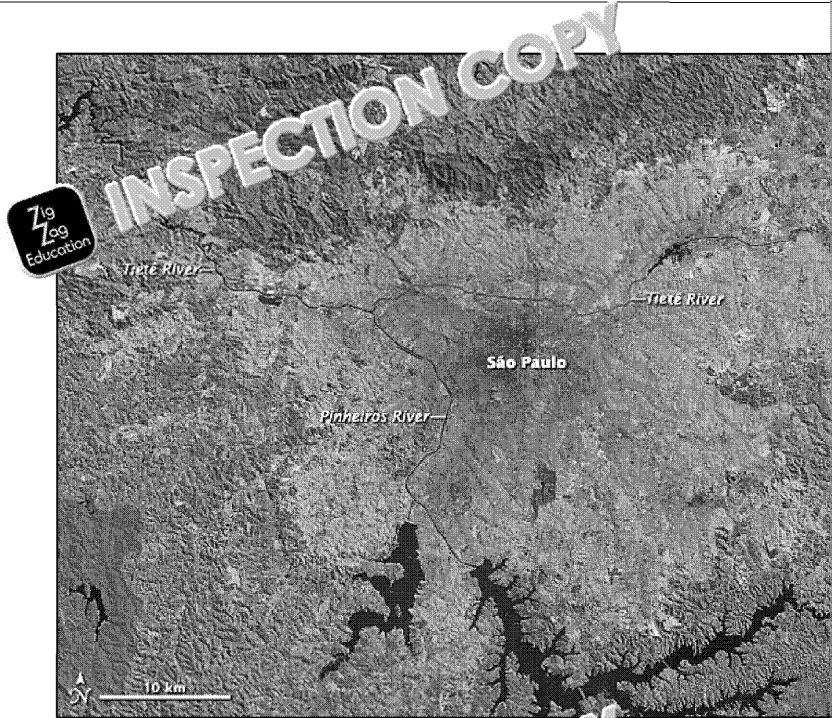


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1. Urban growth



2013

1. How has the size of the city changed?
2. How has the density of the city changed?
3. What impacts might these changes have had on the city?

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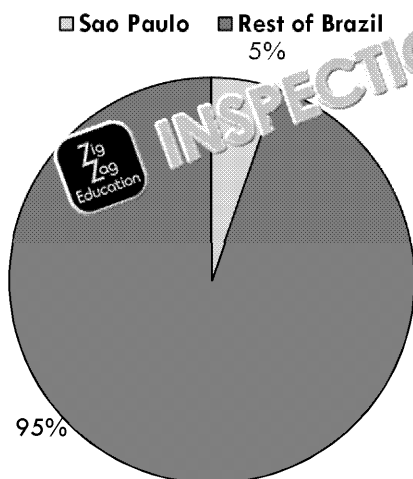
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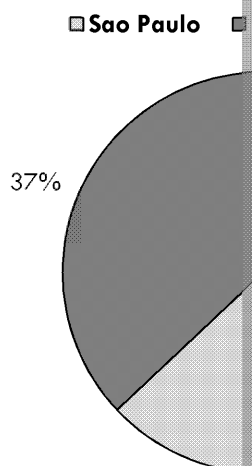


## 2. Opportunities

### GDP (billions US\$) in 2011



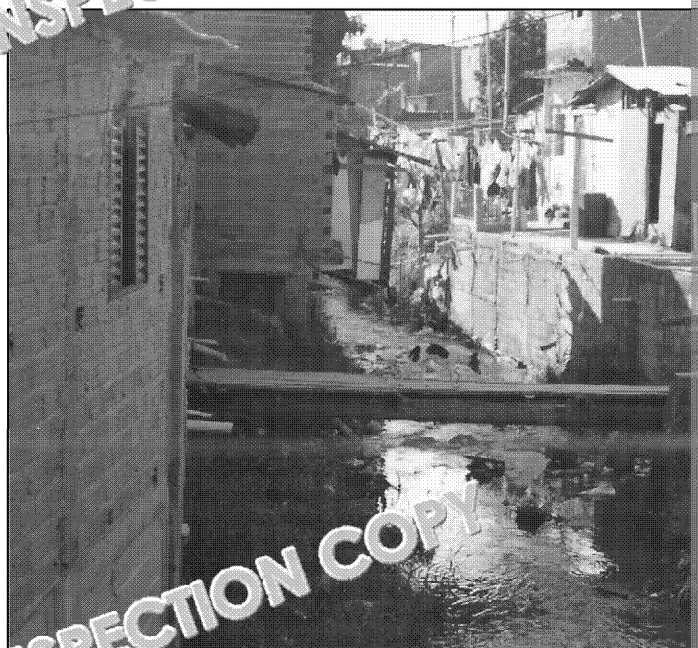
### Location of headquarters



1. What are these two graphs saying about the economy of São Paulo?
2. How might this attract people to São Paulo?
3. Describe the types of job in São Paulo.



## 3. The challenges of favelas



1. Using the picture above, describe the characteristics of a favela in São Paulo.
2. What causes favelas to exist in São Paulo?
3. Describe the positive and negative impacts of favelas on the society and economy of São Paulo.

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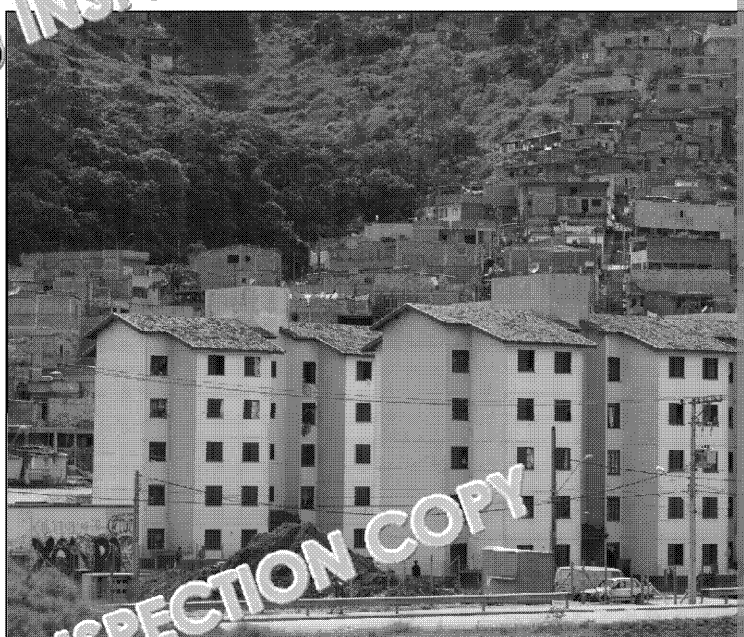
#### 4. Environmental challenges



1. What does this picture show us? Hint – what do you think the haze just is?
2. What causes air pollution in São Paulo?
3. What negative impacts does air pollution have?



#### 5. Urban planning



1. What do you think this picture might be showing us?
2. Describe the difference between slum removal and slum upgrading.
3. Why can't all favelas just be upgraded?




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## Springboard Suggested Answers

Springboard	Q	Suggested answers / discussion points
1	with 	1 The city has grown, you can see around the reservoirs to the south.
		2 There appears to be much more open space in the city centre patches of purple, which means the city has decreased in density in the peripheral area. It has increased in density, however.
		3 The slowing growth and decreasing density will mean that people will know that most of this is by car, leading to more congested roads. Increasing densities of settlement around reservoirs to the south, the favelas, increasing pollution.  There may be positive environmental and social impacts from the centre of the city.
2	Opportunities	1 That São Paulo alone contributes 5% of the GDP of Brazil – when you consider the size of the country and the fact that São Paulo is a small city means it is a very productive and wealthy city.  The second pie chart shows that of TNCs with their headquarters in Brazil, these base themselves in São Paulo, showing that it must be a very attractive city.
		2 People would see that the city was attractive to businesses, and that it was a place of wealth.  Other TNCs may set up their own headquarters here, as they would want to do business with.
		3 There are lots of highly skilled and highly educated jobs, especially in the financial sector. However, there are a lot of informal jobs, as people with no formal training and must make a living in other ways.
3	The challenges of favelas  	1 The houses are cramped together and small.  Houses are made from scavenged materials, like the iron rods from the railway.  This favela looks quite mature, as the banks of the stream are lined with concrete blocks.  It looks like waste pipes go directly into the stream.  The bridge that the dog is on looks unsafe.  Marginal land – next to a stream so it may flood.
		2 Increasing urbanisation as people move to the city from rural areas.  Increasing unemployment, rising house prices and a housing shortage. People in other areas of the city may be forced to downgrade their housing.
		Favelas can be hotbeds of crime as the streets are small and narrow, and there are no streetlights or police. People feel unsafe if they go out at night or in them.  Favelas are the outcome of inequality, which is bad for society. If a favela doesn't have good access to services, then it can cause negative impacts, such as water pollution from sewage, or negative health impacts as a breeding ground for mosquitos who spread dengue fever.  Culturally, favelas may put tourists off visiting São Paulo.  Positive impacts: favela inhabitants are very creative and resourceful. They have an important informal economy. They will do jobs like waste recycling.

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Springboard		Q	Suggested answers / discussion points
4	Environmental challenges	1	The hazy layer is smog – air pollution made up from particles that have become trapped over the city.
		2	There are few factories, so 90% of the particles are from car exhausts.
		3	The particles are trapped by a combination of climate and the city topography. It can harm human health – 4,655 people died in 2011 from air pollution. Greenhouse gases can contribute to global climate change.
5	Urban Planning	1	There is a favela in the background, with some newly built modest houses on the hill. This looks more like slum removal, than slum upgrading, as it redevelops the area.
		2	Both methods require a knowledge of where the favelas are and how many people live there. Slum upgrading is where you establish rights to the land, provide infrastructure and help people to improve their houses with better materials like brick. Slum removal entails the settlement being knocked down. Sometimes the same land, but often the people are resettled on the periphery of the city.
		3	Because in some cases they are built on unsafe land – such as the hillside. In some cases, there might be a landslide, as the hill is not safe, which would destroy the houses. In other cases, people might not be able to get rights to the land, and so they might move elsewhere, or they might be living in a special environmentally protected area.

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## Part 2: Exam Preparation

### Summary

#### Sao Paulo, Brazil

Background	
Location	On the east coast of Brazil
Nearby urban areas	Rio de Janeiro to the north, Curitiba to the south
Nearby economic systems	The Brazilian highlands
Climate	Temperate – rainfall is high
Type of city	Both an alpha city and a megacity
National importance	Financial capital of Brazil, centre for service industries and large populations
Regional importance	Largest urban area in the Americas, famous for its architecture and attractive for tourists
Global importance	A global economic player, location for many multinational corporations (TNCs)
Road connectivity	Coastal roads and some roads inland, many routes go through the city centre
Seaport connectivity	Nearby town of Santos
Airport connectivity	One regional and national airport (CGH) and one international airport (GRU)
Urban change	
The city was founded in	In the 1550s
Population growth took off in	1950
Main cause of growth today	Migration
Example of a wave of immigration	Migrants from Japan in the first half of the 20th century
Causes of rural–urban migration	Few jobs in rural areas, low paid, low quality of life, expensive but it has much more potential for services
Impacts of migration	Changing cultural life, youthful population, rising house prices, consuming water and electricity
The city has physically grown	São Paulo is quite dense, but has also spread out – this has environmental impacts at the local level
Opportunities	
Employment	Lots of diverse and well-paying jobs in service industries, TNCs and business events
Healthcare	Good hospitals and medical schools, a comprehensive health programme
Education	Compulsory, achieves 95% adult literacy
Resources that are easy to access	Clean water and electricity – although electricity can be illegal
How does São Paulo drive economic development in Brazil?	By being the business centre, generating wealth through the tertiary industry – moved Brazil into the third phase of development

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Challenges	
Housing	
Favelas are...	Squatter settlements of self-made houses, usually in poor areas
Corticós are...	Squatter settlements in old tenement buildings
Percentage of São Paulo's population that live in favelas	11%
What are mature favelas?	Favelas that have existed for a long time, usually with self-improved houses
Who lives in favelas?	Low-income residents: those who may have lost their homes, who cannot afford rents, or recent immigrants
Where is the Favela do Moinho?	In central São Paulo, between two railway lines
Services and infrastructure	
Problems with healthcare	Not all drugs available for free, long waiting times
Problems with education	Attendance is falling, children in poor areas can't afford to lose time
Problems with water and sanitation	Water is not used efficiently, infrastructure is old, leaks, no connection in favelas
Problems with energy	Reliant on hydroelectricity, which relies on rain
Jobs and crime	
How can unemployment cause crime?	People get angry, and have no other way to make money
Recent trends in unemployment	Increasing
Cause of large informal economy	People don't have the right skills or education
Impacts of informal working	For workers – no rights, no security For government – loss of taxes
Environmental issues	
Tons of waste produced every day	17,000
Causes of waste problem	Increasing amounts of waste and lack of infrastructure to deal with it
Negative impacts from waste	Pollution, environmental degradation, poor health
Cause of congestion	Car culture, poor infrastructure, lack of public transport
Cause of air pollution	Use of cars
Impacts of air pollution	Poor health
Causes of water pollution	Lack of waste water treatment, poor sanitation
Urban Planning	
Favela policies from 1960 to 1980	Slum removal – placing residents in new houses in other parts of the city
Favela policy from 1980 onwards	Slum upgrading
Process of slum upgrading	Monitor & protect protection status, give legal rights to residents, improve infrastructure, allow upgrades
The Barrio Legal programme	A mechanism to establish rights, helped 40,000 people
Areas where slum upgrading still occurs	Marginal land, environmentally protected land, where landowner will not sell

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## Quick-fire Questions: São Paulo, Brazil

1	Describe the physical geography of the south east of Brazil.	
2	Describe the human geography of the south east of Brazil.	
3	When did São Paulo become a megacity?	
4	How large is São Paulo's GDP?	
5	How well connected is São Paulo?	
6	Describe the history of São Paulo's industrial sector.	
7	What is the population size of São Paulo?	
8	How has population growth affected the city?	
9	How good is access to education in São Paulo?	
10	What are the main challenges facing São Paulo?	

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11	What are the health risks for people living in favelas?	
12	How do people in Favela do Moinho get access to services?	
13	Why do high-income residents not use public hospitals in São Paulo?	
14	Why might children not go to school in São Paulo?	
15	How can lack of sanitation affect water supplies in São Paulo?	
16	What percentage of Brazil's energy does São Paulo consume?	
17	Why can working in the informal economy be bad for people?	
18	What are the four main environmental issues facing São Paulo?	
19	Why is slum reorganisation not a management technique used in São Paulo so often any more?	
20	What is the Barrio legal programme?	

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## Quick-fire Answers: São Paulo, Brazil

1	Temperate climate, coastal and edges of the Brazilian highlands
2	Three large cities (Rio de Janeiro, São Paulo and Curitiba), very economically active
3	In 2001
4	Largest in Brazil and Latin America, 10 <sup>th</sup> largest in the world
5	Very well connected to the coast, nearby cities and inland
6	It expanded in the 1890s following investment from wealthy coffee farmers, but today is mostly
7	Nearly 12 million people in 2015
8	Increased multiculturalism, urban sprawl, decreasing density, congestion, pressure on services
9	Quite good – 95% of adults have basic literacy, school is compulsory, and support is offered for low
10	Self-made houses on marginal land (usually on the periphery), with few services
11	<ul style="list-style-type: none"><li>It can be dangerous, as there is crime and gang violence, and fires, floods and roof collapses</li><li>state of the land</li><li>People are also more likely to be ill, as they may be undernourished, or catch diseases from</li></ul>
12	They illegally tap into existing pipes to the sewage works or siphoning off water and electricity
13	Because they want a better standard of care
14	They might live too far away from a school, e.g. in a favela on the periphery, or they might have to travel to their parents work, or they might have to work to earn money for the family
15	In favelas without sewers, sewage runs off into reservoirs, polluting the water and lowering the quality
16	17%
17	Because people don't have rights
18	Waste disposal, congestion, air pollution and water pollution
19	Because it displaces people and disrupts communities, moving them away from places of work
20	A system of giving legal rights to residents of favelas, so they can carry on living there and be eligible for services

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## Extension Questions: São Paulo, Brazil

1. Is São Paulo a globally significant city?
2. Describe the history of migration in São Paulo.
3. What are the positive aspects of living in São Paulo?
4. How does São Paulo help Brazil develop?
5. Why do people live in favelas?
6. How can a cycle of poverty keep someone living in a favela?
7. Why are there water shortages?
8. How are the following urban challenges in São Paulo linked: favelas, slums, and poverty?
9. How is São Paulo tackling the problem of favelas?
10. Can you make any criticisms of the urban management of the São Paulo city government?

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## Extension Answers: São Paulo, Brazil

1. Opinions vary – it is a megacity and an alpha city, but it is not one of the top 10 in the world. It is definitely a leader in Latin America and Brazil, and is expected to be predicted to be in the top three urban areas for economic growth between 2010 and 2030.
2. Migrants came to work in surrounding plantations and mines in the 1700s, and (from the 1890s). Today they come to work in the services sector. Many inter-continental migrants from Europe – such as Italy, although there is a large Japanese population. Rural urbanisation in the poorer north of Brazil continues to this day.
3. It is a vibrant and lively city – it is the financial capital of Brazil and has many services sectors. It is also still a growing city, and has good standards of health and safety.
4. São Paulo is an important driver of Brazil's economic development as a whole, contributing around 30% of Brazil's total GDP, due to its well-developed tertiary sector and its role as a gateway to industrial cities inland, and keeps these connected to the world.
5.
  - Housing shortage – especially of affordable homes
  - Rural–urban migration by people with low incomes
  - Increasing unemployment
  - Increasing house prices and living costs in São Paulo
6. Lack of education – if someone is born in a favela they are likely to be poor, and are less likely to go to school as they will have to stay home and work, which prevents them from having the skills to get a good job in the tertiary industry in São Paulo. They may not have the money in the economy, and not earn enough to allow their own children to go to school, so they stay in the favelas.
7.
  - Drought
  - Leaking pipes
  - Inefficient water supply
  - Illegal siphoning of water
8. Favelas are built on marginal land, and are not planned, so don't have sewerage systems. Waste and sewage is often dumped onto nearby land, or more usually into the water courses. When it rains the problem is especially bad, as water runs down the streets and into the rivers. This makes the rivers, and the areas around them, heavily polluted, harming human health.
9. Since 1980, the main focus has been slum upgrading. A £450 million investment programme that favelas are monitored and mapped, designated as special zones (qualifying for special residents given legal rights, infrastructure and services provided by the city government). Materials to upgrade their houses. The city government is trying to avoid relocations of communities, but may have to when favelas are unsafe.
10.
  - Failed to properly tackle the pollution of the Tiete and Pinheiros
  - In the 1960s to the 1980s they pursued a policy of slum removal which caused the displacement of lots of people
  - The road network has grown without an overall city plan, leading to congestion
  - The tax to pay for waste collection was abolished
  - Lack of social security – poor people are forced to live in favelas when they cannot afford elsewhere
  - Authorities did not want to impose limits on water use as this was unpopular
  - Continued reliance on hydroelectric power for energy (can fail in drought)
  - Sewerage systems need updating
  - Not all drugs are available in public healthcare system
  - In the 1950s they focused on developing industry in the city, rather than services
  - Will only give temporary infrastructure access to people in Favela do Morumbi
  - Not enough transport infrastructure leading to traffic jams

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## Exam-style Question

With reference to a megacity in the emerging or developing world, assess how successful strategies aimed at improving the sustainability of the city have been.



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## Level Mark Scheme

Level	Mark	Description
1	1–3	<ul style="list-style-type: none"> <li>The student evidences limited understanding of the con places, environments and processes. (AO2)</li> <li>A limited ability to evaluate is evidenced through basic understanding. The argument is uneven and inadequate support the conclusions. (AO3)</li> </ul>
2	4–6	<ul style="list-style-type: none"> <li>The student evidences a limited understanding of the con places, environments and processes. (AO2)</li> <li>A reasonable ability to evaluate is evidenced through ac knowledge and understanding. The argument is slightly partially logical. There is some evidence to support the</li> </ul>
3	7–8	<ul style="list-style-type: none"> <li>The student evidences a firm understanding of the con places, environments and processes. (AO2)</li> <li>A strong ability to evaluate is evidenced through logical and understanding. The argument is evenly balanced a consistent evidence to support the conclusions. (AO3)</li> </ul>

### Suggested Content (Emerging country):

#### Top-down strategies:

- Collection of taxes by state governments to invest in infrastructure such electricity networks, etc.
- In 2004, the Bus Rapid Transit (BRT) system was installed, which invol and new ticketing systems aimed at improving public transport within th
- Top-down strategies are backed by the city government, which helps ensu
- Government-backed strategies also have greater funds available, mea scale and have a greater impact.
- Plans for government-led schemes often change, as city mayors chang
- Top-down strategies are often planned by officials who have little local Strategies might not tackle the most 'in-need' areas or may not tackle th the community.

#### Bottom-up strategies:

- Communities and NGOs carry out small-scale initiatives to improve qua
- Jardim Iporanga is one example of a bottom-up strategy. In this case t prevent the development of environmentally protected areas, through r out of plastic bags.
- Bottom-up strategies tackle the problems identified by the local people, and the problems that are faced there.
- Funding is often limited, and relies on donations and grants. This mea are relatively small and have only a limited reach.
- The focus of such strategies is likely to be narrow, focusing on only one
- NGOs may implement changes that are not welcomed by all members in and so changes made by NGOs may be considered undemocratic.
- Arco do Futuro is a series of new laws which focus on providing affo community space to areas of the city. Local communities were involve solutions, with thousands of focus groups and public hearings being he the plan. This strategy has been found to prove successful, as it com beneficial in top-down strategies, with the local expertise and involvem

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## Spelling and Grammar (SPaG) – Total of 4 marks.

For 1 mark:

- Student shows some ability to spell and punctuate correctly.
- Student shows limited use of grammar to convey their argument.
- Student utilises a basic range of geographical phrases.

For 2–3 marks:

- Student generally uses good spelling and punctuation throughout.
- Student shows some accurate use of grammar to convey their argument.
- Student utilises an adequate range of geographical phrases.

For 4 marks:

- Student shows correct spelling and punctuation throughout.
- Student shows accurate use of grammar to clearly convey their argument.
- Student utilises a broad range of geographical phrases.

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