Introduction
Rio de Janeiro has traditionally been seen as a city of contrasts with a huge gap between rich and poor. A study carried out in 2000 by the United Nations Development Programme (UNDP) demonstrated that this huge gap still exists. The wealthy people in Rio have a quality of life comparable to that of the Northern Italians, while the poorest people have a quality of life similar to that of Algerians. This Factsheet looks at the way in which Rio’s urban problems are being addressed and evaluates the strategies used.

Background - Rio’s urban problems and their causes
Rio attracts people from the countryside who hope to find a better life in the city. This continued rural-urban migration of largely young immigrants has led to above average rates of fertility which means that the natural increase in population is much higher in the most recent favelas (largely in the outer suburbs and rural urban fringe – see Fig. 2) than in established areas of the city. The pattern of population growth is summarised in Fig. 1. As spontaneous settlements are forced to develop on available land, most of the sites have been used in the central and inner urban areas. As a result of city policy to build a world class city centre attractive to commerce and tourists, many favelas were moved to outer suburban areas. In inner urban areas, newly established favelas were frequently forced to develop on steep hillsides, where landslides are a threat. Stability has been partially achieved and these favelas now have access to a full range of services such as water and electricity, although sewage systems are limited. In the outer urban areas, where 60% of the favelas are concentrated, living conditions are more variable with many inhabitants having a low standard of living and enjoying a poor quality of life.

Fig. 1 The growth of Rio de Janeiro

Note: In the 1960s Rio lost its status as capital because of the building of Brasilia. Also, São Paulo is the leading industrial city (binary rank size model) and is also a mega city. This may have slowed Rio’s overall growth. Physical geography (site limitation) is another factor.

- A rapidly growing zone which actually contains some industrial townships (e.g. Nova Iguacu).
- Many areas of low quality city authority housing (e.g. Campo Grande) grew rapidly because of rapid in-migration from surrounding rural area so it contains many recent (and sometimes illegal) shanty towns (e.g. Bangu).
- 25% of shanty towns (favelas) are located here.

Fig. 2 shows that Guanabara Bay is a wide bay with a narrow mouth; this shape and its location facing the Atlantic Ocean promote strong currents into and out of the mouth which used to make the bay self cleaning. However, since 1864 raw sewage has been draining straight into the bay, with population growth and industrial growth in Rio worsening the problems this causes. Today there is no marine life left in much of the bay, commercial fishing has decreased by 90% in the last 20 years, and swimming at beaches in the interior of the bay is not advisable.

- A mixed zone - good infrastructure attracts commuters.
- Barra (new town) was developed from 1960.
- Typical of rapid growth.
- Many of the displaced favelas from the centre moved here.
- 60% of favelas currently located in this zone (e.g. Morro de Alemão).

- Limited growth here because of major urban regeneration to provide a world class centre displaced many favelas to suburbs in 1970s.
- Zone of higher class elite housing.
- Some areas are 40km out - increasing numbers of peripheral favelas
- Limitations because of difficulties of finding work locally or commuting
Urban problems in Rio de Janeiro

Geo Factsheet

Fig. 2 Urban problems in Rio de Janeiro

- New spontaneous settlements on periphery.
- Photochemical smog is a constant problem - generated by slow moving traffic.
- New areas of local authority housing - very basic standard.
- Problem of communications linking Rio and Niterói.
- Some dereliction - deindustrialisation of some heavy industries, e.g. steel.
- Mountainous relief limits space for building and makes the development of an effective transport route difficult and costly, e.g. constructing the Lagoa - Barra tunnel.

Rising urbanisation and industrialisation has led to severe sewage and chemical pollution. A city of marked inequality has led to high levels of crime in some areas, e.g. Centro Lapa.

Overall - more than 700 different areas. Some estimates suggest 40% of city population live in favelas of varying quality.

Fig. 3 Reference map for improvements

- Extensive sprawl along beautiful coastal areas, e.g. Barra.
- Many shanty towns, such as Vidigal, are built on the side of hills (only available land) so prone to land slips.
- Algal blooms and eutrophication in the Lagoa Rodrigo channel.

Key:
- Urban area

- Major roads
- Metro lines
- Tunnels
- Linhas Vermelha & Amarela
- Water areas
The Lagos Rodrigo de Freitas is the lake inland from Ipanema and Leblon (Fig. 3). It is linked to the sea by a narrow channel which has to be dredged daily to stop longshore drift blocking it and to allow water to flow through the lake and out to sea. However the current flow rate through the lake is not fast enough to prevent the water from stagnating. This slow flow, along with the release of raw sewage, leads to algae blooms and eutrophication which resulted in the death of 132 tonnes of fish in February 2000, and a further 3 tonnes in February 2001.

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Urban problems in Rio de Janeiro

Case study: The success of housing and education improvements in Rocinha

Rocinha, which is one of the largest favelas in South America, is located on a hillside overlooking São Conrado, one of the wealthy neighbourhoods of Rio (Fig. 3). Rocinha was recognised as an official neighbourhood of Rio in 1992, and has approximately 200 000 inhabitants.

Many changes have taken during the 50 years of its existence. Over 90% of the buildings in Rocinha are now constructed from brick and have electricity, running water and sewage systems. Although the houses are very small, household appliances such as fridges are the norm rather than the exception. Rocinha has its own newspapers and radio station, and its own economy is developing rapidly. There are food and clothes shops, video rental shops, bars, a travel agent and even a Macdonalds. Schools, health facilities and, as explained above, a private university can all be found within Rocinha.

Many of these improvements and developments are the result of Rocinha's location close to wealthy areas such as Ipanema, São Conrado and Copacabana. Many of the residents work in these wealthy areas that surround Rocinha, and although monthly incomes are low, they are not as low as elsewhere in the city and in Brazil. These regular incomes have allowed improvements to be carried out by the residents themselves as well as those being carried out by the authorities, with the result that favelas like Rocinha are constantly changing and improving.

There are other areas in Rio where people who have just arrived in the city have started to build temporary housing; here the houses are made out of whatever the people can get hold of and they usually don't have any facilities like running water and electricity. It would therefore be incorrect to think of the favelas in Rio all having the same level of development and the residents having the same quality of life.

A Metro system has been built and is currently being expanded. A one way ticket costs US$0.66. There are two Metro lines:

- **Line One**: runs from Botafogo into the centre in 26 minutes, with trains every 4 -5 minutes. An extension is due to open in July 2002 and there are plans to extend this line into Ipanema.
- **Line Two**: runs from the west of Rio into the centre in 34 minutes, with trains every 4 - 7 minutes.

Currently the Metro does not provide an alternative mode of transport for much of the population, as its coverage is not extensive enough. However there are plans to add two new privately financed lines; one would run across the city from Barra to the international airport, while the other would link Rio with Niterói on the other side of Guanabara Bay. If these lines are built the Metro could significantly reduce traffic congestion on Rio's roads.

The completion of the road, **Elevado do Joá**, to Barra in May 1970 and the resultant development of this area led to a huge flow of people commuting from Barra to Central Rio to work. The new road and the main coastal link roads into Central Rio now operate as a one way system during the rush hour times of 6.30-10.00 and 18.00-20.00 which has helped to mitigate the problem.

The **Linha Vermelha** and the **Linha Amarela** are two major roads that have been built to try and ease traffic congestion. They are urban motorways that provide alternative routes for people travelling long distances within the city. The Linha Vermelha was completed in 1992 and provides a new link from the southern coastal built-up area (Lagoa, Ipanema, Leblon etc) out to the international airport and beyond. The 22km long Linha Amarela was completed at the end of 1997 at a cost of US$324 million. It was partly funded by a private company who now control the pay booths, and is the principal link from Barra to the international airport. Estimates suggest that the road has cut people's journey time by 45 minutes and that traffic flow through the Reboças tunnel by 12%. However there are indications that the number of private cars on the road has increased since these roads were built, which will reduce the long-term impact they have on traffic congestion.


Much work has already taken place in Rio to improve the sewage systems. The Governor of the State of Rio is also committed to improving the collection and final destination of solid waste and looking after/monitoring the environment. Much of the work currently being done is being funded by loans from the IADB and the Japan Bank (formally the Overseas Economic Cooperation Fund). It is hoped that now the amount of sewage being released into Guanabara Bay has been significantly reduced, the marine life will start to return.

Improving the sewage systems will also help revive the Lagoa Rodrigo de Freitas. 4 km of new sewage pipes are currently being installed around the lake, linking all the areas where raw sewage previously entered it, and the sewage will now be taken away to be processed. The rivers and channels that feed water into the lake are also being dredged to improve the flow and renewal of water. This work is costing US$2 million.

Conclusion

It is clear that solutions are being implemented to overcome Rio's urban problems. For example, in favelas where work has been done to improve the infrastructure and to integrate the favela dwellers into the rest of the city, improvements in quality of life are apparent.

The formal recognition of the urban poor has been one of the most important developments of the last decade. Alongside this recognition of the urban poor, the loans and funding that have come from outside Brazil enabled many projects to go ahead. However the study carried out by the UNDP in 2000 shows that, while quality of life may be improving for many, a huge gap between the richest and the poorest still exists.
Fig 4  Per capita income above $46 per month by district, metropolitan region of Rio de Janeiro, 1990.

Exam questions:
1. Analyse and suggest reasons for the distributions shown in Figs 4, 5 and 6.  
12 marks
2. Outline some of the strategies available to improve the lives of the urban poor in Rio.  
8 marks

Exam Hint: Always use place names if possible.

Answers
1. Fig. 4: Essentially poorest areas 42% - 47%. Below $46 a month, e.g. Magé, are found on outskirts. Newly arrived immigrants living in favelas. Richest areas found centrally and coastally (Zona Sul). Central part elite, high wage earners, established houses and jobs.

Fig. 5: Poverty is closely linked to years of schooling, especially in Eastern outer areas, although there are scattered pockets in central areas (presumably shanty town districts). In informal settlements there is rarely sufficient money for children to go to school for more than basics.

Fig. 6: Districts of greatest mixed race and blacks concentrated on Eastern area (possible in-migration) and also in Japeri and Baixada, neither of which are especially poor. May be elements of ghettoisation i.e. joining other black groups.

2. Can be straightforwardly answered using the resource. Essentially:
• housing
• education
• infrastructure
• environmental improvements
• the provision of employment.

Further research
BBC Geography Programme - Brazil 2000.
Case Study ‘Changing settlements’ G. Nagle, Nelson
Chapter 5 in ‘Globalising Cities’ P. Marcuse, Blackwell

Useful websites
http://www.brazzil.com/p23apr00.htm
http://www.ipanema.com/welcome.htm

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