Shanghai – head of the dragon?

China’s Yangtze River Delta is now the fastest-growing urban area in the world, a crescent-shaped urban corridor of 16 megacities, including Shanghai. The region has an estimated 75 million people, accounting for nearly a quarter of China’s GNP, half of foreign direct investment, and a third of import and export trade volume, yet comprises only 1% of China’s land area.

Shanghai, at the mouth of the Yangtze River (Figure 1), is spearheading the immense surge of economic growth that may see China replacing the UK as the world’s fourth largest economic power in the early 21st century. The city has been described as the largest construction site in the world, and there are currently 4,000 24-or-more storey buildings, with another 1,700 under construction or with planning approval. Shanghai has so much power and autonomy it has been described as effectively a city-state.

A globalised city

Shanghai has been a gateway for foreign trade for over 700 years. Before 1949, the city had a population of 5.2 million, but by 2000 it had jumped to an official 16.7m, living in 6,341 sq km. By 2006 it had an estimated 20 million people. In comparison Greater London is 1,579 sq km, with a population of 7.5m (2005). Shanghai’s globalised nature is shown by its high-profile modern shopping malls, a Formula 1 circuit, a snow dome, the 83rd Starbucks outlet which opened in 2006, and the next Disneyland. The world’s largest event after the Olympics and the World Cup, the World Expo, will be hosted there in 2010, the first time ever in an LEDC. It is expected to attract up to 65m visitors.

Today, parts of the city centre look much like any other developed city, yet Shanghai still has no single focus and its character still owes much to the patterns established by foreign influence in the late 1800s. Shanghai is a vast, dynamic organism, which blends capitalist and socialist ideals...
and whose occupants and planners pride themselves on being ‘modern’ (Figure 2).

Five key problems in Shanghai

Some problems stem from its past growth and some from its recent meteoric rise. A variety of organisations are involved in making decisions in the city, from central government and city authorities to outside agencies like the World Bank, TNCs like Starbucks and investors like Arup.

1. People and space issues

The main causes of Shanghai’s rapid population growth in the 1950s were natural increase and unregulated immigration from the outskirts of the city. Squatter settlements characteristic of all other LEDCs are largely absent in Shanghai because of the strict need for work permits and high government intervention in housing. In the late 1990s the population stabilised due to the success of the China’s family planning programme, and a successful decentralisation programme that developed satellite towns which absorbed much of the growing urban population. A slight relaxing of strict rules governing migrants since the 1980s has encouraged a ‘floating population’ with few rights. Housing shortages and overcrowding have resulted: almost 50% of the population lives on less than 5% of the city’s total land area. By 1985, Shanghai’s population was 7.21 million, with an average population density in the central area of 40,000 to160,000 people per sq km – amongst the world’s highest. 1.8 million households, almost 50% of the total, had sub-standard living space, with sometimes four generations living in one shack, slum or attic. China’s government is still promoting rapid urbanisation as a means to improve national living standards and productivity, with plans to move about 300 million people from rural to urban areas. The policy is creating megacities full of skyscrapers and construction sites. Property speculation, competition for land, forced resettlement and poor building construction have resulted.

2. Transport issues

Rising affluence and globalisation have resulted in transport issues. A low capacity road system struggles to cope with 9 million bicycles competing with over 1 million cars, a 400% increase from 1990 to 2000. Officials predict 2.5 million private cars in use by 2020, resulting in a shroud of petrochemical smog.

3. Problems of the Brown Agenda

Rapid industrial growth developed with little restriction on effluents before present day land use zoning and has led to issues of the environmental Brown Agenda: land, water and air pollution.

- Less than 60% of waste water and air pollution.
- Environmental Brown Agenda: land, water and air pollution.
- Lack of investment due to mismanagement or point on economic development pathway from LEDC to MEDC.
Assessing how well Shanghai is coping with megacity status

Many factors affect how megacities cope with issues and problems that arise (Figure 3). Shanghai is approaching these from several angles.

1. People and space
Population is considered the principal factor and the major constraint for China’s economic and social development. In order to solve the demographic problems of unequal distribution, ageing, migration and quality of life the Shanghai government has made a series of important policy decisions concerning family planning, employment, social security and population distribution and housing. Mixed social groups are involved in the need for housing, from relatively affluent middle aged professionals to older people and poorer or homeless migrants. Buying your own home is just one example of how the state is shifting from its traditional ‘cradle to grave’ approach, and people now also have to pay for their own medical insurance and pensions, unlike the pre-1990 situation.

The original goal of the Shanghai government was to control the level of the urban population and to not exceed 16.50 m by 2005, with a ‘floating population’ of less than 3m. A combination of widespread family planning, medical care, work permits and education initiatives combined with new housing schemes in the outer suburbs and in new towns resulted by the 21st century in a reduced population density in the heart of the city and rising densities in the Inner and Outer Rings. The current master plan for 1999–2020 seeks continued decentralisation from Shanghai to the satellite towns built around the city, such as Songjiang Town and the latest flagship project, eco-city Dongtan (Figure 4). In 2004, the average life expectancy of Shanghai’s population reached 80 years, the level of MEDCs generally. The ageing issue has not been well addressed however: it is estimated that by 2020, the percentage of over 60-year-olds will reach 33.7% and that of over 65-year-olds 28.1%. This will impose huge demands on social security.

2. Environmental quality: transport
In China, people’s income has constantly increased during the past decade, but concerns for a sustainable environment are low and ‘Green’ products are not popular. Shanghai city authorities are juggling the balance between the strong car lobbyists demanding more expenditure on roads versus increasing public expenditure on public transport. The overall aims are: increased mobility, reduced congestion, and improved air quality.

In the early 1990s a 40-year integrated programme began, with advice from European countries.

- Shanghai has the country’s newest underground system, with a daily capacity of 1.4m predicted to reach 10m in 2020. It is linked to the new Pudong airport by the world’s first commercial magnetic levitation train (MAGLEV), capable of reaching 431 km/h (268mph). For Shanghai it was the ideal status symbol, even at US$1.2 billion!
- Between 1990 and 2000 there was a 40% increase in road capacity by, for example, building elevated highways. Car-limiting policies have had limited success in Shanghai, as the city has tried to adopt the Singapore-style auctioning of registration permits for new vehicles. An intelligent guidance system helps flows of traffic. There is restricted access to the city centre: walking is an essential component of the transport plan, and increasing pedestrianisation is planned. 45,000 taxis operate in Shanghai, but over 45 per cent are empty at any given time. New measures are planned by 2007 to reduce inefficiency.

- Cycling is now viewed by the government as a competitor to public transport, slowing down traffic and causing accidents. It aims to reduce Shanghai’s 9m bicycles by 25% by 2010.
- In 2003 the Shanghai Sustainable Transport Partnership was created by the city authorities, including outside agencies like the Shell Foundation and the World Resources Institute. The aim is to create an innovative mass transit system, based on a bus rapid transit (BRT) model that will integrate with the city’s existing and planned metro and light rail systems.

3. Environmental quality: the Brown Agenda: water, air and health
According to the city authorities, Shanghai has made ‘remarkable progress’ in pollution control and environment protection and the city’s environment has ‘greatly improved’ following action from its labelling as one of the 10th most polluted cities globally in the late 1990s. Almost all households have access to piped water, electricity and waste disposal, including an effective organic solid waste disposal system used as fertiliser in surrounding rural areas. In 2002, 3% of its GDP was invested in environmental protection projects, eg cleaning up Suzhou Creek aided by a World Bank loan of $200m.

4. Economic health
City policy is focused on ‘the six pillars’ of a strong economy based on diversified manufacturing: automobiles, biotechnology, chemicals, information technology, and steel plus its service industry sector (trade, finance, real estate, tourism, e-commerce). The city authorities hope that by 2020 Shanghai will have completed its transformation into a modern, international metropolis, as well as an international economic, financial, commercial and transportation centre. In 2000 Shanghai became the first provincial area in China to achieve a per capita GDP over $4,000, reaching the level of middle income countries in the world such as Malaysia. This is partly due to it having become a
Pudong: a 'Chinese Silicon Valley'

This is a mixed land use waterfront development: from rice paddy field to world financial centre in just 10 years! It had a population of 1.8 m by 2004 and promotes Shanghai’s image of being not just a mega city but an influential global city. Designed by the architect Lord Richard Rogers, famous for the Pompidou Centre of Paris, The Dome, and the Thames Gateway, Pudong is 8 times the size of Canary Wharf. From being a remote backwater greenfield site, Pudong has become the smartest and most desirable place to live in the city. Controlled zoning keeps pollution away from residential areas with green open spaces and new residential areas with spacious housing for the growing middle class. Life is very different here for the new Shanghainese, especially women: an increase in westernised consumer culture is obvious. Development is focused on service industries, finance and international trade and now a large proportion of foreign investment enterprises in China are in Pudong. TNCs include HSBC, Gillette, Ford, Hewlett Packard, Sony, and Philips. The key to success was infrastructure: three new bridges and rail links were built over and underneath the Huangpu with a new underground terminal and a new International airport.

Dongtan: flagship eco-city

In 2006 an agreement was signed between the Shanghai Municipal Authority, University of East Anglia’s carbon reduction team, British architects Alsop, and engineering company, Arup, to build a world famous sustainable eco-city called Dongtan. This will cover about 6 sq km, just to the North of Pudong on Chongming island, one of the last big undeveloped spaces in the Shanghai area. The village style neighbourhood principle underlies its layout to minimize journeys to work/leisure and make it pedestrian friendly. Dongtan will generate all of its energy needs from renewable sources, with low emissions produced by the city’s vehicles, ie as near to ‘carbon neutral’ as possible. An energy centre will manage generation by wind turbines, bio-fuels and recycled organic material. Waste will be reused/composted/used as biomass for energy. Human sewage will be processed for irrigation and composting, so minimal landfill waste sites needed. Phase 1, a marina village for 20,000 people, is due by 2010, with 80,000 people planned for 2020. There are some fears it will turn into a middle class ‘ghetto’ and not really ease the poorer population of the overcrowded central city.

be finished in 2008, and which may become the world’s tallest building, are at risk from coastal flooding. Since 1997, when Typhoon 9711 struck, the city has invested $70 million in rebuilding and strengthening key parts of the city’s 521-km coastline by sea and river walls, protecting marshland and barrages.

Conclusion: Shanghai the mother of megacities of the future?

Shanghai has always been an open city, ready to seize opportunities and allow its citizens to use their talent and creativity. This competitive tradition underlies its dynamic and progressive nature, an entrepreneurial spirit that sets it apart from other Chinese cities. But, as with any city that occupies a strategic global position, its future lies not only in the hands of its own architects and policymakers, but in the national policy for growth and development plus international financiers and investors. Its legacy from centuries of growth and sheer scale and speed of growth will inevitably hinder a sustainable future, although huge advances have been made in the basic quality of life for many of its millions of inhabitants. Unlike most other megacities outside China, the still strong socialist political structure dominates planning. This is an advantage for fast decisions and action but a disadvantage for any inhabitants not involved in the decision making: the culture and politics of China do not allow much open dissent.

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Focus Questions

1. Identify the opportunities and risks that Shanghai specifically faces as a megacity.

2. Why are mega cities difficult to manage for a sustainable future? Difficulties can be seen resulting from different scales, as shown by Figure 3.

   - Add annotations from this Geofile to a copy of Figure 3 to show the sources of Shanghai’s specific difficulties.
   - How effectively have the difficulties been tackled?