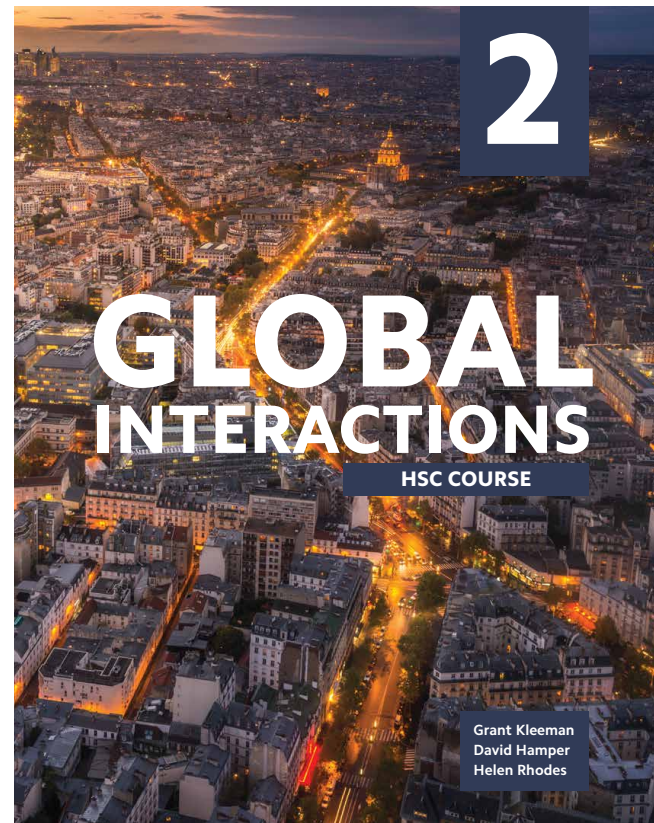
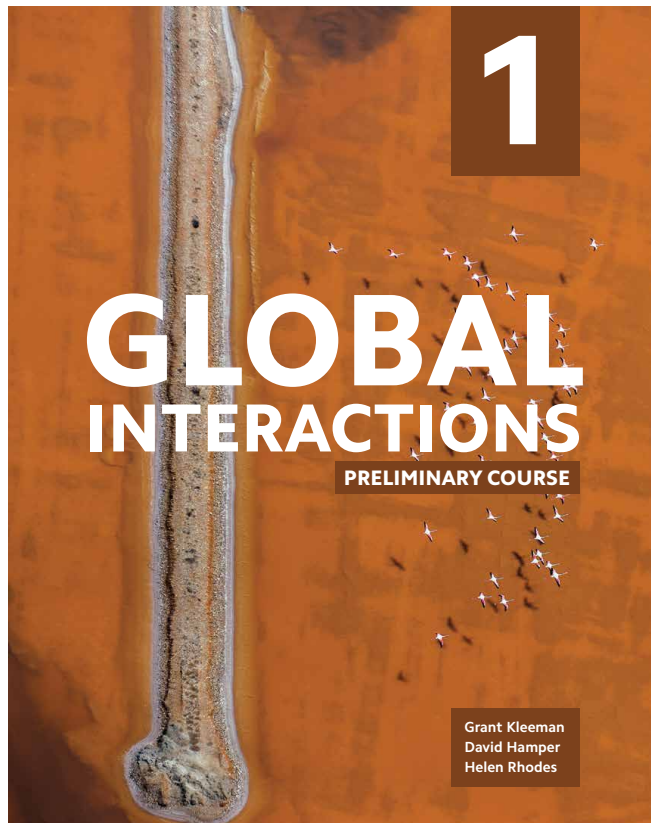


A photograph of the Supertrees at Gardens by the Bay in Singapore. The trees are illuminated with purple and blue lights, and a curved walkway is visible. The sky is a clear blue.

HSC Conference 2017

Dr Grant Kleeman

New Editions of Global Interactions 1 & 2 mid-2018



Preliminary & HSC Geography

- What's changed since 2000?
- How do these changes impact on our 'reading' of the syllabus?

In 2018, the syllabus will be as old as those students studying for the HSC. For the most these students were born in the 21st Century.

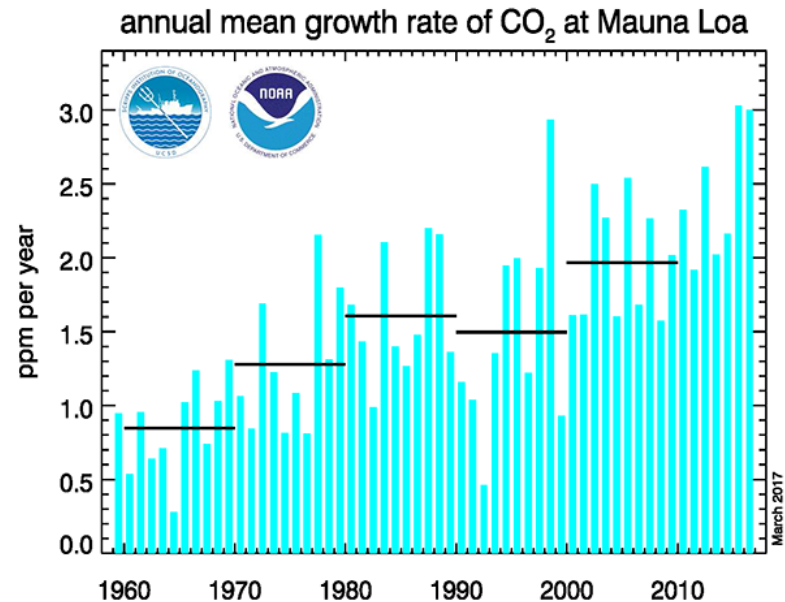


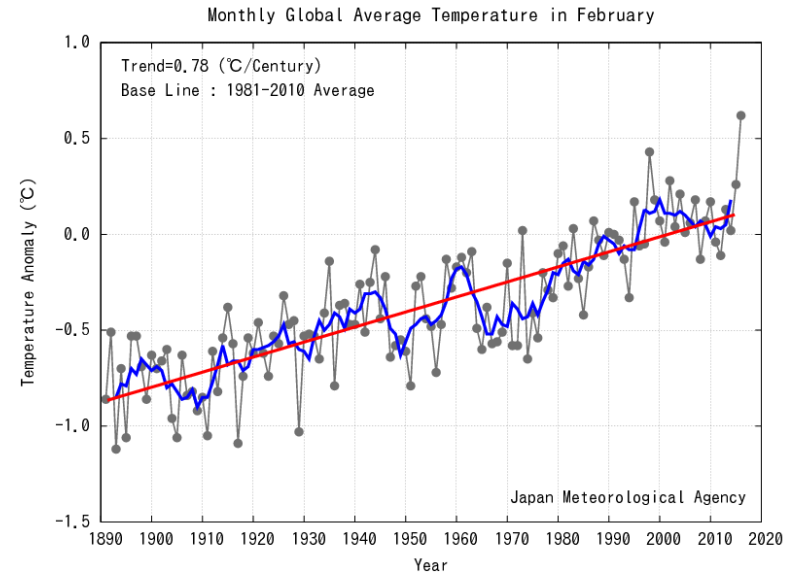
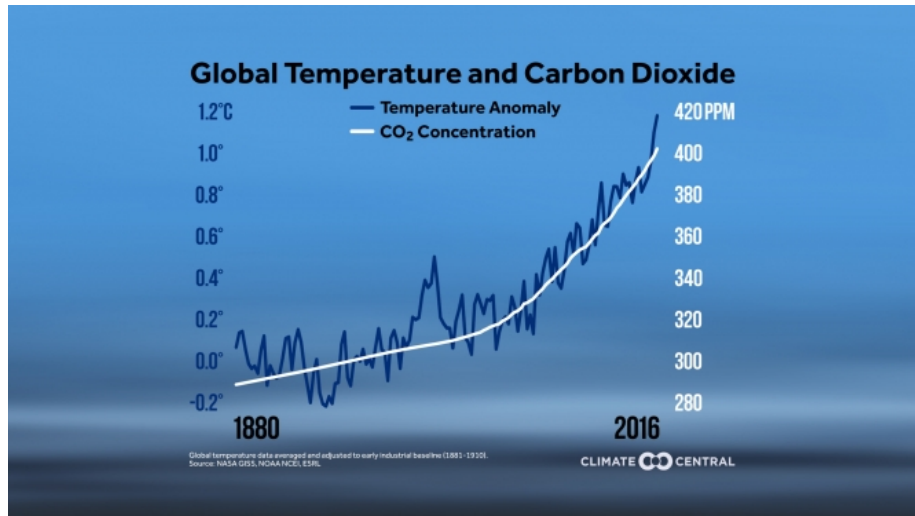
Singapore's Supertrees in the Gardens by the Bay stand as a metaphor for humanity's relationship with nature.

Biophysical Interactions

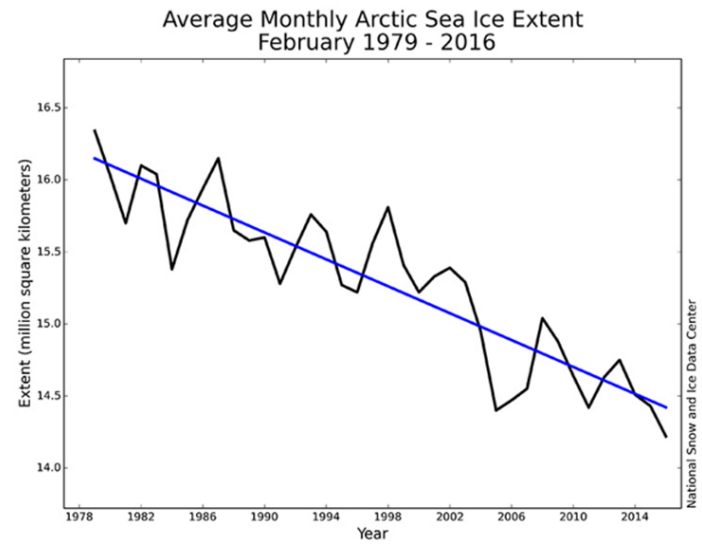
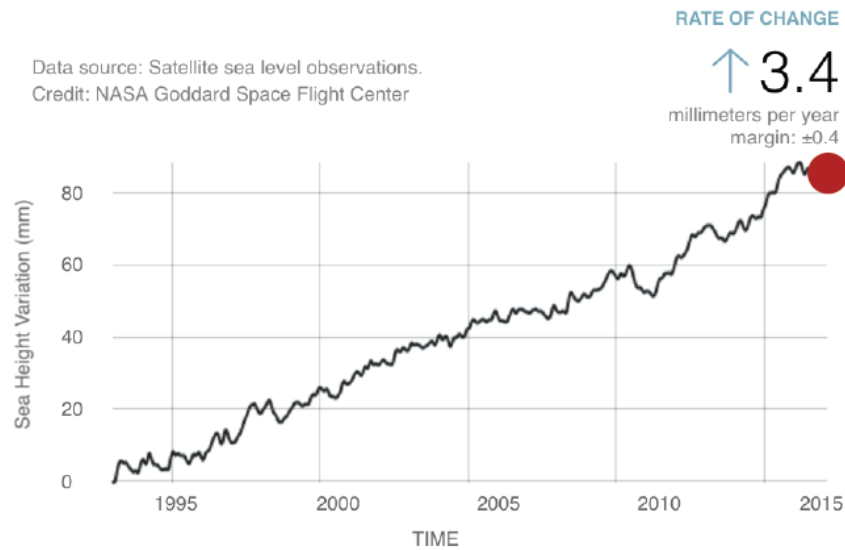
Impacts of climate change are more pronounced. Concentrations of CO₂ reached 403.3 parts per million (ppm) in 2016, up from 369.64 ppm in 2000 (a 9.1% increase).

The last time Earth experienced similar CO₂ concentration rates was during the Pliocene era (three to five million years ago), a time when the Greenland and the West Antarctic ice sheets had melted, and sea level were 20m higher than now.

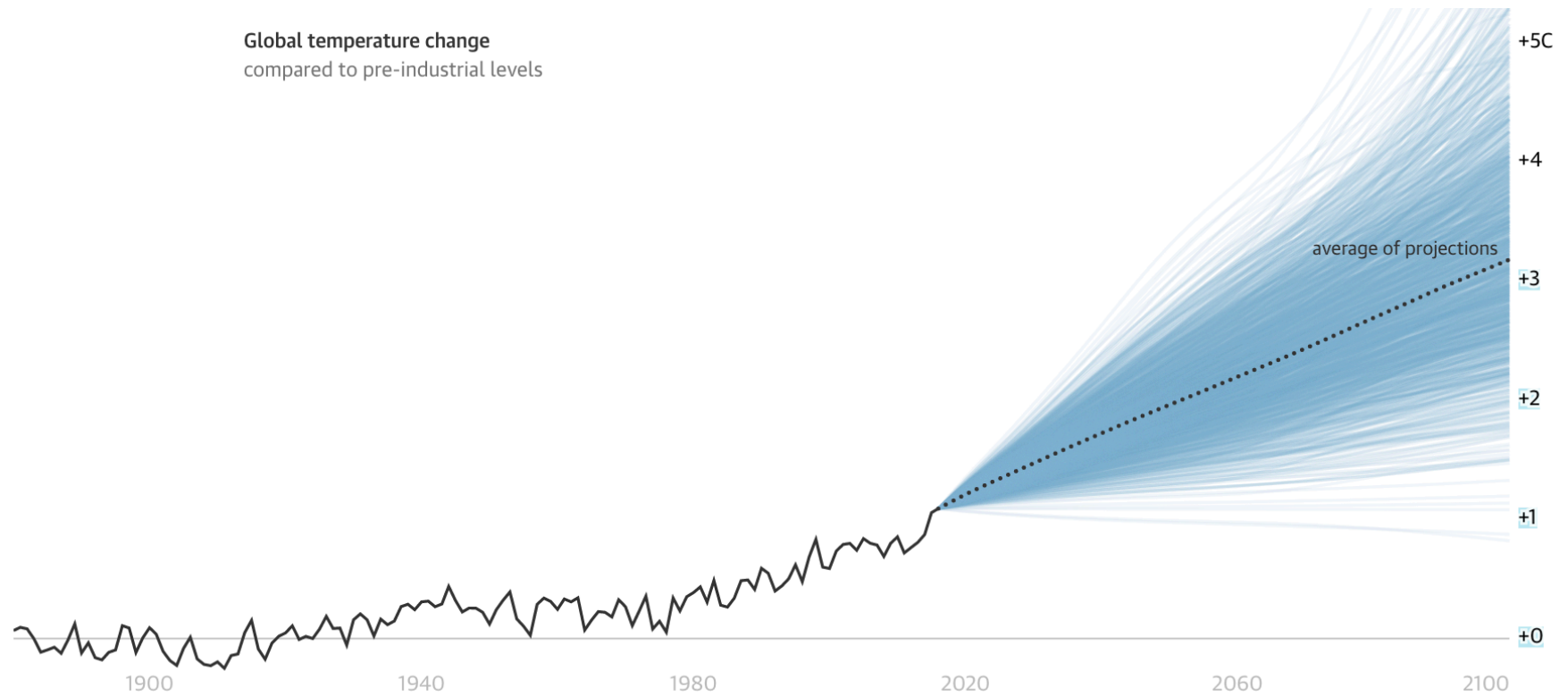




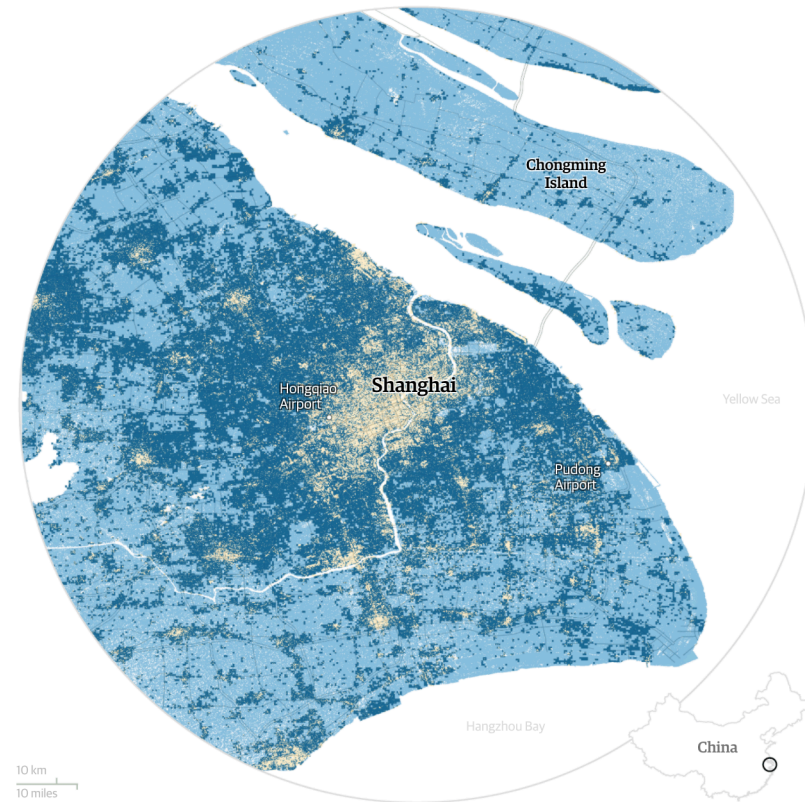
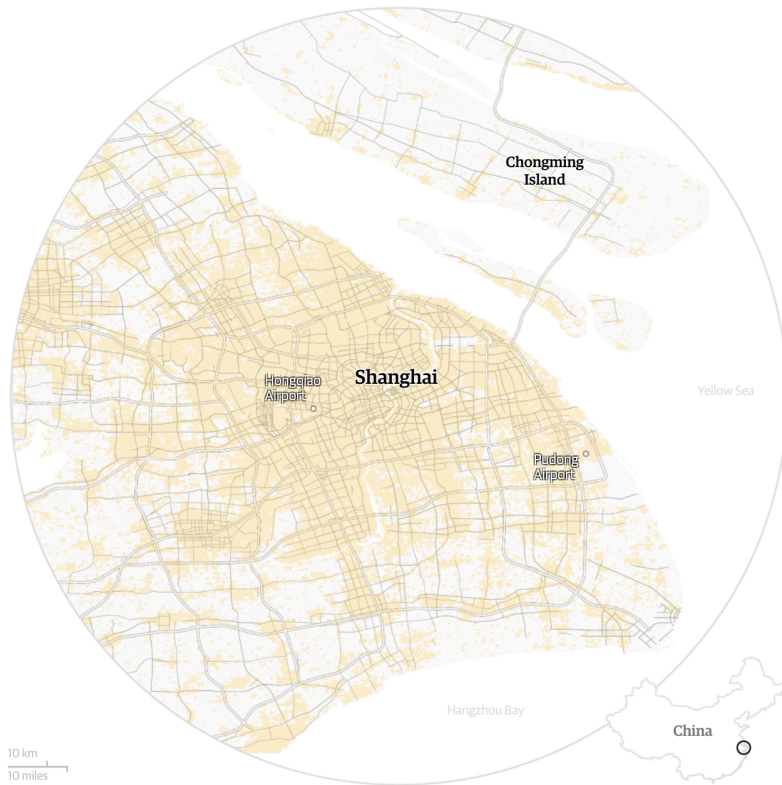
Sea Level Rise, 1993-Present



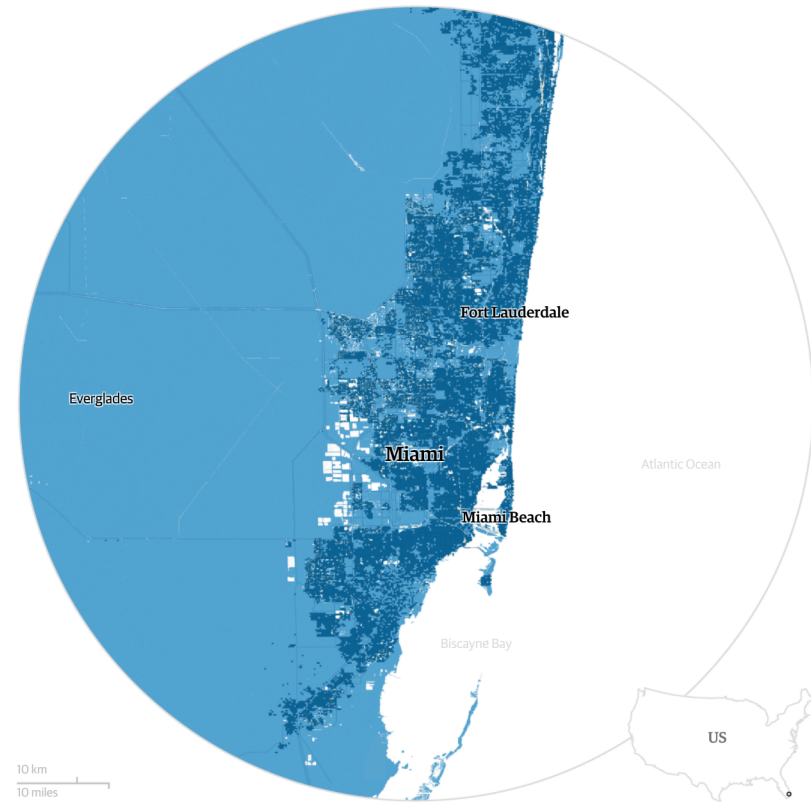
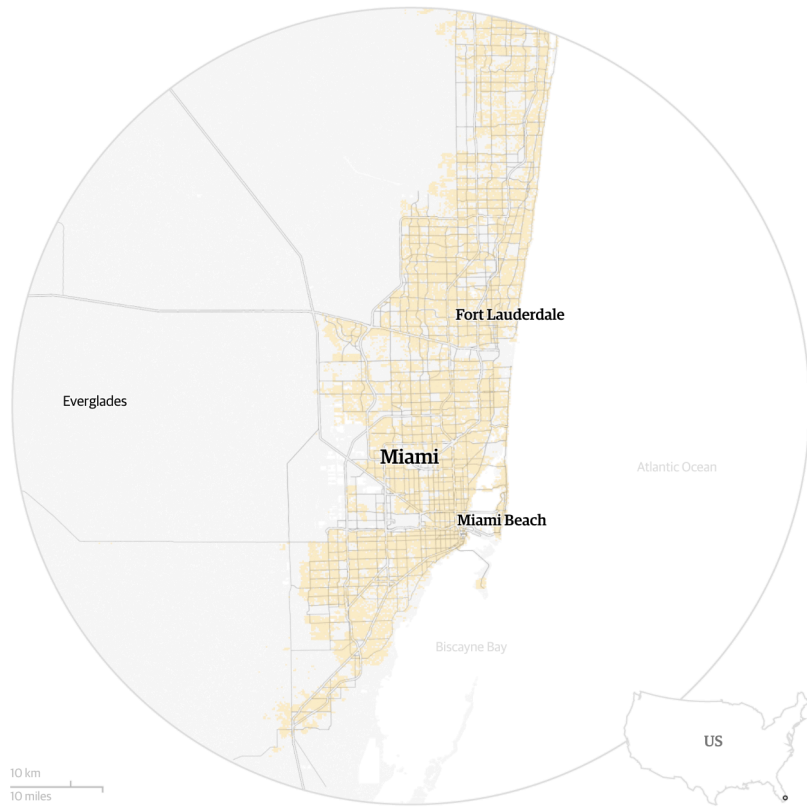
Latest projections pointing to an increase of 3.2°C by 2100.



Impacts of 3.2°C+ warming – Shanghai (China) (Sea level rise – sustainability of urban places)



Impacts of 3.2°C+ warming – Miami (USA) (Sea level rise – sustainability of urban places)



Implications for:

- **Biophysical interactions** – biosphere, impact on the frequency and intensity of atmospheric and hydrological events; geomorphic processes
- **Population** – spatial distribution, forced migrations
- **Development geography** – desertification in the Sub-Saharan region, rising sea levels, impacts on food security etc.
- **Geopolitics** – conflict arising from the impacts of climate change
- **Ecosystems at risk** – impacts on specific ecosystems – reefs, wetlands etc.
- **Urban places** – sustainability of urban places
- **People and productive activity** – impacts on productive activities – tourism, viticulture etc.

Population

- Declining fertility (births per woman)#

1964 – 5.068 (peak)

2000 – 2.668

2017 – 2.453

World population:

- 2000 6.1 billion

- 2017 7.6 billion

- Increasing life expectancy

1964 – 54.719

2000 – 67.685

2017 – 71.889

2050 – 77.0*

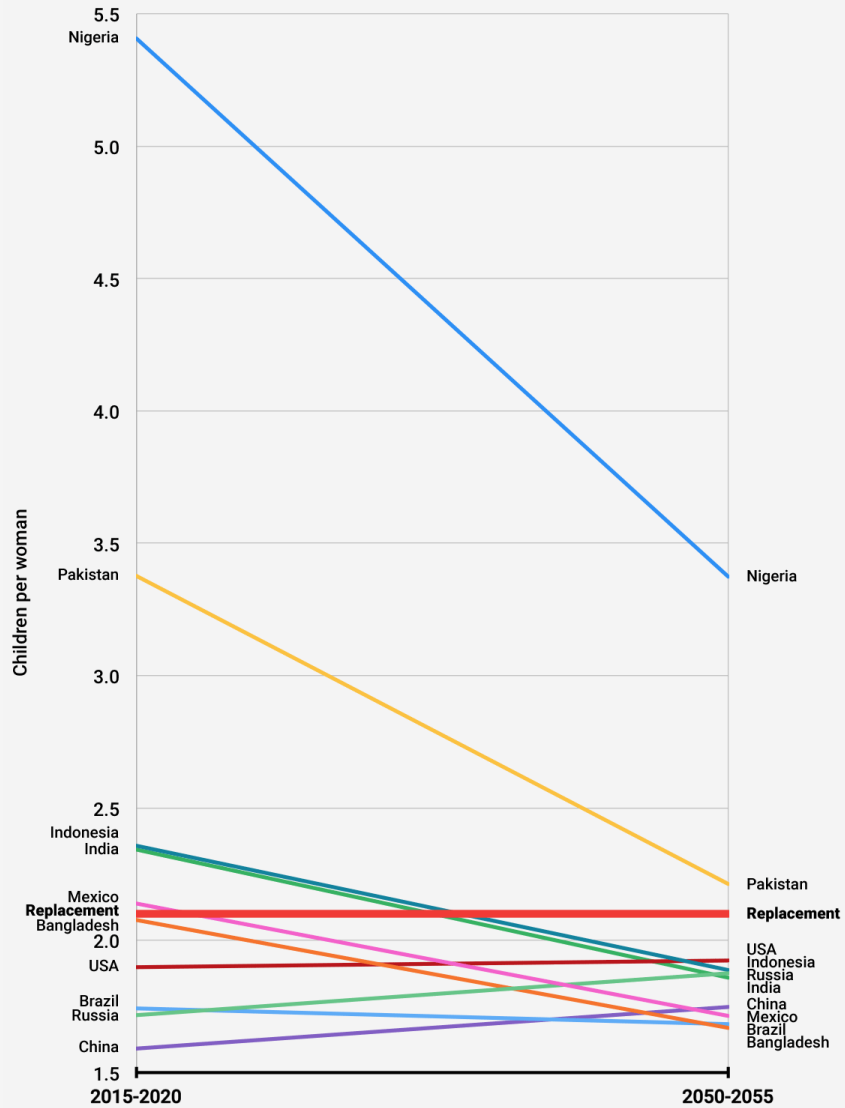
2100 – 83.0*

Replacement rate – 2.1%

* Projections

Africa: The increase was greatest in the African region where life expectancy increased by 11.9 years to 62.5 years, driven mainly by improvements in child survival, progress in malaria control and expanded access to antiretrovirals for treatment of HIV.

TOTAL FERTILITY RATE, 2015 AND 2050



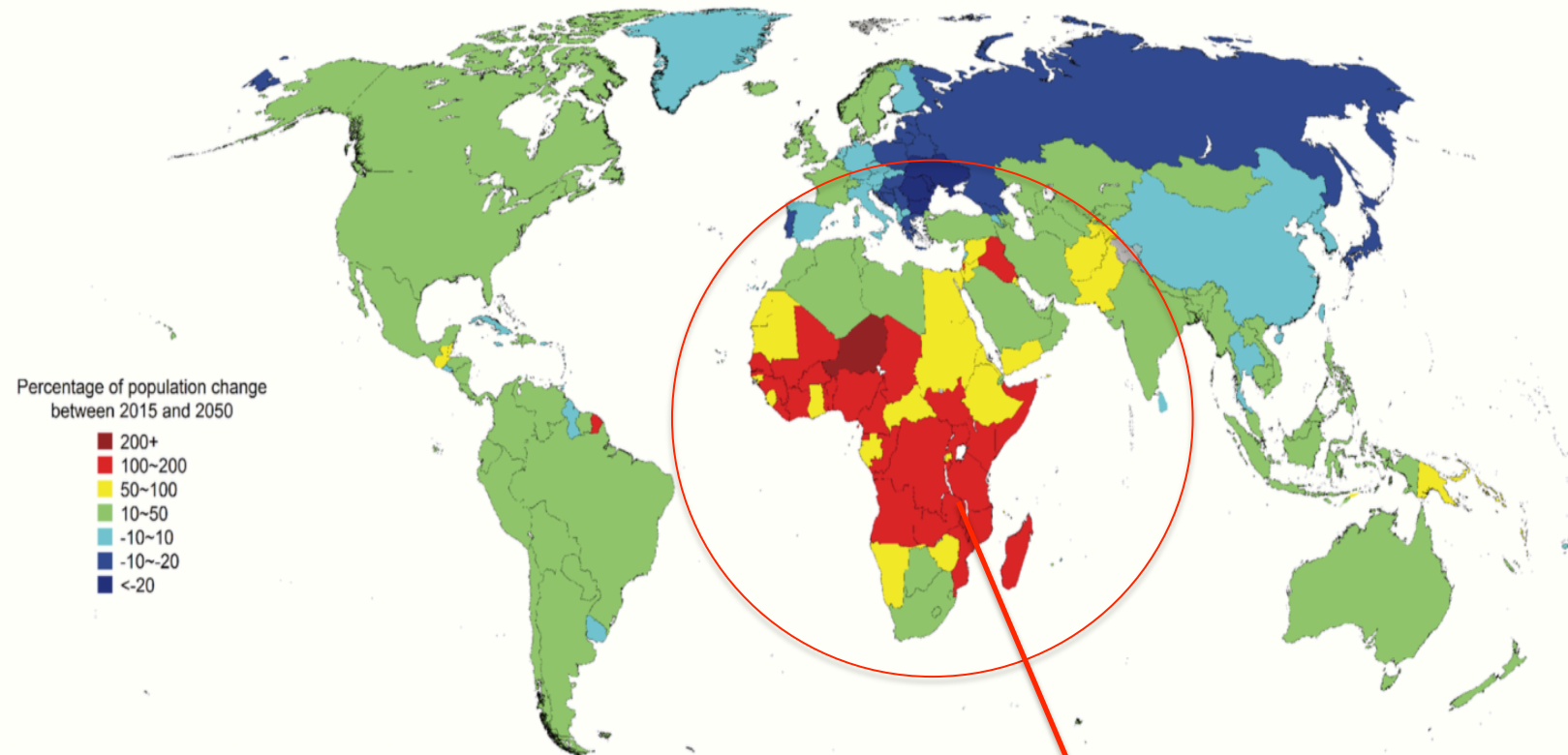
SOURCE: UN Population Division, "World Population Prospects, the 2015 Revision"

BUSINESS INSIDER



By mid-century most countries will have fertility rates at or below the replacement rate.

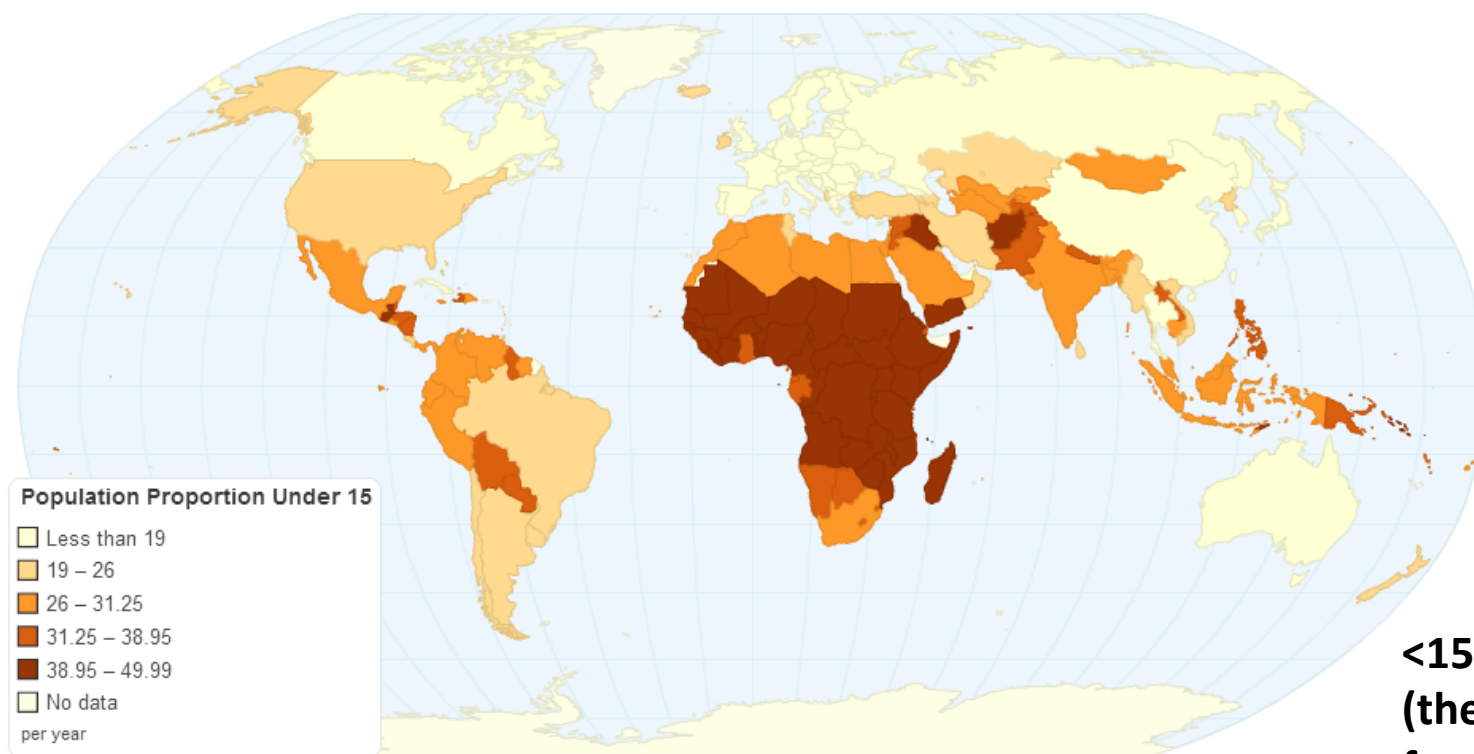
Projected population growth, 2015-2050



Data source: World Population Prospects: The 2015 Revision
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.
Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

Rates remain relatively high in Sub-Saharan and Central Africa.

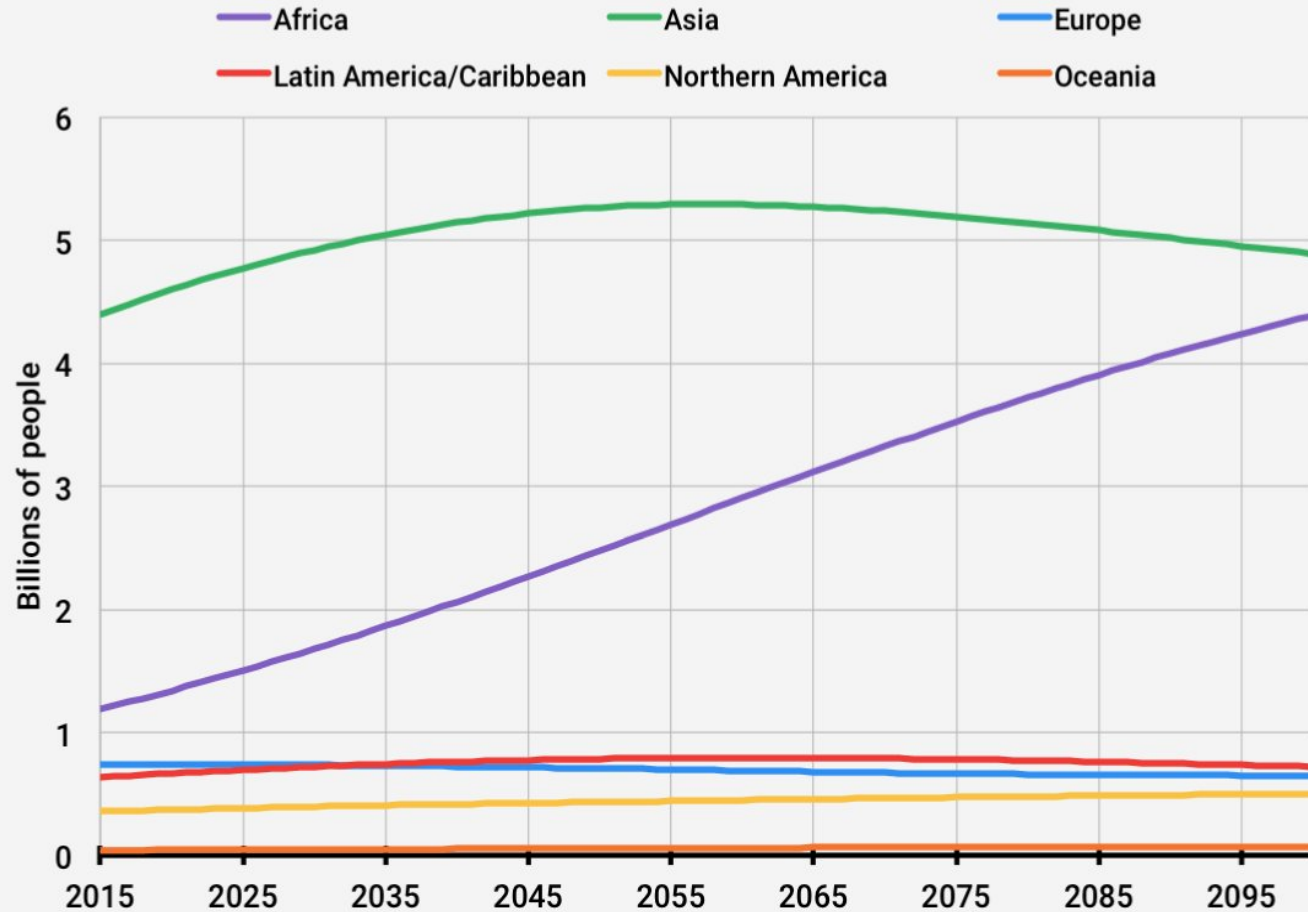
Population under 15 years



**<15 years of age
(the engine of
future growth)**

1966– 39.9% (peak)
1990 – 32.9%
2000 – 30.1%
2016 – 26.1%

Population projections, 2015-2100



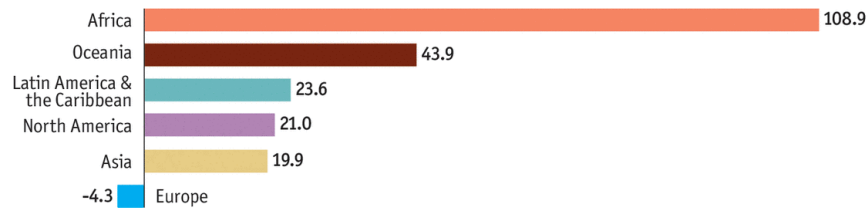
SOURCE: UN Population Division, "World Population Prospects, the 2015 Revision"

TECH INSIDER

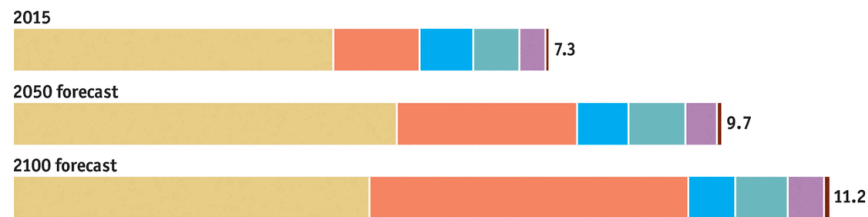
Distribution of the world's population

The world's population

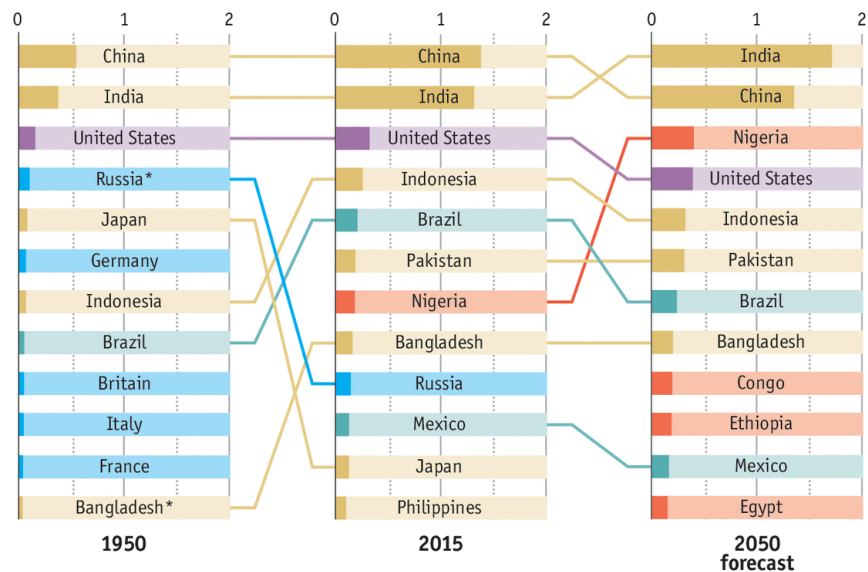
Regional % change, 2015-50 forecast



Total population, bn



Most populous countries, bn



Sources: UN; *The Economist*

* Did not exist as countries in 1950. Historical estimates made using modern borders

- Africa's population to more than double by 2050. And then double again by 2100.
- Asia's population to grow by 19% by 2050. And decline from about 2060.
- Europe's population will decline by 4.3% between 2015 and 2050.
- Africa and Asia will account for more than three quarters of the world's population by 2050.
- Nigeria will be the world's third most populous nation by the end of the century, behind India and China.

Implications for:

- **Biophysical interactions** – biosphere: habitat loss, declining biodiversity; atmosphere: increasing CO2 emissions
- **Development geography** – Growth will be greatest in the region least equipped to cope. Desertification in the Sub-Saharan Africa, impacts on food security etc.
- **Geopolitics** – potential for resource-based conflicts, especially in Africa. Forced population migrations, refugees
- **Ecosystems at risk** – population pressure
- **Urban places** – urbanisation; growth and sustainability of urban places

Political Geography

- Global terrorism (post-September 11)
- **The rise of China**
- Nuclear tensions – North Korea & Iran
- Nationalist movements – Catalonia & Scotland
- Rise of new political movements – especially on the far right (and the alt-right*) – Germany (AfD), UK (UKIP), Austria (Austrian People's Party), Poland, USA (Trump), and Australia? – Reclaim Australia, United Patriotic Front, One Nation, Australian Conservatives – Often a response to the impacts of globalisation, especially trade liberalisation and immigration.

* Alt-right – loosely defined group of activists with far-right ideologies who reject mainstream conservatism in favour of white nationalism.

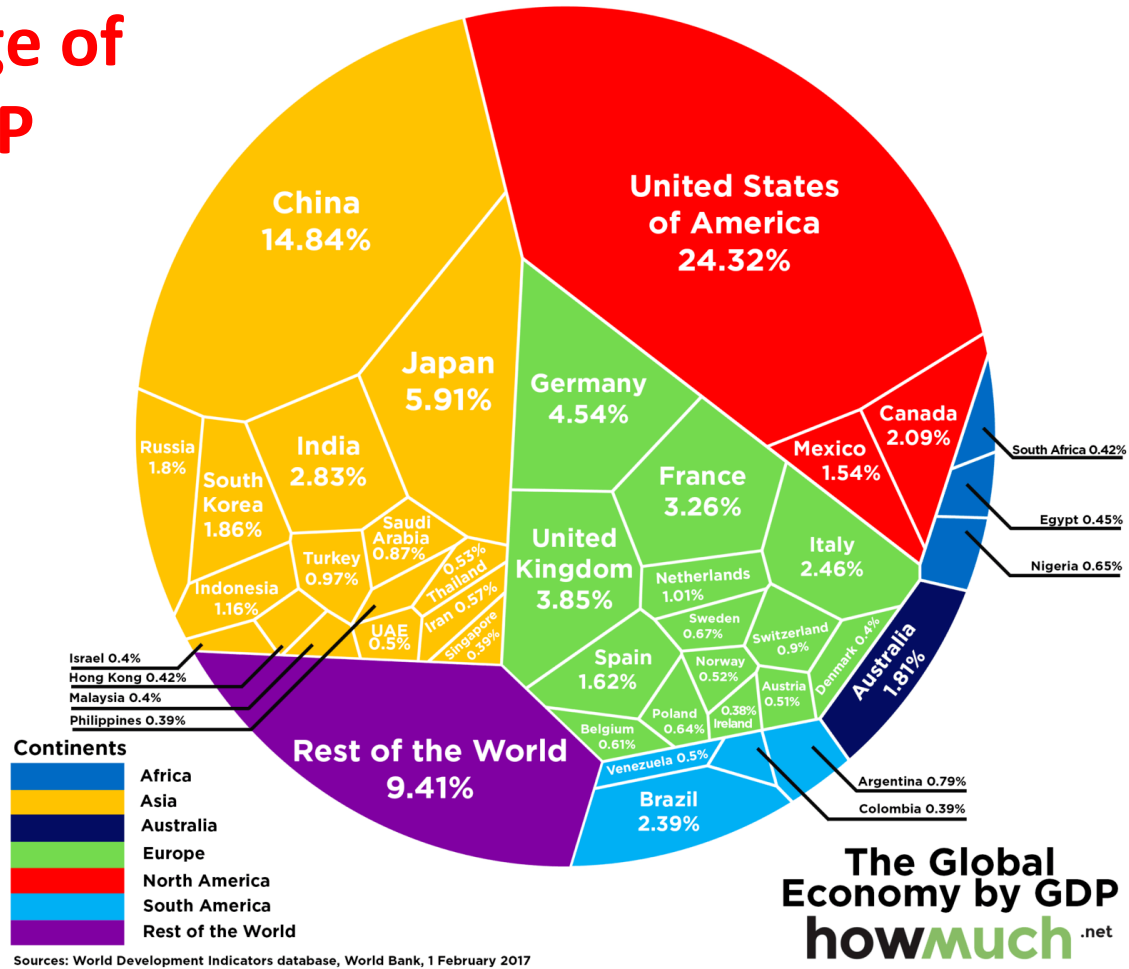
It's all about China!

- China is closing in on the USA as the world's largest economy.
- The centre of geopolitical and economic power is shifting to East Asia (and potentially South Asia)
- Since initiating market-based reforms in 1978, China has experienced rapid economic and social development. GDP growth has averaged nearly 10% a year—the fastest sustained expansion by a major economy in history—and has lifted more than 800 million people out of poverty.
- Xi Jinping – China aims to be a 'leading global power' by 2050, with a 'world class military' – 'One belt, One road' initiative.
- China's middle class – By 2022, 76% of China's urban population will be middle class. Up from just 4% in 2000. That's 550 million consumers! Accounts for the surge in global tourism and the consumption of goods and services.
- Chinese travellers venturing abroad spent \$261 billion on foreign travel in 2016. China is now the world's largest source market for outbound tourism.

Changing pattern of global economic power

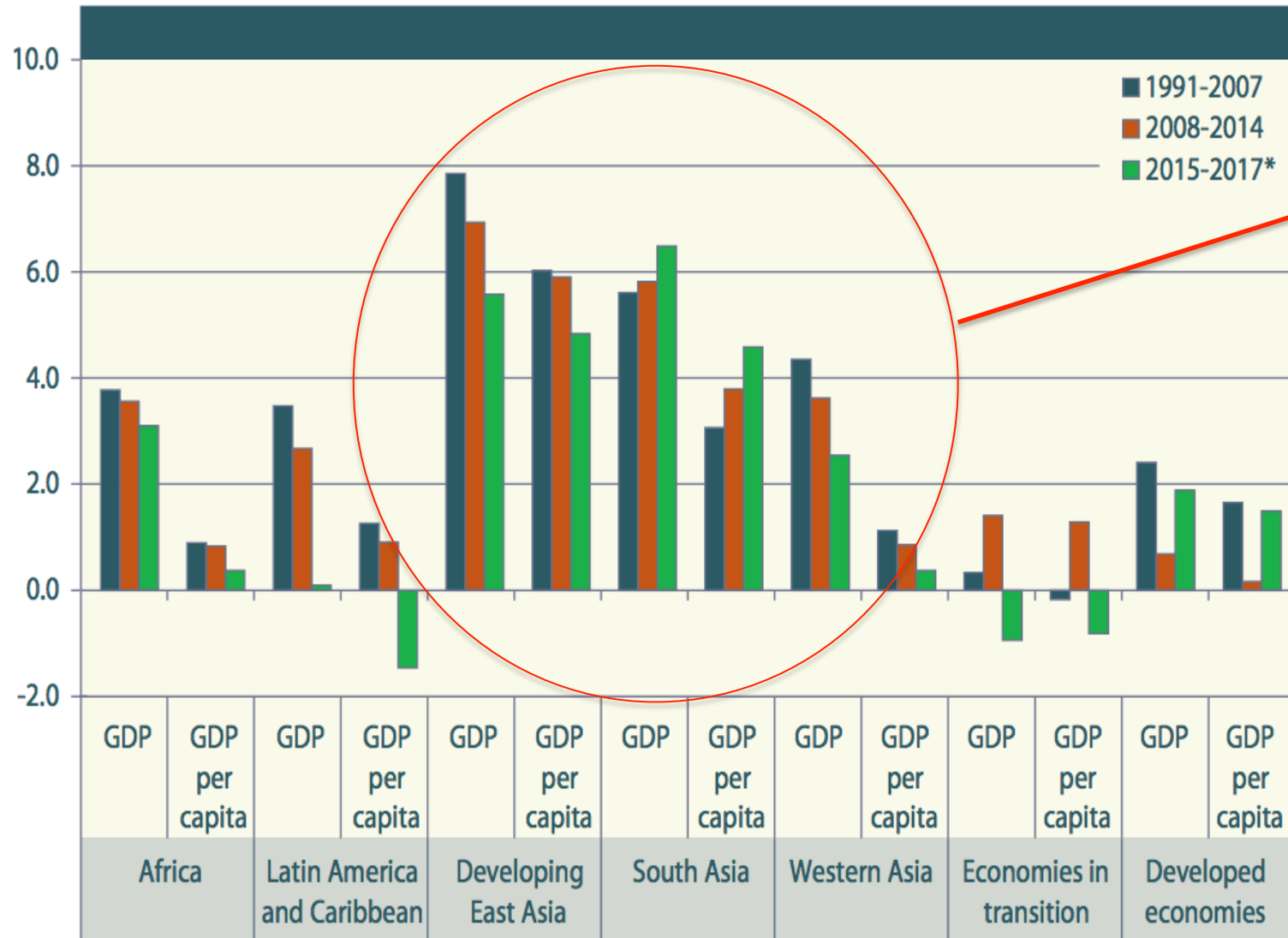
- The economy of the United States is the largest in the world. At \$18 trillion, it represents a quarter share of the global economy (24.3%). China follows, with \$11 trillion, or 14.8% of the world economy. Japan is in third place with an economy of \$4.4 trillion, which represents almost 6% of the world economy.
- European countries take the next three places on the list: Germany in fourth position, with a \$3.3 trillion economy; the United Kingdom in fifth with \$2.9 trillion; and France in sixth with \$2.4 trillion.
- India is in seventh place with \$2 trillion, and Italy in eighth with an economy of over \$1.8 trillion. Ninth place goes to Brazil, with an almost \$1.8 trillion economy. And in 10th place is Canada, with an economy of over \$1.5 trillion.
- Although China trails the US by \$7 trillion it's catching up. China's economy grew by 6.7% in 2016, compared with America's 1.6%, according to the IMF

Percentage of global GDP



By 2050, China will be the world's largest economy because like all emerging economies it will continue to grow faster than advanced ones. India will rank second, the US will be third, and fourth place is expected to go to Indonesia.

GDP and GDP per capita growth

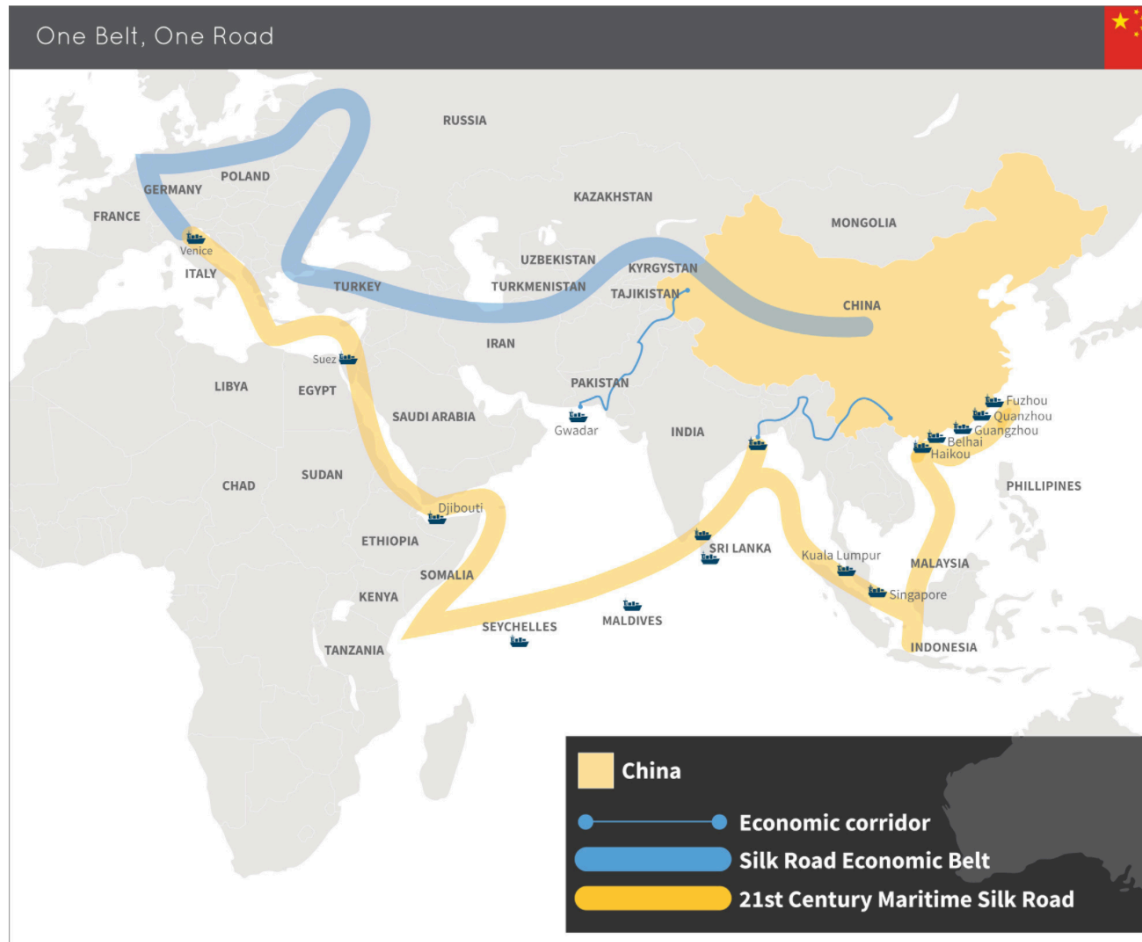


Asia's growth rates greatly exceed the growth rates of the developed worlds

*Includes estimates and forecasts.

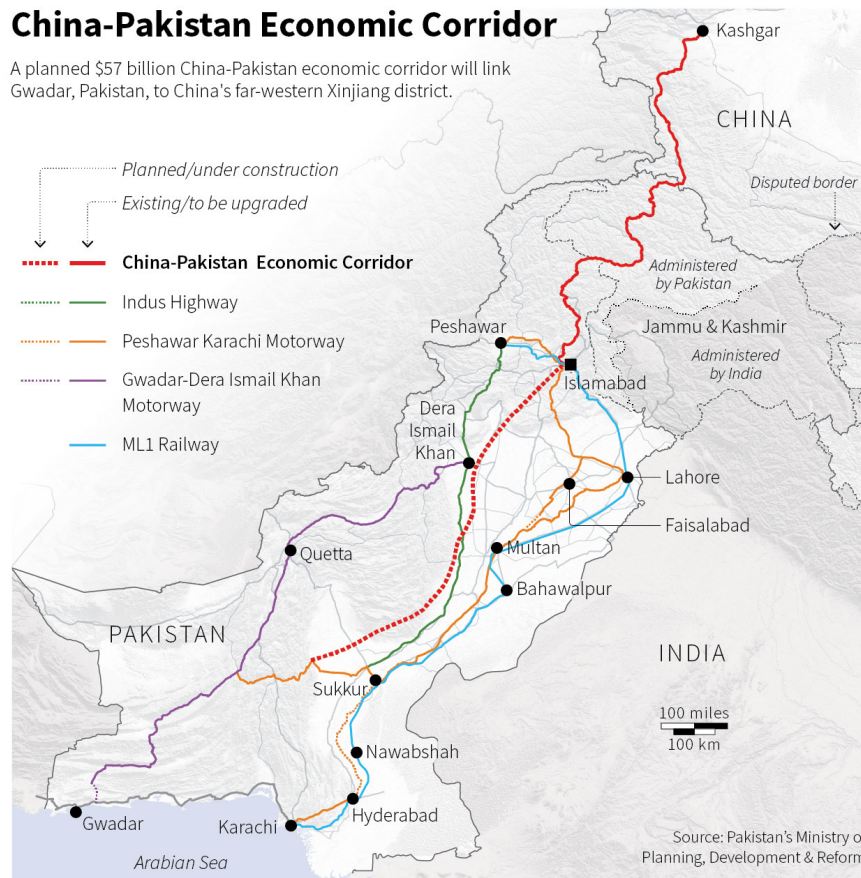
Source: UN/DESA.

China's One Belt, One Road



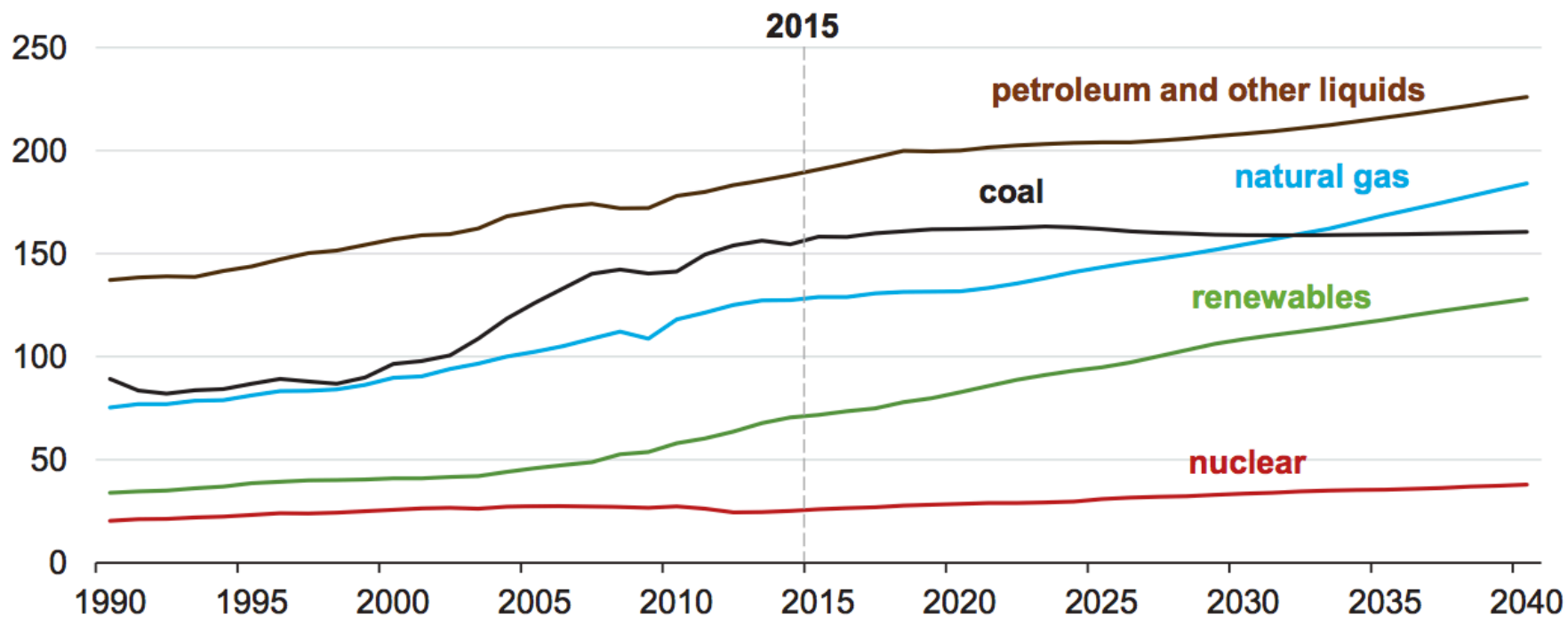
Xi Jinping's 'One belt, One road' initiative, which will invest hundreds of billions of dollars in infrastructure projects across Eurasia, is designed to create a Beijing-dominated geopolitical block that overshadows the transatlantic alliance.

The China-Pakistan Economic Corridor



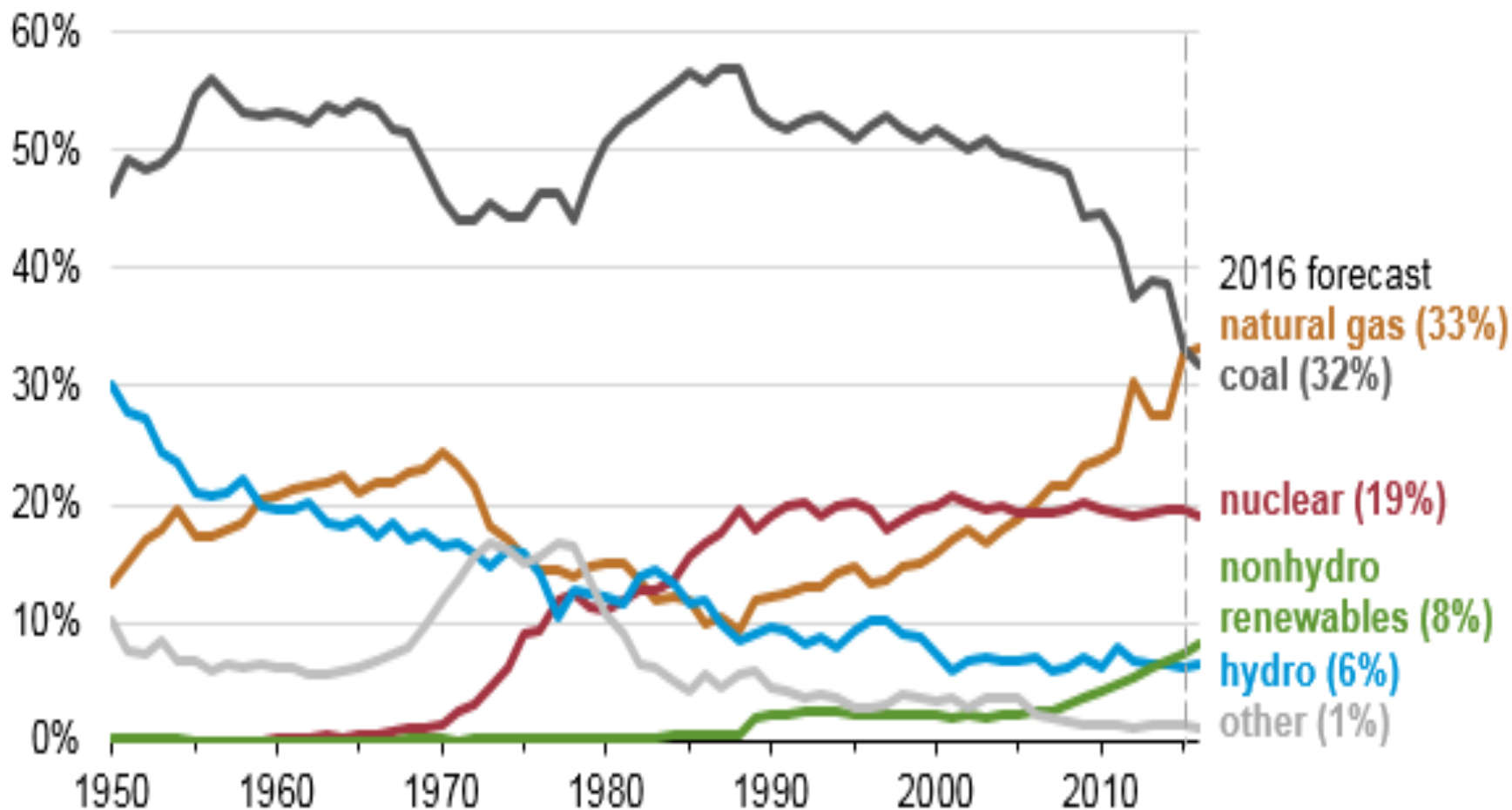
Rising geopolitical tensions between China and India.

World energy consumption by energy source quadrillion Btu



Annual share of total U.S. electricity generation by source (1950-2016)

percent of total



China: Kicking the (coal) habit!

In 2016 China announced that it has stopped building 103 coal-powered power plants that were in the construction or planning phase. Thirty were abandoned in 2015.

The cancellations make it likelier that China will meet its goal of limiting its total coal-fired power generation capacity to 1,100 gigawatts by 2020. That huge figure (three times the total coal-fired capacity in the United States) is far more than China needs. Its coal plants now run at about half of capacity, as new sources of power, like wind, solar and nuclear, are coming online.



Pollution kills 1.1 million people in China each year.

At the Chinese Communist Party's annual congress in 2015, the Party declared war on air pollution in China. The aim: 'To make the skies blue again'. Among the State's main weapons: Reducing the production of steel and of coal-fired electricity. To replace coal, China is rolling out the world's biggest investment in wind and solar power.

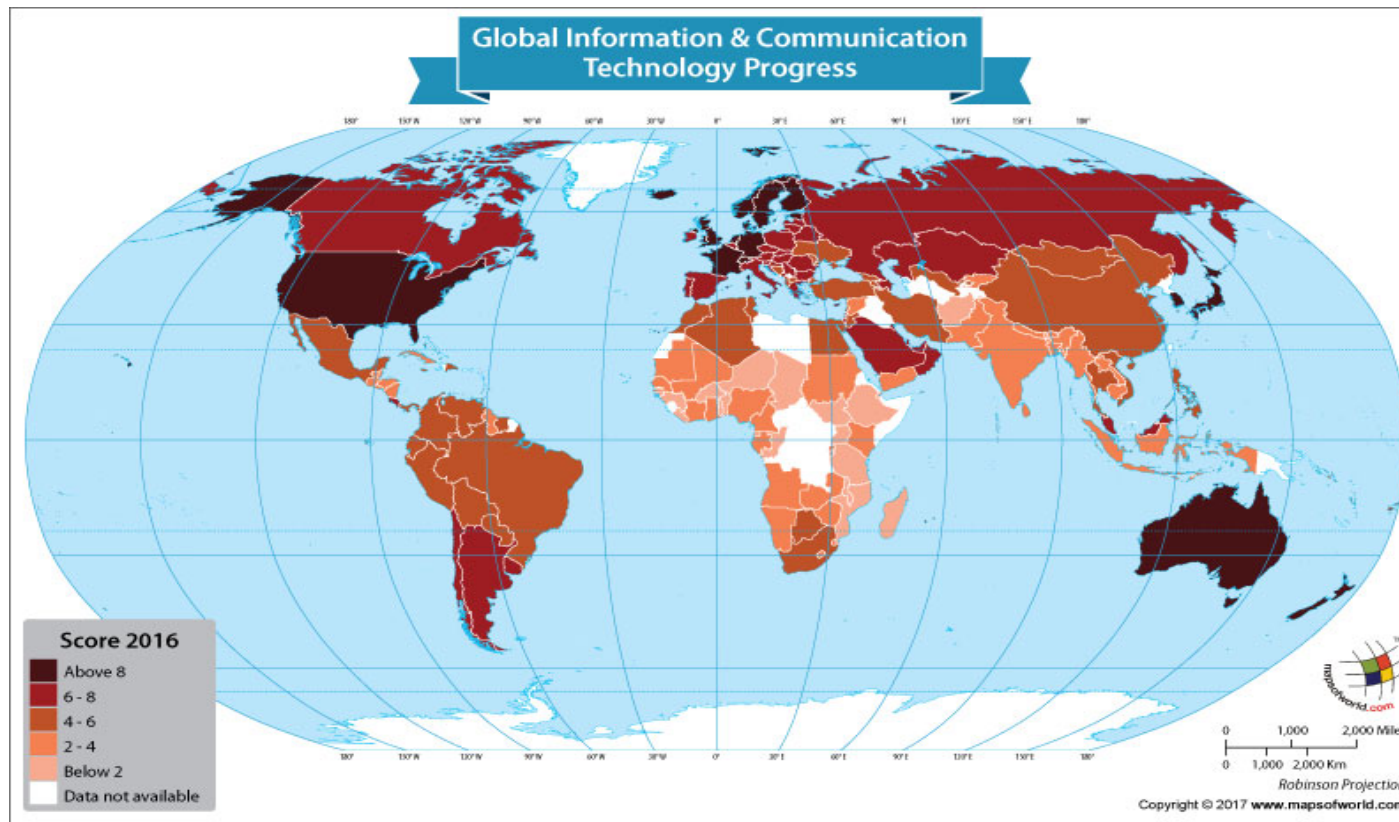
Sundrop Farm's South Australian solar facility and tomato greenhouses



Cultural Integration

- Focus remains on the diffusion, adoption and adaptation of mass consumer culture; the factors affecting cultural integration; and the impacts of cultural integration.
- Role of information and communications technologies.
- There is not, however, a trend towards cultural homogenisation. Take the Middle East for example. Global media technologies and the internet are increasingly penetrating the region and subtly transforming social norms that have persisted for hundreds of years. Ultimately, however, the societies of the region will retain their distinctiveness. External cultural impulses will be subject to a complex process of cultural adaptation and adoption.
- Cultural conflict – the rise of terrorism (Samuel P Huntington's thesis)
- Global media networks – new sources/new platforms. The power of social media and the rise of 'fake news'. Political polarisation in the search for advertising revenue.

ICT Development Index, 2017



The index measures a country's ICT capabilities in terms of access, use and relevant skills.

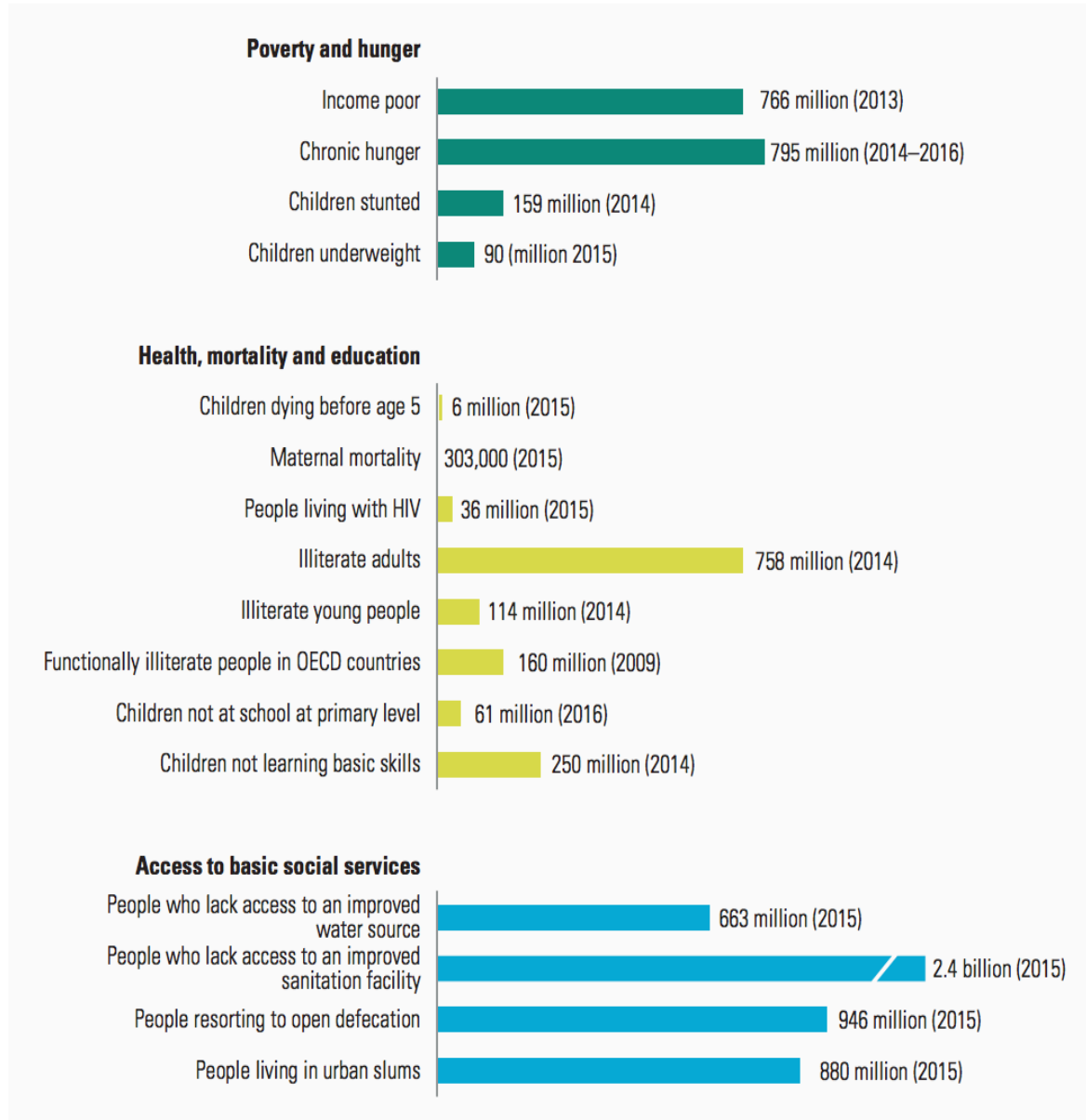
Development Geography

Definitional challenge – ‘Least developed countries’, ‘Developing countries’, ‘Developed countries’. What of the ‘emerging’ economies of south and east Asia?

GNI/capita: Singapore and South Korea, for example, now rank higher than Spain, Portugal and Greece.

The focus is now on the wellbeing of people in the ‘least developed’ countries.

Human deprivation lingers in some indicators of well-being

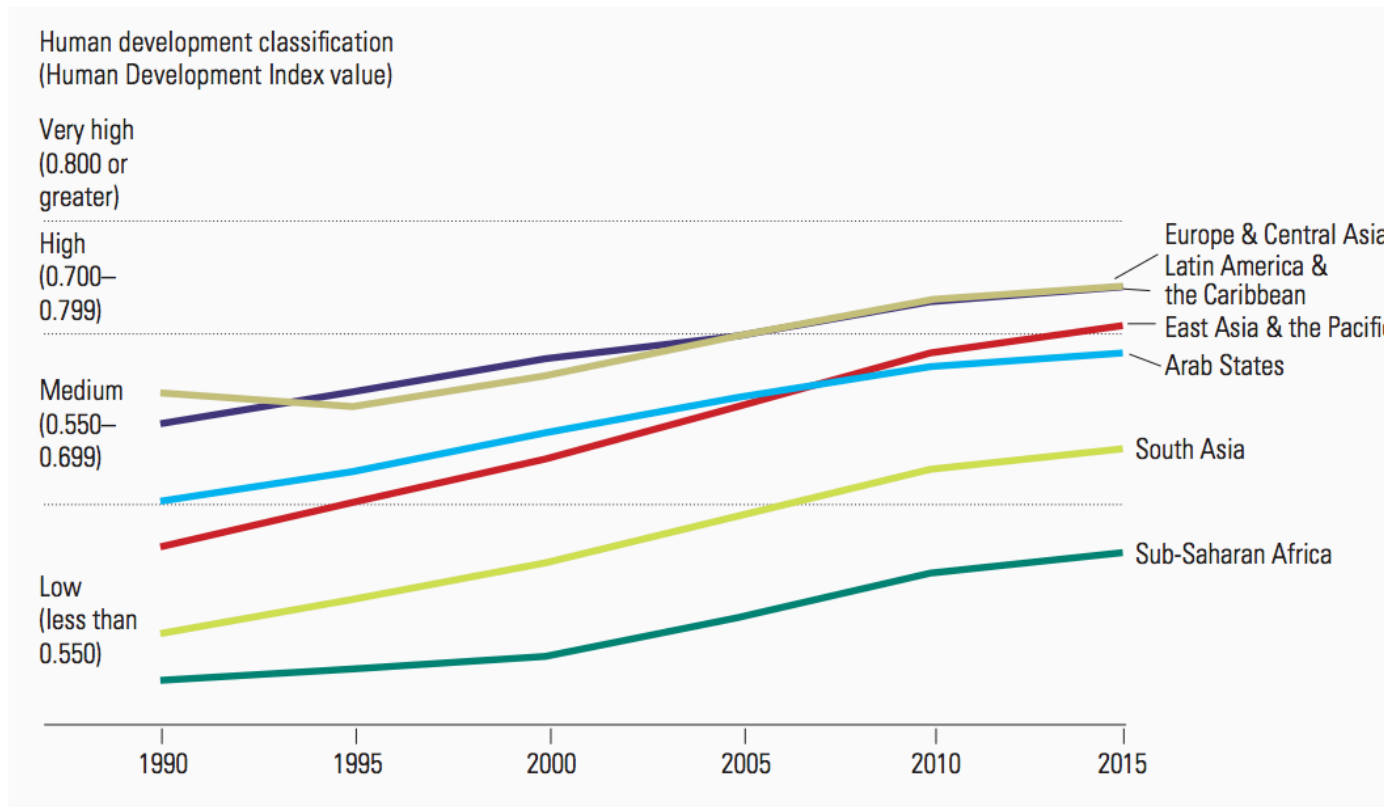


Challenges persist

Source: Human Development Report Office.

Regional trends in HDI

Regional trends in Human Development Index values



Source: Human Development Report Office.

Millennium Development Goals (MDG) have been replaced by ‘The Seventeen Sustainable Development Goals’ (SDG).

The seventeen sustainable development goals

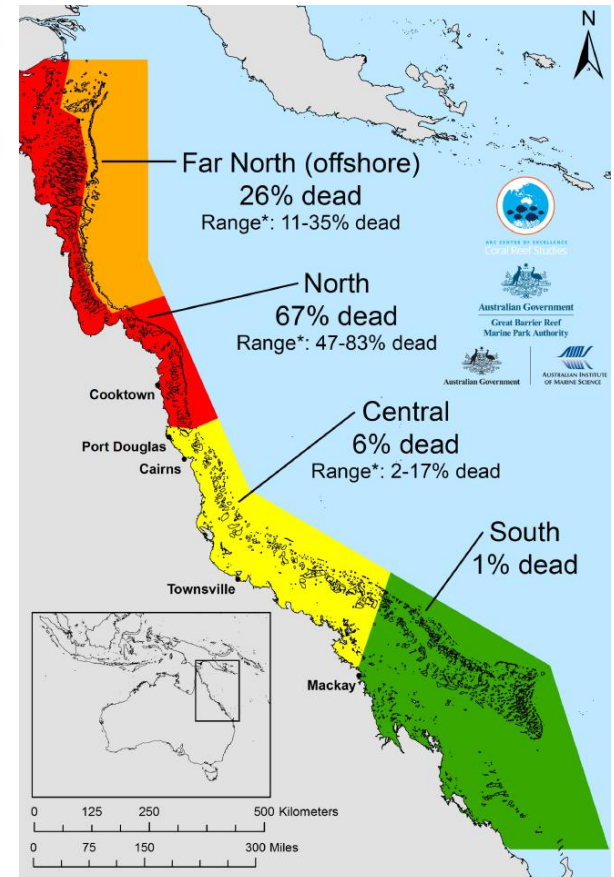
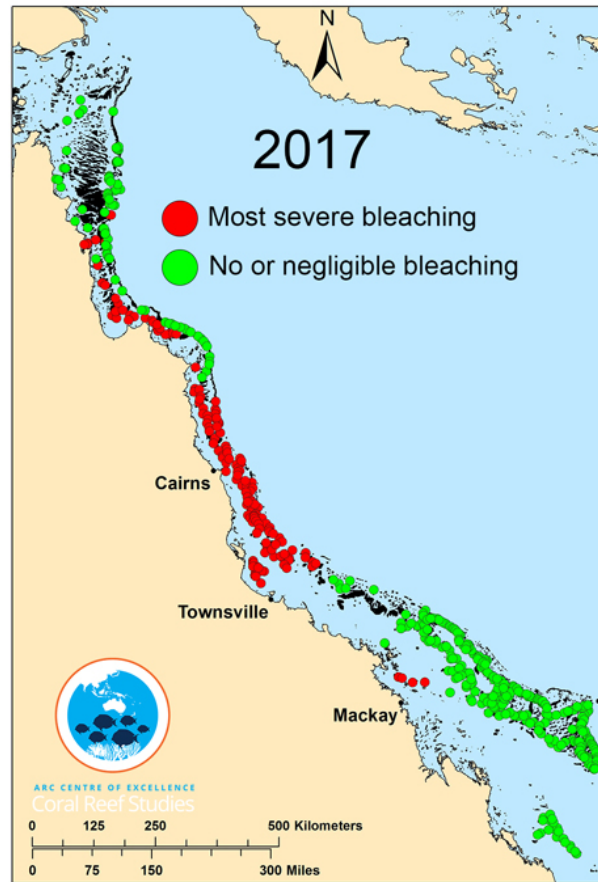
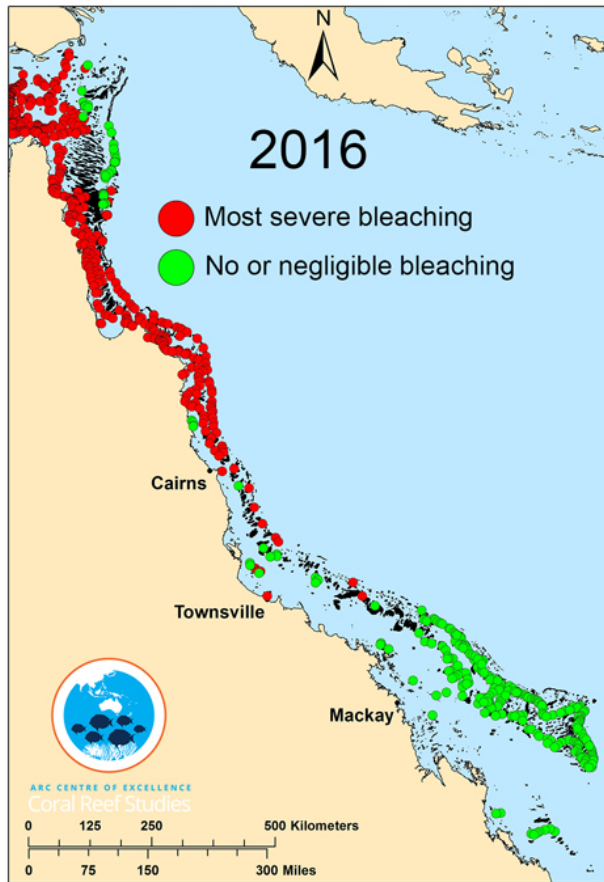
Goal 1	No poverty – End poverty in all its forms everywhere
Goal 2	Zero hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Good health and well-being – Ensure healthy lives and promote well-being for all at all ages
Goal 4	Quality education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Gender equality – Achieve gender equality and empower all women and girls
Goal 6	Clean water and sanitation – Ensure availability and sustainable management of water and sanitation for all
Goal 7	Affordable and clean energy – Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Decent work and economic growth – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Industry, innovation and infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
Goal 10	Reduce inequality – Reduce inequality within and among countries
Goal 11	Sustainable cities and communities – Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Responsible consumption and production – Ensure sustainable consumption and production patterns
Goal 13	Climate action – Take urgent action to combat climate change and its impacts
Goal 14	Life below water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15	Life on land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Peace, justice and strong institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Partnerships for the goals – Strengthen the means of implementation and revitalise the global partnership for sustainable development

Ecosystems at risk

Threats:

- Climate change (impacts on the distribution and survival of species)
- Deforestation and habitat loss
- Overexploitation and unsustainable use (overhunting, overfishing, and overharvesting)
- Invasive species
- Pollution (including excessive nutrient load)

Example: Coral bleaching



Urban places

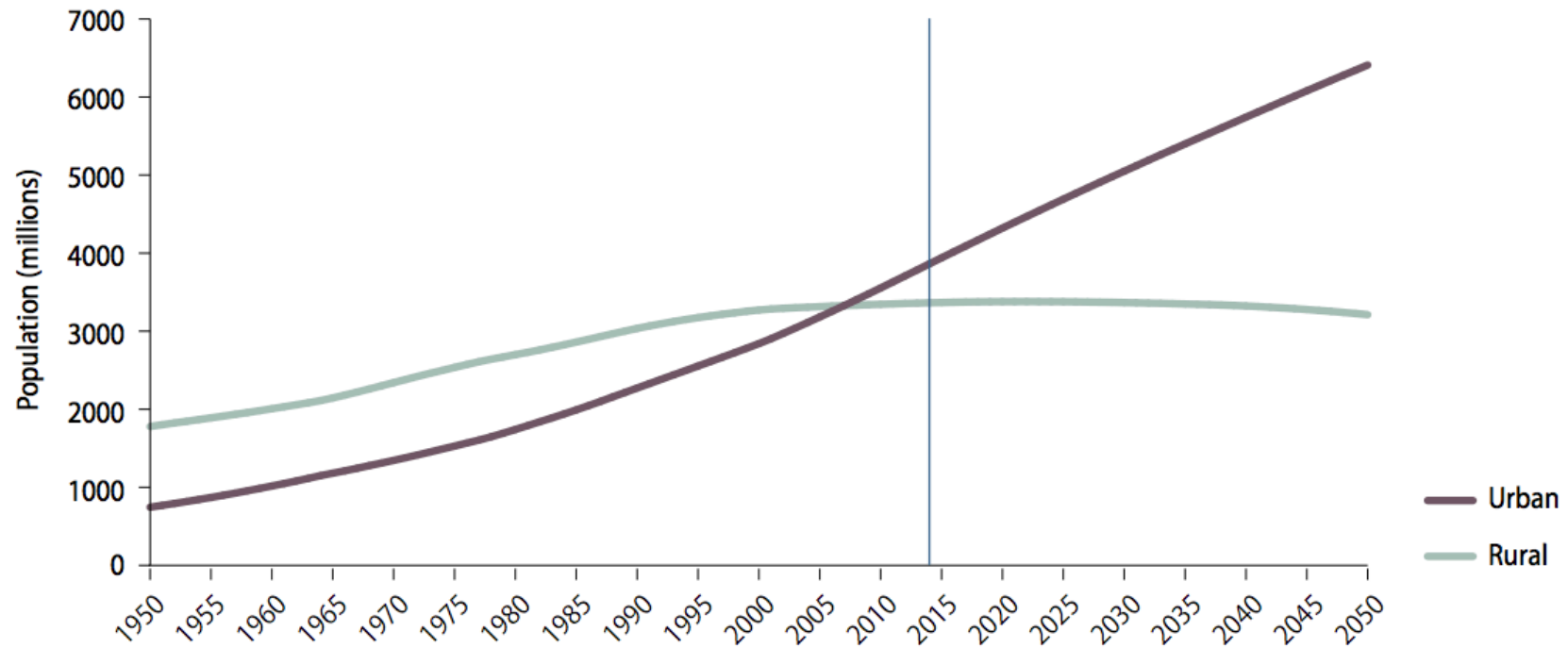


Urbanisation

Global rate:

- 2000 46.8%
- 2017 54.3%

Urban and rural population of the world, 1950–2050



World Cities

Evolving understanding and competing classification systems



Forbes' classification

Forbes uses eight criteria to determine the world's top 10 most influential cities

- The amount of foreign direct investment they have attracted
- The concentration of corporate headquarters
- How many particular business sectors they dominate
- Air connectivity (ease of travel to other global cities)
- Strength of producer services
- Financial services
- Technology and media power
- Racial diversity.

The world's top 10 most influential cities (Forbes 2014)

Rank	City	Country
1	London	United Kingdom
2	New York	USA
3	Paris	France
4	Singapore	Singapore
5	Tokyo	Japan
6	Hong Kong	Peoples Rep. of China
7	Dubai	United Arab Emirates
= 8	Beijing	Peoples Rep. of China
= 8	Sydney	Australia
= 10	San Francisco	USA
= 10	Los Angeles	USA
= 10	Toronto	Canada

Source: Forbes 2014 [<https://www.forbes.com/pictures/edgl45ghmd/no-1-london/#23a1488734fd>]

Globalisation and World Cities Research Network (GaWC) classification

- **Alpha ++** cities are vastly more integrated into the global economy than all other cities.
- **Alpha +** cities are those that complement London and New York City by filling advanced service niches for the global economy.
- **Alpha** and **Alpha-** cities linking major economic regions into the world economy.
- **Beta** cities linking moderate economic regions into the global economy.
- **Gamma** level cities linking smaller economic regions into the global economy.

World Cities Research Network's (GaWC) hierarchy of world cities, 2016

Alpha world cities
<ul style="list-style-type: none"> • (Alpha ++) London, New York • (Alpha +) Singapore, Hong Kong, Paris, Beijing, Tokyo, Dubai, Shanghai • (Alpha) Sydney, Sao Paulo, Milan, Chicago, Mexico City, Mumbai, Moscow, Frankfurt, Madrid, Warsaw, Johannesburg, Toronto, Seoul, Istanbul, Kuala Lumpur, Jakarta, Amsterdam, Brussels, Los Angeles • (Alpha -) Dublin, Melbourne, Washington, New Delhi, Bangkok, Zurich, Vienna, Taipei, Buenos Aires, Stockholm, San Francisco, Guangzhou, Manila, Bogota, Miami, Luxembourg, Riyadh, Santiago, Barcelona, Tel Aviv, Lisbon
Beta world cities
<ul style="list-style-type: none"> • (Beta +) Prague, Ho Chi Minh City, Boston, Copenhagen, Dusseldorf, Athens, Munich, Atlanta, Bucharest, Helsinki, Budapest, Kiev, Hamburg, Bangalore, Rome, Oslo, Dallas, Cairo, Houston, Lima, Lagos, Caracas, Auckland, Cape Town • (Beta) Doha, Karachi, Nicosia, Geneva, Montevideo, Berlin, Montreal, Abu Dhabi, Casablanca, Philadelphia, Vancouver, Shenzhen, Sofia, Perth, Hanoi, Beirut, Brisbane, Bratislava, Manama • (Beta -) Port Louis, Minneapolis, Chennai, Stuttgart, Santo Domingo, Rio De Janeiro, Kuwait City, Chengdu, Panama City, Denver, Lahore, Jeddah, Tunis, Quito, Belgrade, Seattle, Manchester, Guatemala City, Lyon, San Jose, Tianjin, Calgary, Amman, San Juan, San Salvador, Antwerp, Zagreb, Calcutta, Tallinn, St Louis, Monterrey, Hyderabad, Edinburgh, San Diego, Cologne, Rotterdam, Dhaka, Islamabad
Gamma world cities
<ul style="list-style-type: none"> • (Gamma +) Guayaquil, Cleveland, Riga, Baku, Adelaide, Vilnius, Birmingham, Glasgow, Nanjing, Hangzhou, Colombo, Porto, Qingdao, Valencia, Detroit, Muscat, Osaka, Ljubljana, Kampala, Georgetown, Managua, Durban, San Jose, St Petersburg • (Gamma) Phoenix, Tegucigalpa, Austin, Pune, Guadalajara, Dalian, Tbilisi, Dar Es Salaam, Chongqing, Ankara, Lusaka, Ahmedabad, Cincinnati, Asuncion, Harare, Gothenburg, Xiamen, Al Mawsi, Kansas City, Accra, Minsk, Tampa, Turin, Luanda, Abidjan, Tirana, Lausanne, Leeds • (Gamma -) Taichung, Charlotte, Baltimore, Raleigh, Belfast, Leipzig, Medellin, Wuhan, Douala, Maputo, Skopje, Gaborone, Bristol, Orlando, Dakar, Suzhou, Malmo, Edmonton, Changshu, Strasbourg, Bilbao, Bologna, Columbus, Wellington, Nurnberg, Yangon, Xi'an, Wroclaw, Marseille, Dresden, Shenyang, Pittsburgh

A.T. Kearney's 'Global Elite' ranking of world cities

The criteria used to rank the cities included business activity, human capital, information exchange, cultural experiences and political engagement.

A.T. Kearney's 'Global Elite' ranking of world cities, 2016

Rank	City	Country
1	New York	USA
2	London	United Kingdom
3	Paris	France
4	Tokyo	Japan
5	Hong Kong	Peoples Rep. of China
6	Los Angeles	USA
7	Chicago	USA
8	Singapore	Singapore
9	Beijing	Peoples Rep. of China
10	Washington DC	USA
11	Seoul	Republic of Korea
12	Brussels	Belgium
13	Madrid	Spain
14	Sydney	Australia
15	Melbourne	Australia
16	Berlin	Germany
17	Toronto	Canada
18	Moscow	Russia
19	Vienna	Austria
20	Shanghai	Peoples Rep. of China
21	Buenos Aires	Argentina
22	Amsterdam	The Netherlands
23	San Francisco	USA
24	Boston	USA
25	Istanbul	Turkey

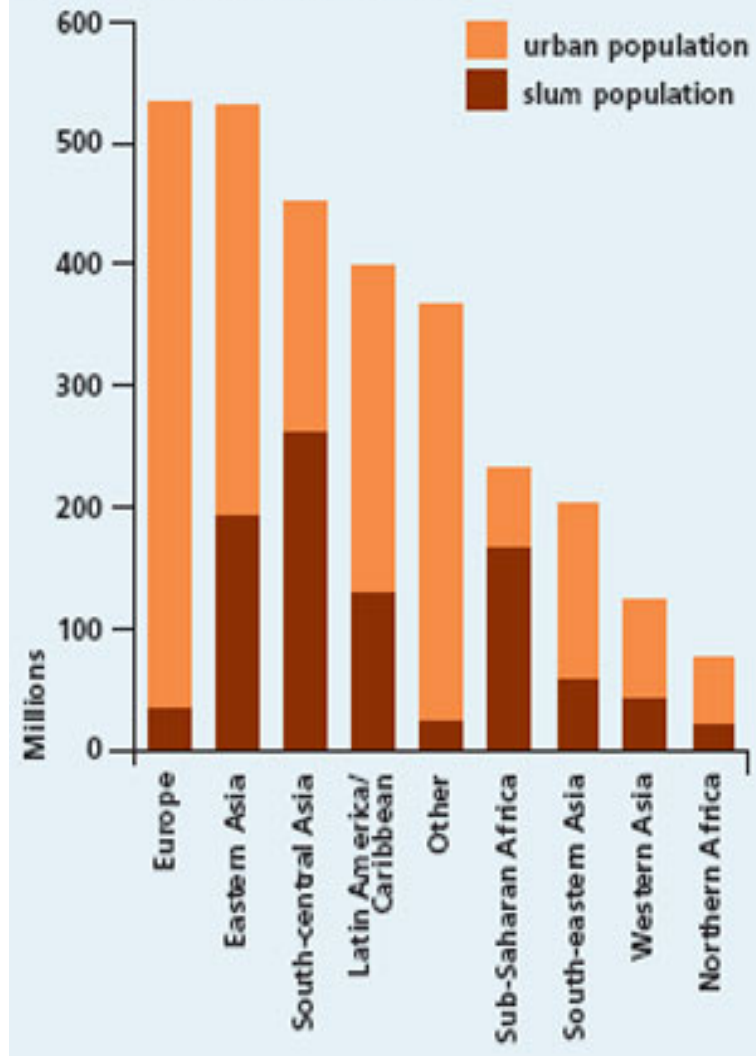
Source: AT Kearney, Global City, 2016

Megacities

- Problematic definition
- Syllabus definition – ‘large city in the developing world’. But what constitutes the ‘developing world’ in 2017?

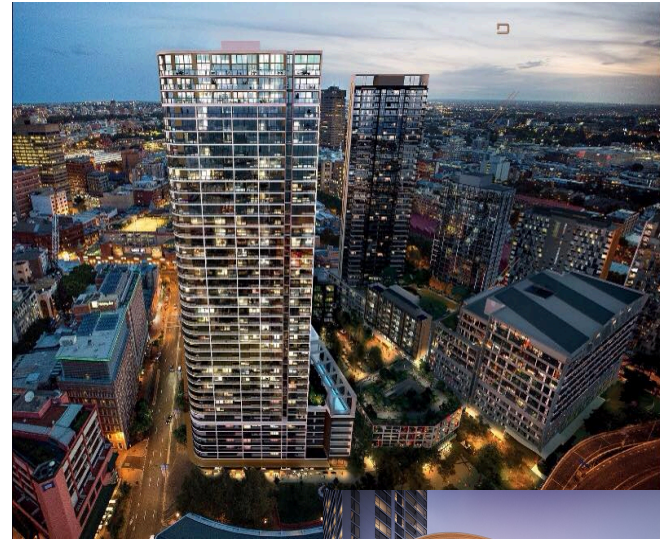


Slum population by region¹



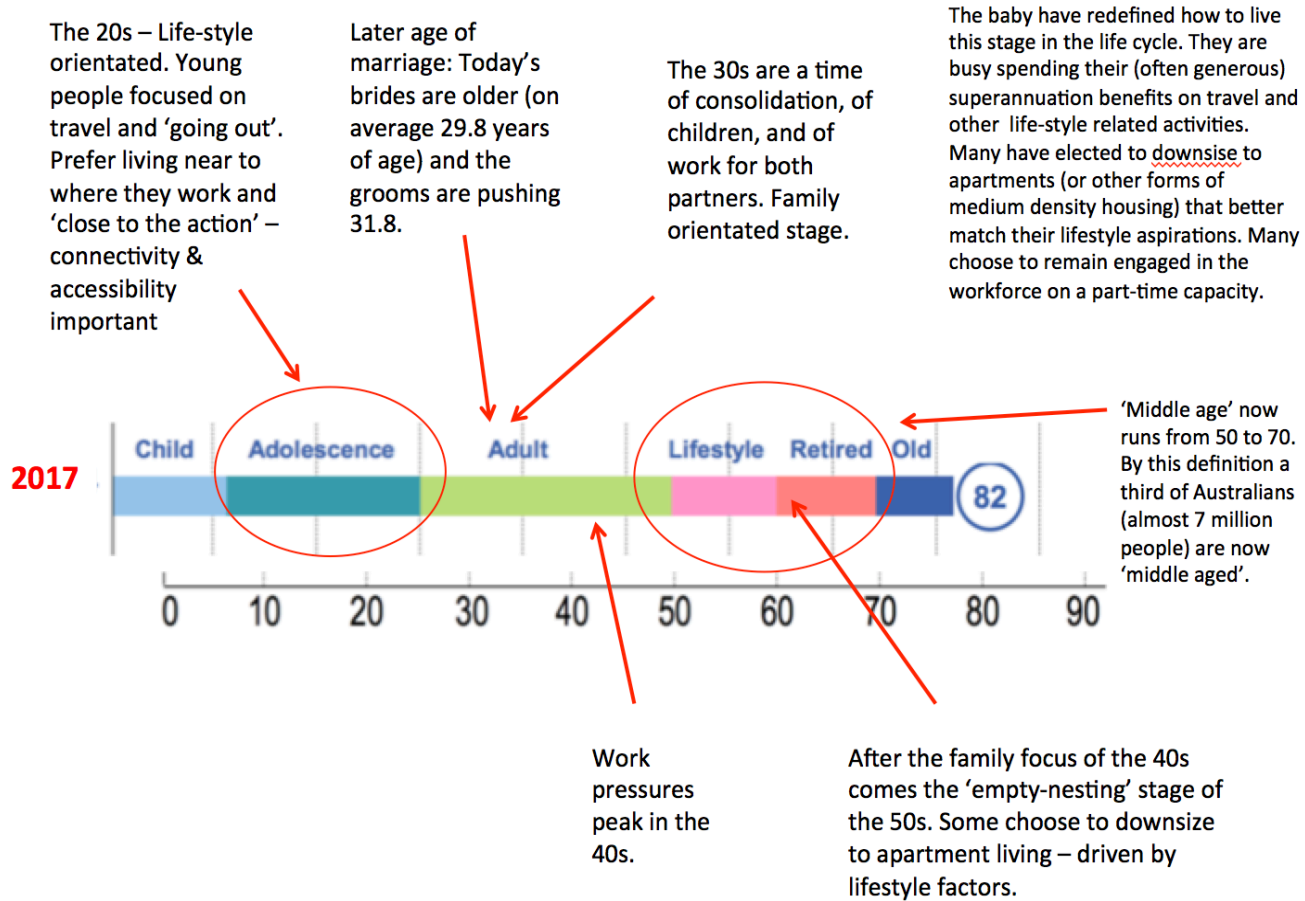
Urban dynamics

- Suburbanisation
- Exurbanisation
- Counterurbanisation and decentralisation
- Urban consolidation
- Urban decay and renewal
- Urban villages
- Spatial exclusion (or fortified suburbs)



Urban intensification – policy driven – a response to rapid population growth, social and demographic change and changing lifestyles expectations. ‘Connectivity’ a key driving force.

Social change



Changing Australian Households

2011

- Couple families with children – 44.1%
- Couple families without children – 37.9%
- One-parent families – 16.2%

2016

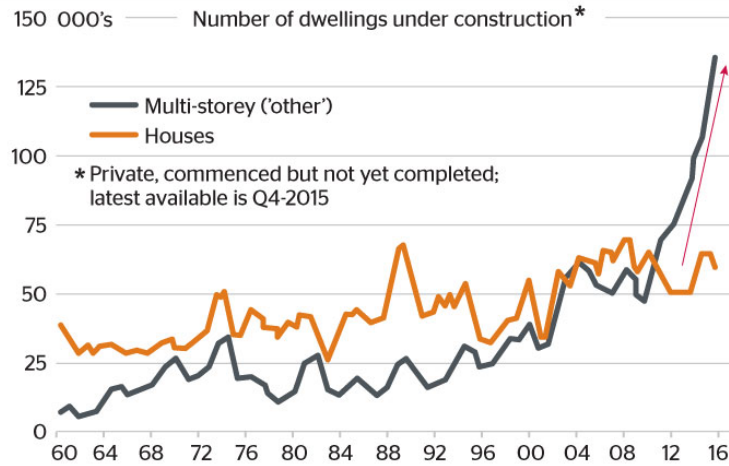
- Couple families with children – 42.4%
- Couple families without children – 39.3%
- One-parent families – 16.5%

2026 (projected)

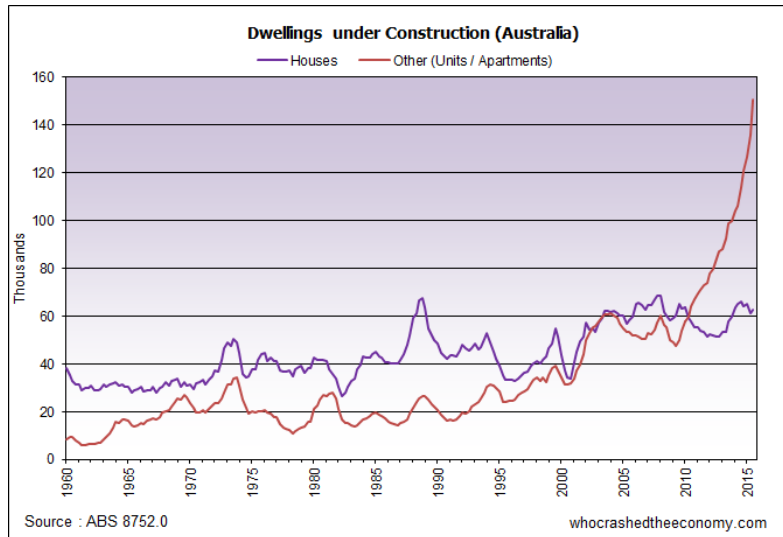
- Couple families with children – 41.5%
- Couple families without children – 40.1%
- One-parent families – 16.7%

Sydney's apartment boom

Multi-storey apartments boom

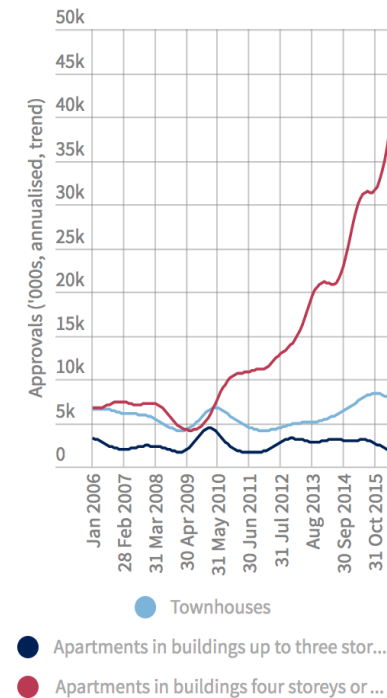


SOURCE: ABS, UBS



High-rise on the rise

Building approvals for high-rise apartments have skyrocketed in NSW in the past six years – a trend that is set to continue.



Source: ANZ Research

Large City in the developed world: Sydney



Remember the syllabus requires students to Undertake a case study of the results of the urban dynamics (economic, social and technological change) in a large city selected from the developed world including its:

- social structure and spatial patterns of advantage and disadvantage, wealth and poverty, ethnicity
- changing economic character, nature and location of residential land, commercial and industrial development
- culture of place as expressed in the architecture, streetscape, heritage, noise, colour, street life, energy, vitality and lifestyles
- growth, development, future trends and ecological sustainability

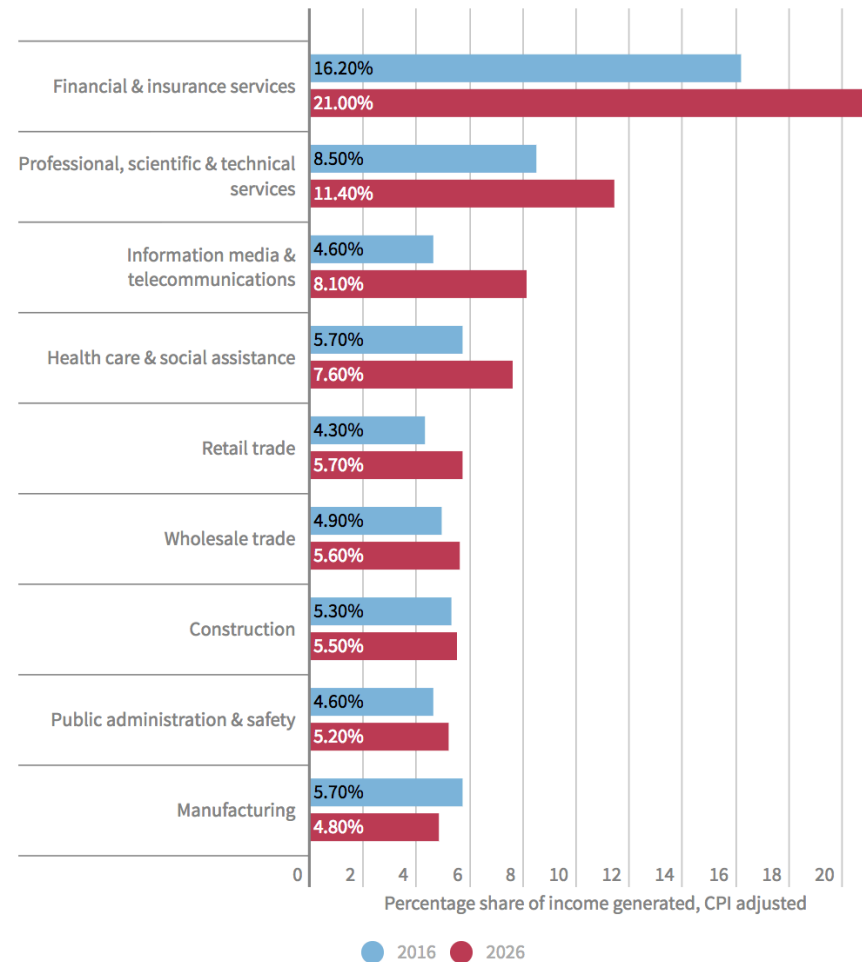
Economic change

Sydney's economic transformation

- Over the past two decades Sydney's economy has been transformed into one that is knowledge-driven and service-based.
- Today, finance and insurance command a 16.2 per cent share of Sydney's economy. This is forecast to increase to 21 per cent in a decade.
- Add in professional services and it will represent more than 40 per cent of the city's economy.
- 40% of the Australia's economic growth took place in Sydney in 2015-16.

Income generated in Sydney

In 2026, the financial and insurance service sector is forecast to continue its growth as Sydney's main income generator.

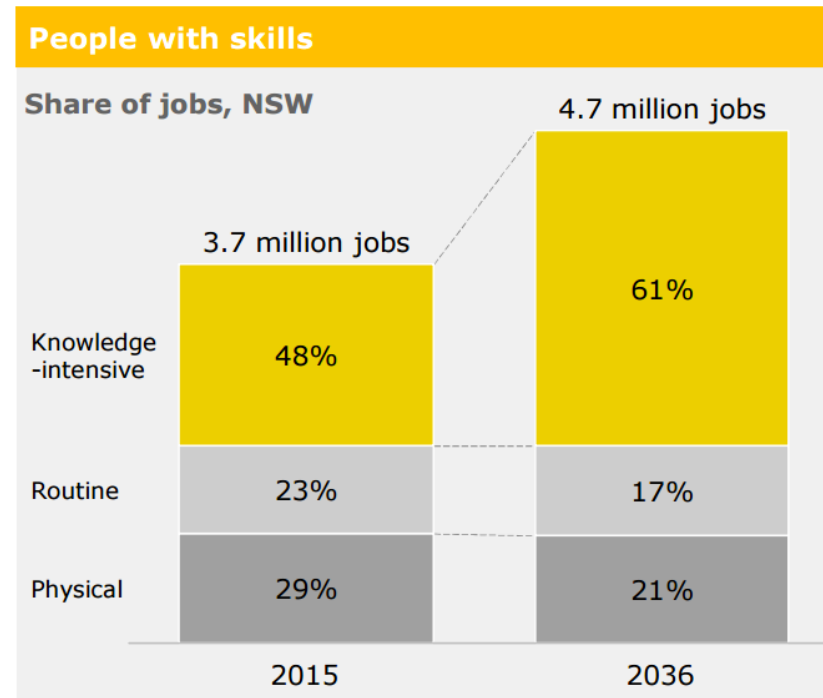


Source: SGS Economics and Planning

The banking and finance sectors are already the biggest game in town*.

All this is a far cry from the days when manufacturing was Sydney's largest economic contributor. In 1995, manufacturing accounted for 14 per cent of output. This is forecast to slip to below five per cent over the next decade.

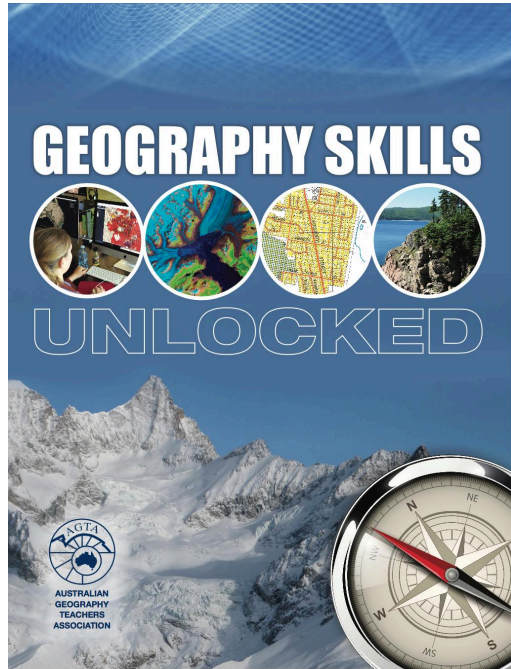
* Thanks to Paul Keating's Superannuation Levy, Australian's now have a pool of assets valued at more than \$2.3 trillion. This is projected to double to \$4 trillion in the next 10 years and reach \$9.5 trillion by 2035.



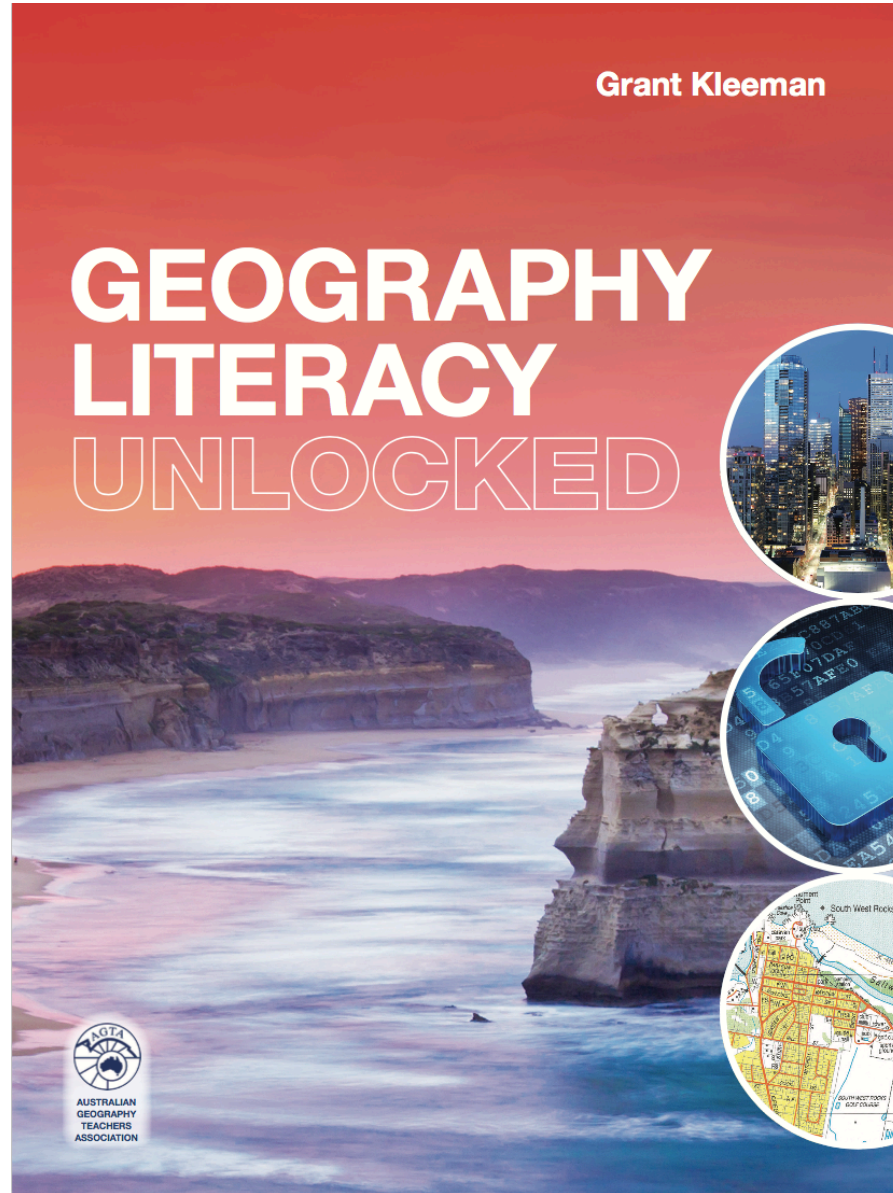
The share of knowledge-intensive jobs in NSW is projected to grow from 48 per cent to 61 per cent over the next 20 years. The rising share of knowledge-based jobs should help boost wages in Sydney – the average wage for knowledge-intensive jobs is 22 per cent higher than the NSW average.

People & Economic Activity

- Discretionary spending & exchange rate fluctuations
- Social and demographic change
- Chinese consumer culture – Largest source of international tourists etc. In 2016, 122 million Chinese (1 in 10 of the population) travelled overseas. China is now the largest overseas customer for wine produced and bottled in Australia
- Tendency towards globalisation and localisation
- Industry-specific trends:
 - Tourism – overcrowding
 - Viticulture and winemaking – overproduction, market domination of Coles and Woolworths



AGTA publications





Thank you!