

# do you know your neighbours?



London is home to people from more than 200 different cultural communities. Such diversity stimulates creativity, which is why London has become a global hotspot for innovative theatre, film, art, dance, music, fashion, and food.

Source: <http://www.london2012.org/en/ourvision/olympism+and+culture/>

**community**

ARUP

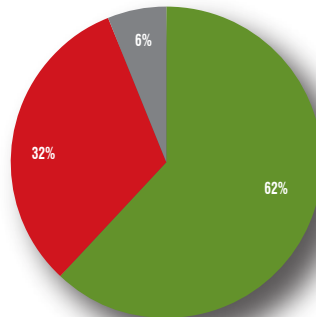
## community

Urban areas often bring together a mix of people and cultures. Sao Paulo, for example, with its core population of 10.6M, has the largest Lebanese urban community outside Lebanon and the largest Japanese 'city' outside Japan as well as the world's third-largest Italian urban population. Colombia's capital, Bogotá, has seen a tenfold increase in its population since the 1960s and less than 50% of its inhabitants were born within the city. Its multi-ethnic population, including Caucasians, Afro-Colombians of the Pacific and 47 indigenous groups of remote origins, all contribute to a rich cultural fabric. Against this background, the city authorities adopted a radical sustainable development plan over the past ten years to offer its communities opportunities – for example, car-free days - to reclaim the streets and to stimulate diverse social interactions.

In contrast, gated communities have, since the 1970s, become a symbol of urban fragmentation and social segregation in many North and South American cities. In the US, they represent an average of 10% of the new homes market and more than 30% in low-density urban areas. The motivations for living in a gated community are mostly driven by fear of crime and difference. Various studies have shown that no single criterion of class, gender, or wealth is as important as the number of social relationships a person has for happiness.

### Which statement is closest to your view?

- Multi-culturalism makes Britain a better place
- Multi-culturalism threatens British way of life
- Don't know

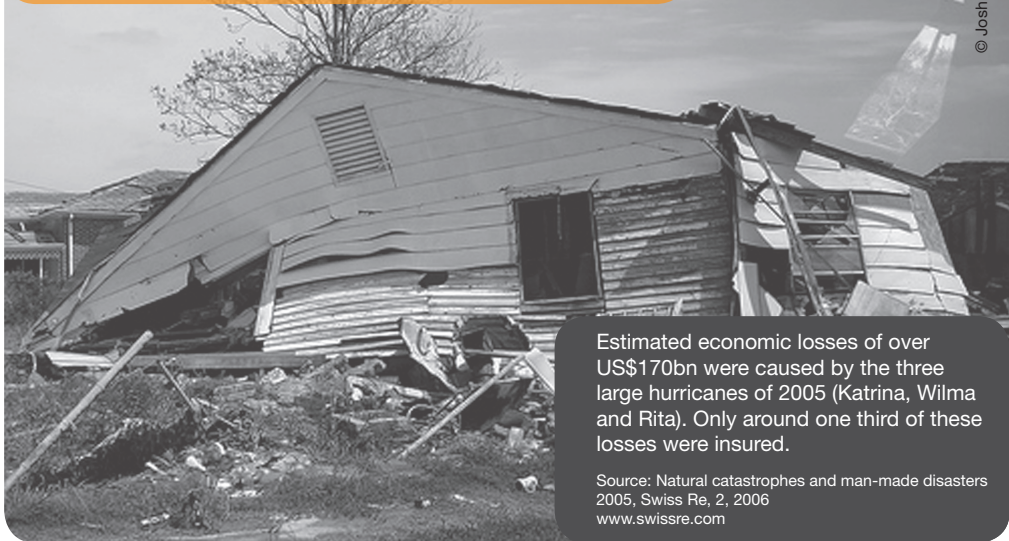


**Fig 1: BBC/MORI poll of UK nationals on multi-culturalism, 2005**  
[BBC, <http://news.bbc.co.uk/1/hi/uk/4137990.stm>]

does your policy have  
a climate change premium?

climate change

economic



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Estimated economic losses of over US\$170bn were caused by the three large hurricanes of 2005 (Katrina, Wilma and Rita). Only around one third of these losses were insured.

Source: Natural catastrophes and man-made disasters 2005, Swiss Re, 2, 2006  
[www.swissre.com](http://www.swissre.com)

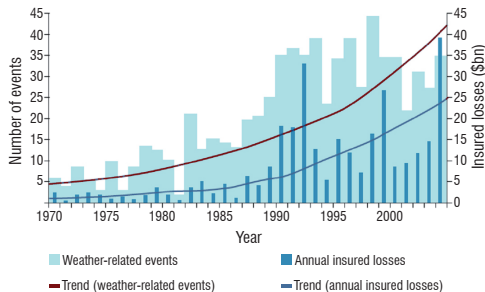
insurance

ARUP

# insurance

Many people rely on insurance as a way of providing the economic means to adapt to extreme or unexpected weather. As such, insurance provides a reactive measure to adapt to the physical impacts of climate change. Research by the insurance industry has found that the frequency and severity of extreme weather events has increased in recent years leading to an increase in claims (Fig 1). This trend is set to continue under climate change. Insured losses from the three major storm types (hurricanes, windstorms and typhoons) are projected to increase by two thirds to an average of US\$27bn per annum by 2080 in today's money.

The insurance industry is highly aware of the changing nature of climate risks and it is becoming increasingly difficult to get cover for certain types of weather related damage. For some types of risk, for example, flooding, cover may not be available in high-risk areas or may be prohibitively costly. In the absence of insurance cover, other measures will be required to provide the economic means to adapt to climate change and increase climate resilience.



**Fig 1: Global trends in weather-related events and insured losses**

[Financial risks of Climate Change, ABI, June 2005

[http://www.abi.org.uk/Display/File/Child/552/Financial\\_Risks\\_of\\_Climate\\_Change.pdf](http://www.abi.org.uk/Display/File/Child/552/Financial_Risks_of_Climate_Change.pdf)]

# when does waste become a resource?



Since April 2005 the UK's National Industrial Symbiosis Programme (NISP) has diverted over 2.2M tonnes of waste from landfill, eliminated 311 000 tonnes of hazardous waste, avoided the use of 4.8M tonnes of virgin materials and reduced CO<sub>2</sub> emissions by 2.1M tonnes.

Source: [www.nisp.org](http://www.nisp.org)

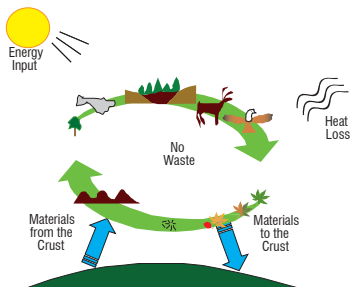
**industrial symbiosis**

**ARUP**

# industrial symbiosis

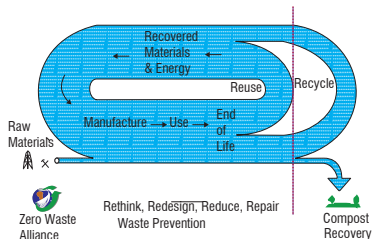
Human economies follow a pattern of cradle to grave. Raw materials are extracted and processed and the substances not directly useful become waste. An alternative 'cradle to cradle' system seeks to build closed loop systems where the regenerative cycles of nature provide a model for positive human design. The ultimate goal is to achieve a waste-free industrial system where all wastes become another product.

This is best represented in the Danish industrial town of Kalundborg where the oil refinery provides the coal fired power station with its treated wastewater for use in its cooling process. In return the power station supplies the waste steam for use in the oil refining process. This waste steam is also used to supply 20 000 households with heating. Waste gases from the refinery are re-used by the power station and by Gyproc, a company which makes plasterboard. Gyproc purchases waste material from the power station in the form of Gypsum. Other partners include a local fish farm, commercial greenhouses and a chemicals company. It is estimated that the companies have reduced yearly consumption of oil by 45 000 tonnes, coal by 15 000 tonnes, water by 25% and the production of ash waste by 80 000 tonnes.



**Fig 1: Natural cycle**

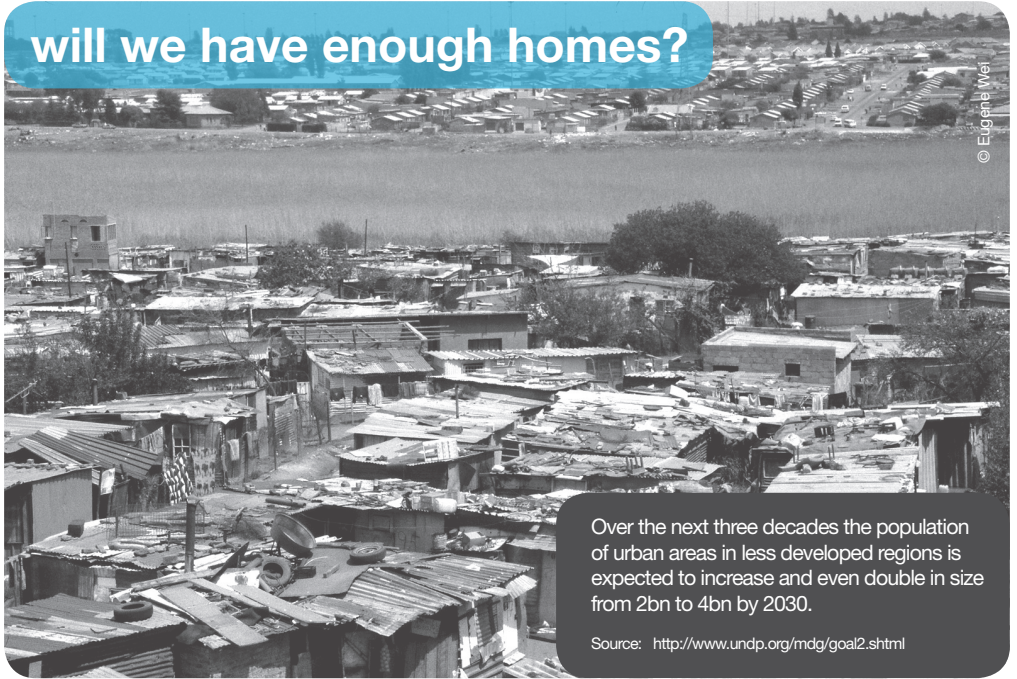
[<http://www.zerowaste.org/case.htm>]



**Fig 2: Ideal material flows**

[<http://www.zerowaste.org/case.htm>]

# will we have enough homes?



© Eugene Wei

Over the next three decades the population of urban areas in less developed regions is expected to increase and even double in size from 2bn to 4bn by 2030.

Source: <http://www.undp.org/mdg/goal2.shtml>

## urban migration

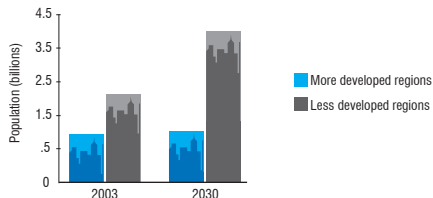
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# urban migration

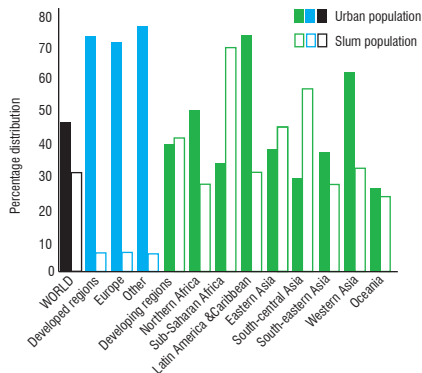
In 1950, approximately a third of the world's population lived in cities. By the year 2006, the proportion had increased to half the world living in a town or city. It is projected that by 2050, nearly two-thirds or 6bn people will inhabit urban areas. China is seeing a great movement of population from the rural interior to cities in the east. In 1950, the urban population represented less than 13% of the total - it is now about 40% and is expected to reach 60% by 2030.

It is predicted that by 2015, there will be close to 60 mega-cities in the world. The most rapid growth is in the economically weakest cities. Of the 15 largest mega-cities, only four are in highly industrialised countries: Tokyo, New York, Los Angeles, and Osaka-Kobe-Kyoto. 70% of growth happens outside the planning process.

Most of the world's population growth is taking place in urban areas of the less developed regions where 85% of the people live. In Sub-Saharan Africa the urban population is growing by more than 5% a year. Already about 900M people are estimated to occupy informal settlements characterised by insecure tenure, inadequate housing, and a lack of access to water or sanitation. UN-HABITAT figures for 2004 show that a quarter of the world's urban population does not have adequate housing.



**Fig 1: Projected world urban population**  
[Debbie Campoli, YaleGlobal]



**Fig 2: Total, urban and estimated slum population**  
[UN Population Division, UN Habitat]



# is zero waste achievable?

© Alvin Pastrana

Transit New Zealand supports the Mackenzie District Council's  
**ZERO WASTE STRATEGY**



In the developed world waste generation grew by 20% between 1980 and 2000 and is expected to have increased by a further 30% by 2020.

Source: Rob Bowden, Sustainable world – waste, 2004

**minimisation**

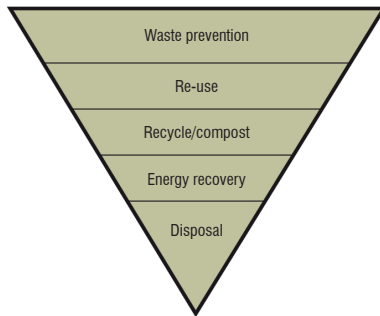
**ARUP**

**political waste**

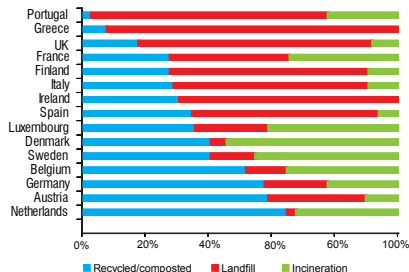
# minimisation

When devising a waste management strategy most governments use the waste hierarchy. This prioritises waste reduction and prevention, then its reuse and recycling/composting and energy recovery, followed by final disposal as a last option. Although on paper it is stated that waste minimisation is the top priority most countries have failed to achieve in this area and the focus remains on recycling. The average resident of an OECD country produces 560kg of municipal waste per year. Even for countries seen as leaders in environmental policy, such as Norway, reducing waste flows is a continuing challenge. In 2002 the average Norwegian generated 354kg of waste, 7% more than the previous year.

Waste minimisation can be achieved through either changing the manufacturing process or reducing consumption. Improved technology means that many products can now be made thinner and lighter, a process called 'light weighting'. For example, a steel drinks can produced in 1998 was 30% lighter than one manufactured in 1993 and aluminium cans which once weighed almost 100g in 1935 now weigh only 15g. Composting, the natural breakdown of organic waste into a nutrient rich soil is another method of minimising waste sent to landfill. In the UK, 38% of municipal waste is thought to be organic and less than 3% is composted.



**Fig 1: The waste hierarchy**  
[<http://www.defra.gov.uk/environment/waste/strategy/strategy07/pdf/waste07-strategy.pdf>]



**Fig 2: Waste management in Europe**  
[<http://www.ippr.org.uk/pressrelease/id=2283>]

if cancer doesn't kill you,  
will warmer weather?



© David Solomons

In the summer of 2003 the heatwave in Europe left over 30 000 dead from heat stress.

Source: UNEP, Impacts of summer 2003 heatwave in Europe, March 2004

**climate change**

**ARUP**

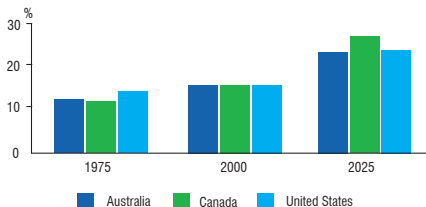
# climate change

An increase in global average temperatures is being linked to an increase in the severity and frequency of extreme heatwaves and the morbidity and mortality attributable to these events. Research has concluded that an increase in temperatures would result in a net increase in temperature-related morbidity and mortality. Any ameliorating impact of increasing temperature on winter mortality rates would not be great enough to offset the projected increase in mortality attributed to heat events.

By 2100, projections suggest that in the US there will be approximately 100M more citizens 65 years of age than in 2000. As a result, the combined share of the population that will be composed of the very young and older adults is projected to increase from about 15% to 25%. This anticipated increase suggests, all else equal, that the US population will become more vulnerable to the health impacts of climate change. In addition, poverty exacerbates vulnerability to climate-sensitive health problems directly by reducing the capacity to adapt to changing conditions.

	1980s			1990s		
	Events	Killed (thousands)	Affected (millions)	Events	Killed (thousands)	Affected (millions)
Africa	243	417	137.8	247	10	104.3
Eastern Europe	66	2	0.1	150	5	12.4
Eastern Mediterranean	94	162	17.8	139	14	36.1
Latin America&Caribbean	265	12	54.1	298	59	30.7
South East Asia	242	54	850.5	286	458	427.4
Western Pacific	375	36	273.1	381	48	1199.8
Developed	563	10	2.8	577	6	40.8
<b>Total</b>	<b>1848</b>	<b>692</b>	<b>1336</b>	<b>2078</b>	<b>601</b>	<b>1851</b>

**Fig 1: Numbers of extreme climate weather events, people killed and affected**  
[ WWF The Living Planet Report 2006 ]



**Fig 2: Proportion of persons aged 60 and over, 1975-2025**  
[UN, World population ageing, 2002]