

D4M

2. drivers of innovation

key learning objective : understand social, environmental & economic drivers of innovation

- different views on innovation
- environmental drivers and social drivers

innovation is the creation of

new designs

concepts and ways of doing things



innovation is the successful

exploitation

of new ideas



innovation is about bringing

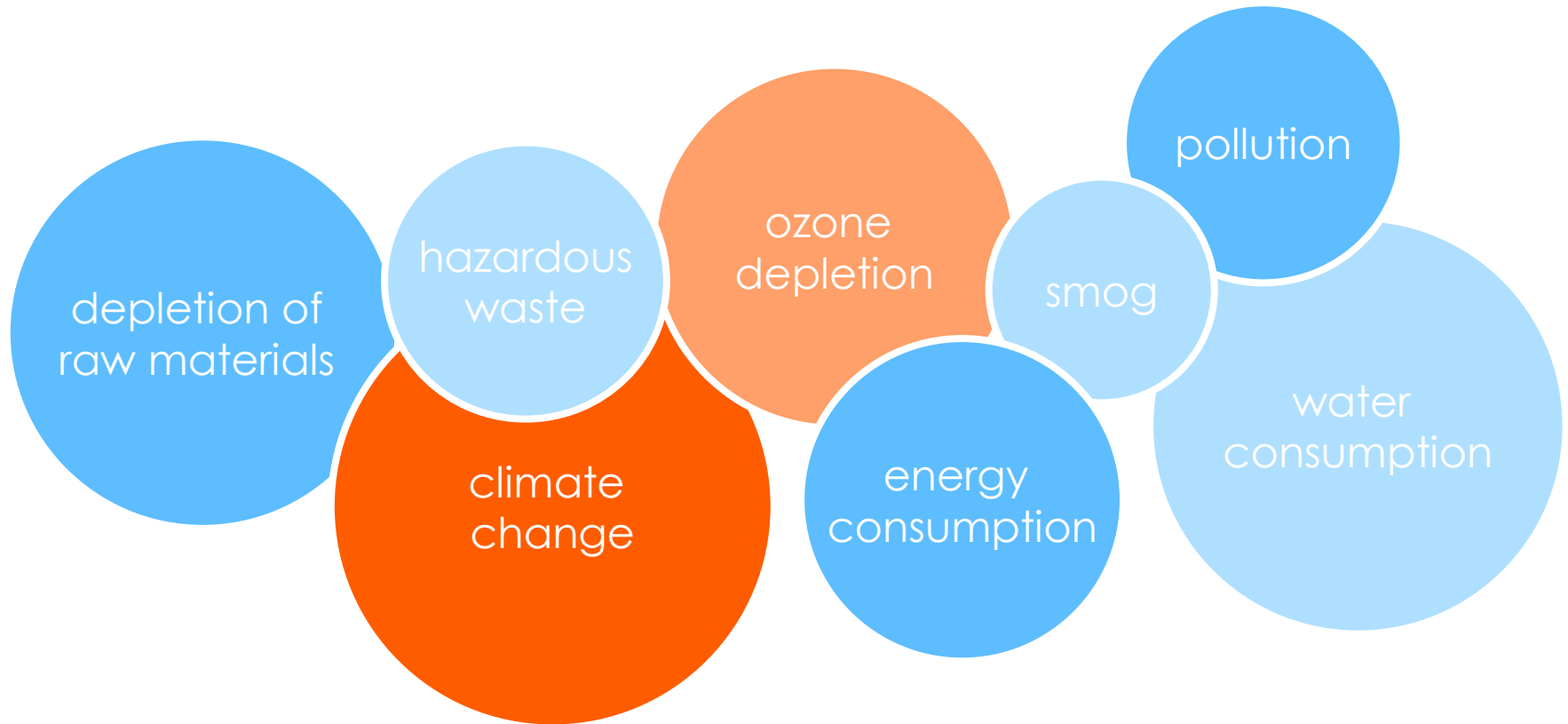
ideas to life

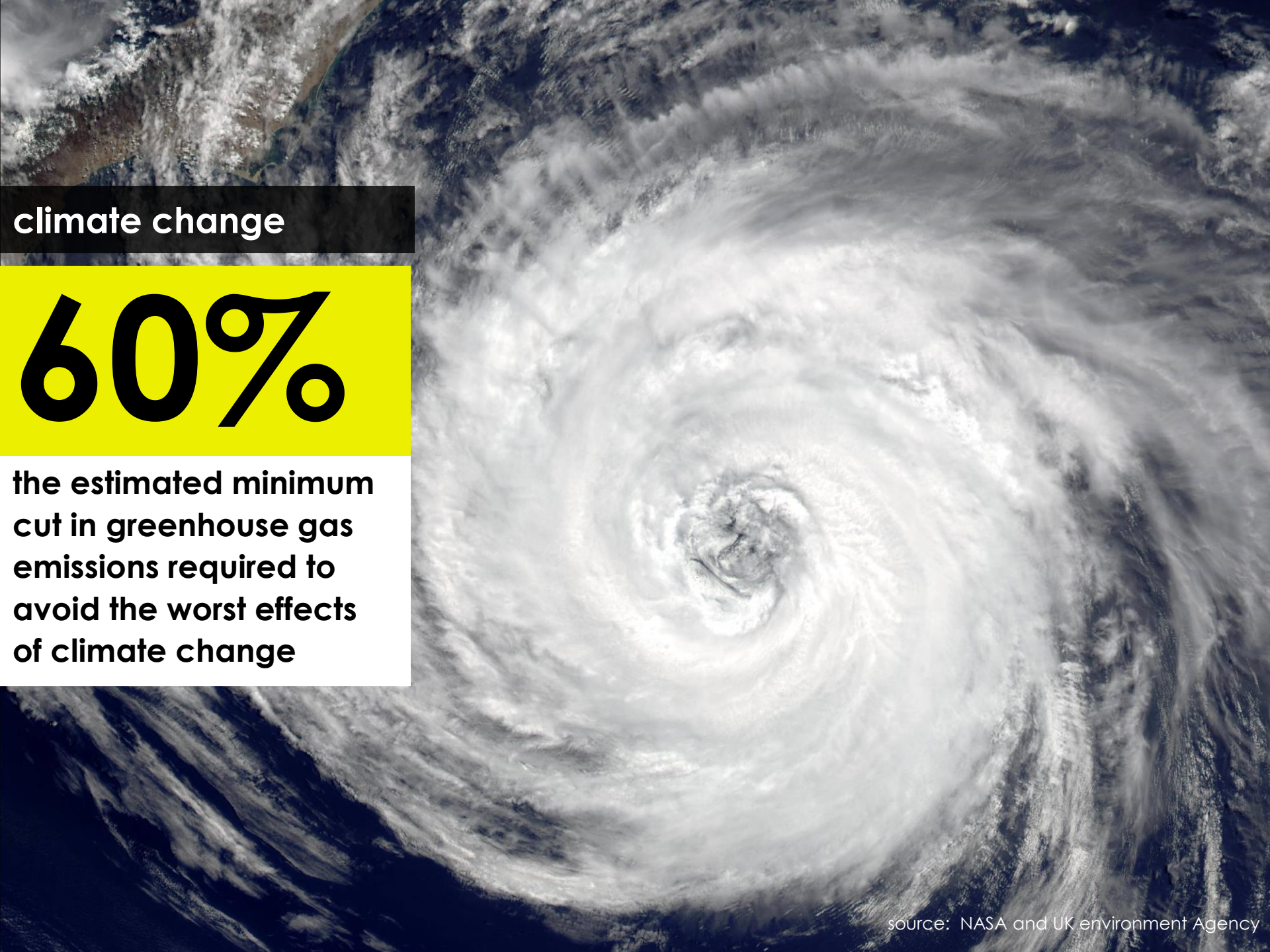


“ Innovation will be essential for meeting the environmental challenges of the future – including moving to a low carbon economy and reducing waste ”

UK Department for Business, Enterprise & Regulatory Reform

some of the key environmental challenges



A satellite image of a hurricane, showing a well-defined eye and spiral cloud bands over a dark ocean. The image is used as a background for the text overlay.

climate change

60%

**the estimated minimum
cut in greenhouse gas
emissions required to
avoid the worst effects
of climate change**

source: NASA and UK environment Agency



energy consumption

800
million

**cars on the road. This
is expected to reach
3.5 billion by 2050**



pollution

1 000
pollution incidents

**had a serious impact
on the environment
in England and Wales
in 2005**

source: Edward Burtynsky and environment agency UK



water access

3800

children die each day

from diseases associated
with lack of access to safe
drinking water, inadequate
sanitation and poor hygiene

A large pile of crushed and dismantled cars at a recycling facility. The cars are in various colors (white, yellow, blue, red) and are completely flattened, showing the internal metal structure. They are piled high, filling the frame.

resources

**1.8
tonnes**

**the amount of raw
material are required
to manufacture the
average desktop PC
and monitor**

**98% of products are
thrown away within
6 months**

source: Chris Jordan and CKS recycling



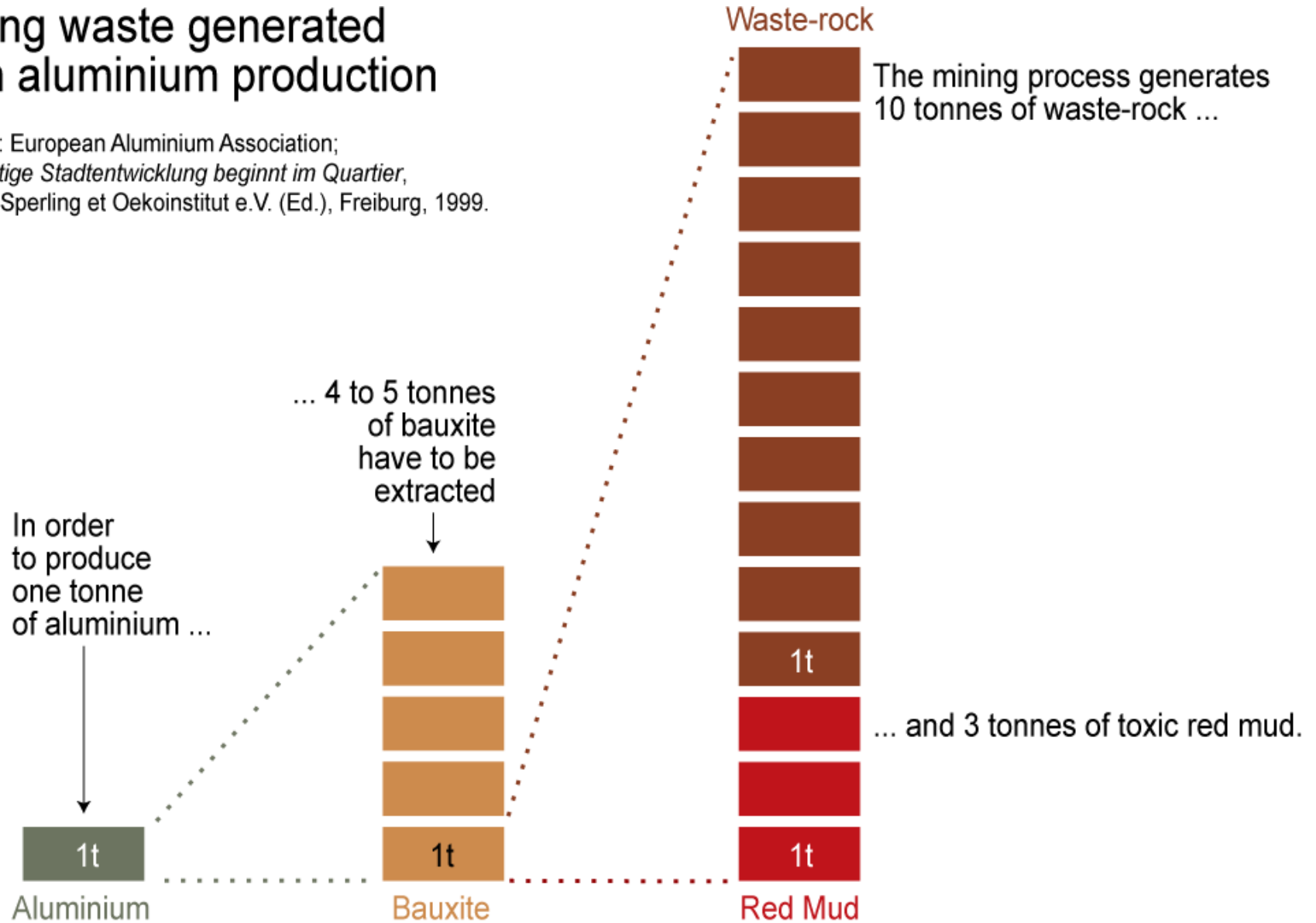
Landfill Tax UK

£80

Landfill tax in the UK has risen from £7.00 per tonne in 1996 to £80.00 in 2014

Mining waste generated from aluminium production

Sources: European Aluminium Association;
Nachhaltige Stadtentwicklung beginnt im Quartier,
Carsten Sperling et Oekoinstitut e.V. (Ed.), Freiburg, 1999.





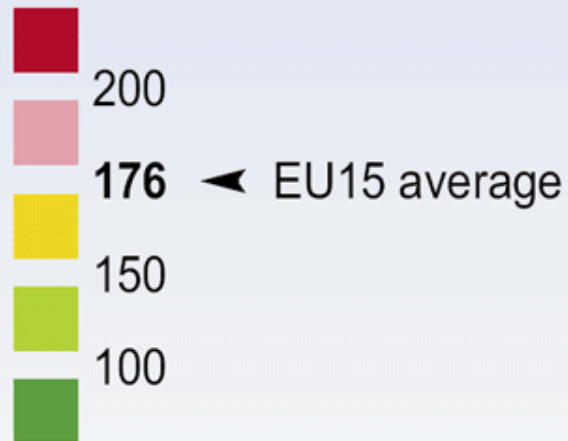
waste

**3
million
tonnes**

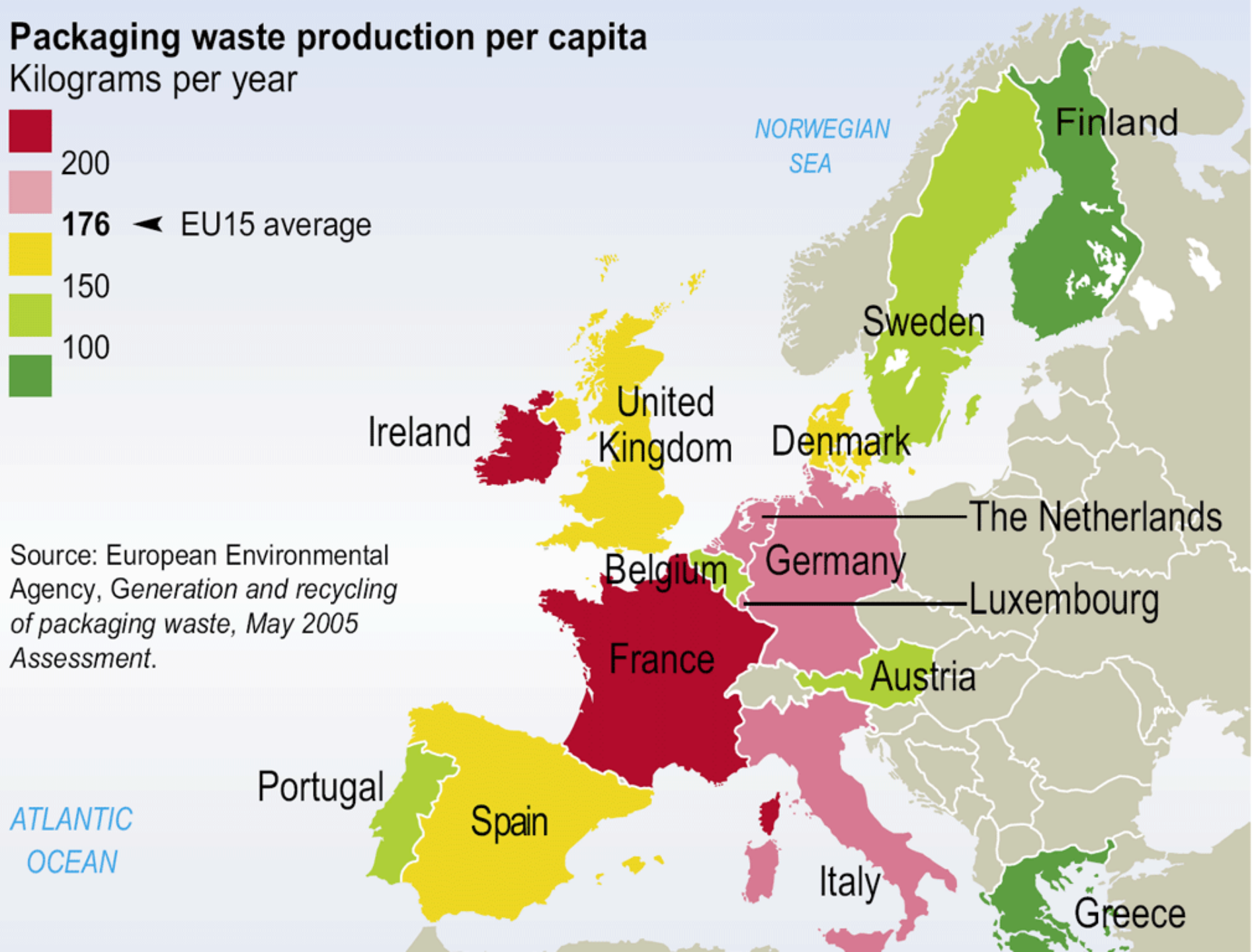
**of plastic waste is
dumped each year
in the UK, most of
which is put in
landfill**

Packaging waste production per capita

Kilograms per year

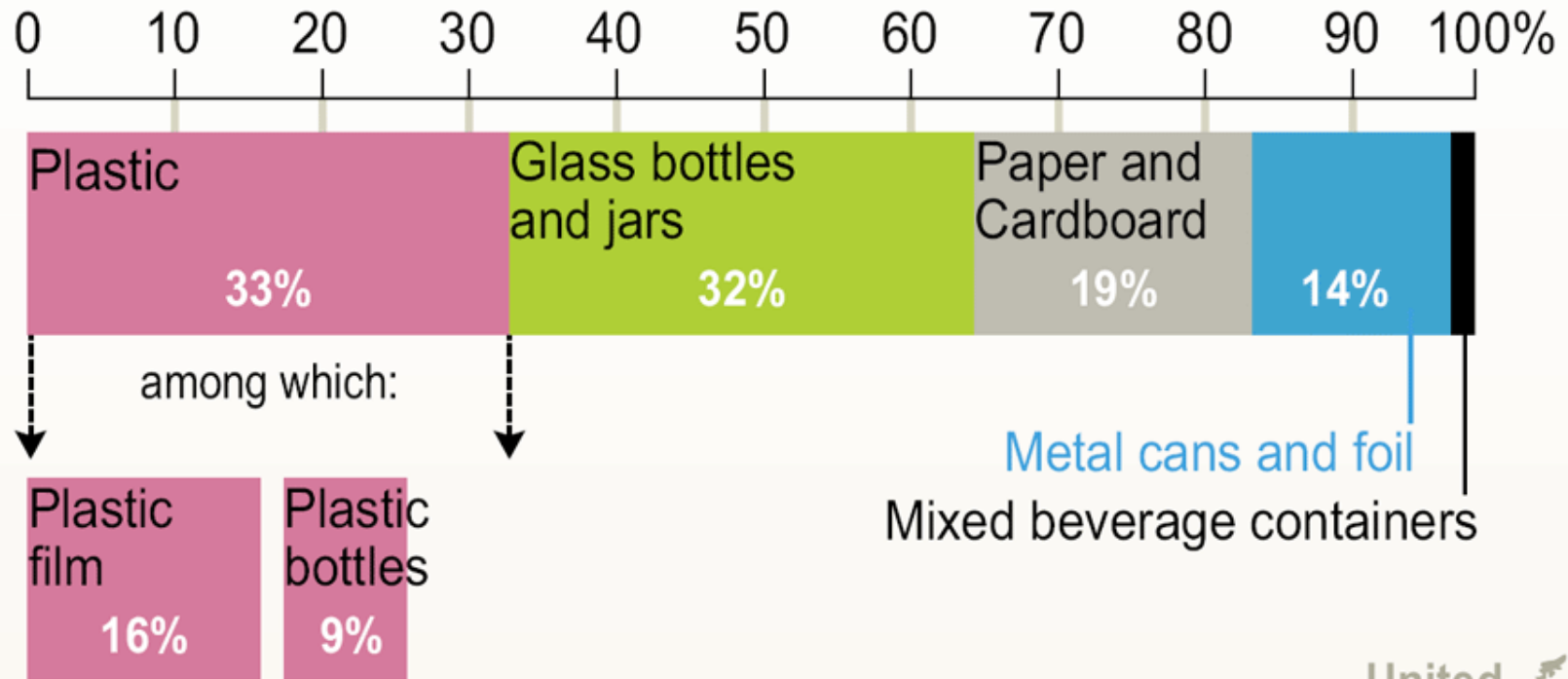


Source: European Environmental Agency, *Generation and recycling of packaging waste, May 2005 Assessment.*



Packaging waste composition in the UK

in percentage of total packaging waste



United
Kingdom

Sources: UK Department for Environment, Food and Rural Affairs, *e-Digest of Environmental Statistics*, 2006; Julian Parfitt, WRAP as cited in *Cool Waste Management*, Greenpeace, 2003.

design solutions / responses / reactions / evolutions

low carbon housing



source: BEDZED, www.ecoconstruction.org

HELLO MY NAME IS WATTSON.

- I SHOW YOU HOW MUCH ELECTRICITY
YOUR HOME IS USING.

I MAKE ENERGY SAVING EASIER

- AND I'M GORGEOUS



energy saving products



source: Project H

Homegrown

people planet profit

Remade - In Context

We're working towards the most sustainable, ethical, and desirable communication solutions for Nokia

16

Nokia manufactures more than 16 phones per second

900,000,000

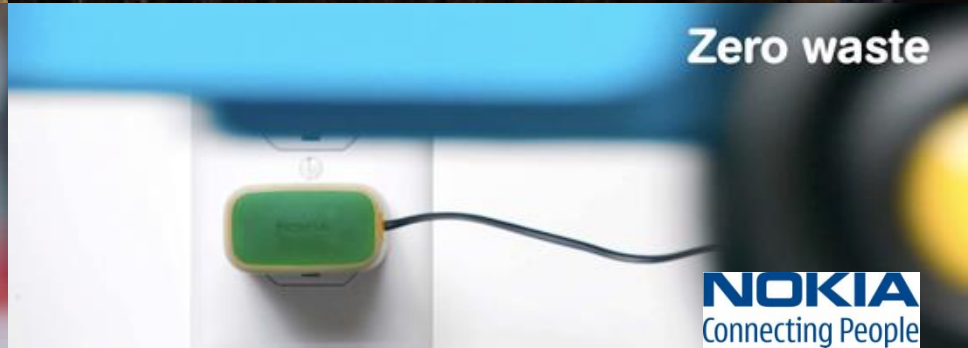
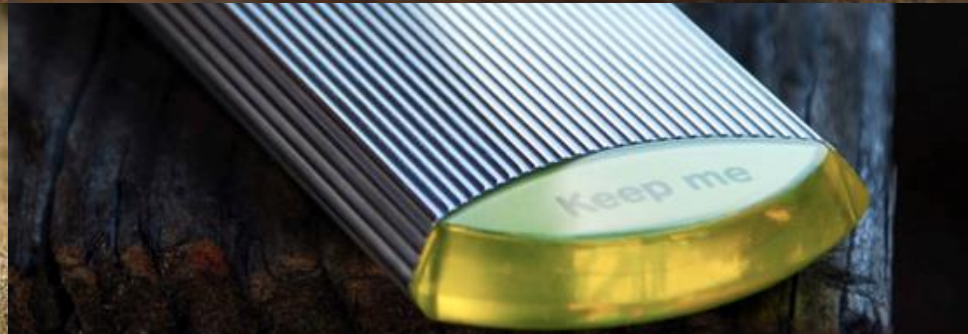
900 million people are in possession of a Nokia phone

116,378

As of March 31, 2008, we employed a total of 116,378 people

80

Nokia supports 80 spoken languages with 50 different keymats



NOKIA
Connecting People

resource efficiency



NOKIA
Connecting People

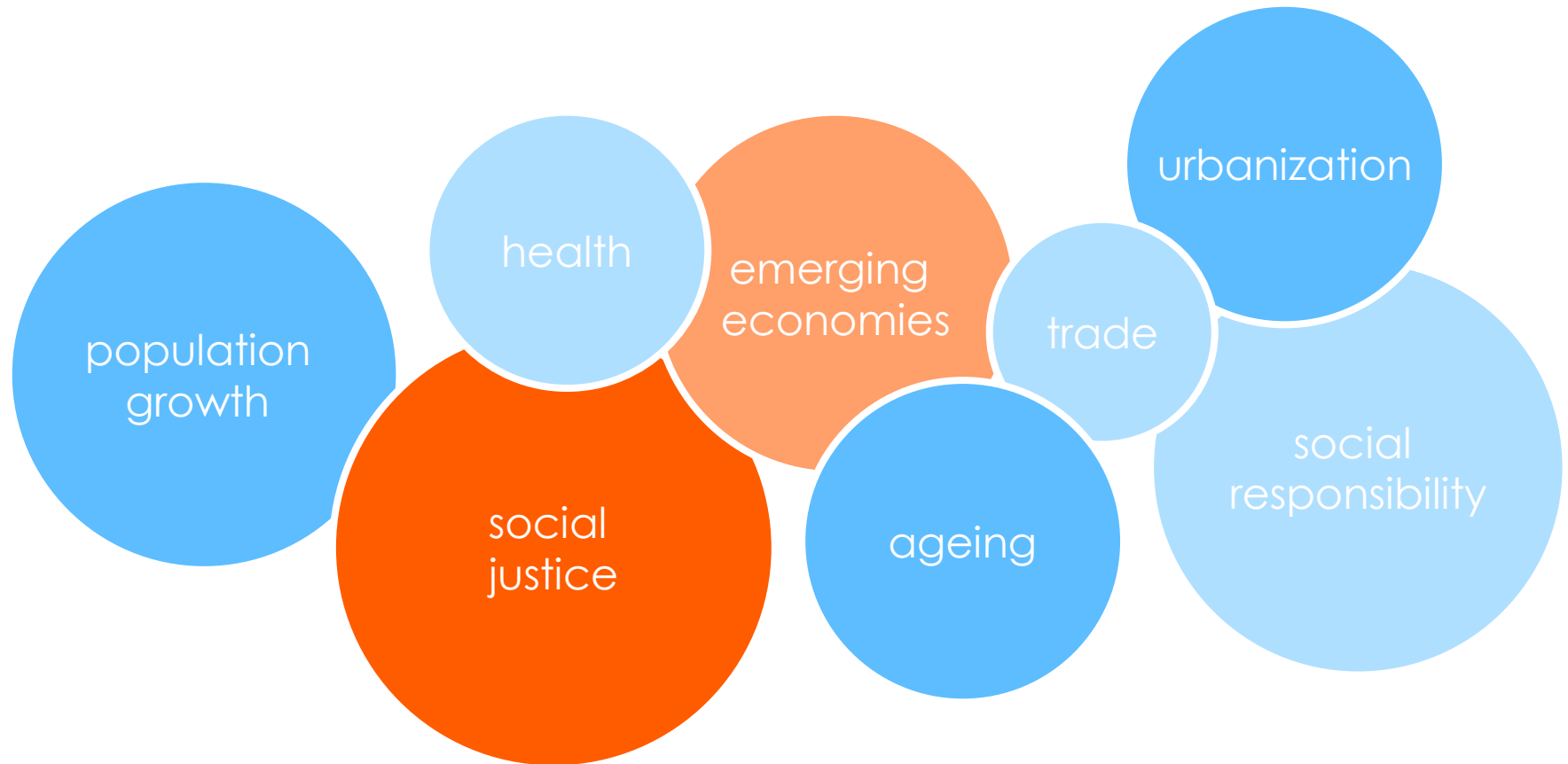
**metals from upcycled aluminium cans
plastics from drink bottles form the chassis
rubber key mats provided by old car tyres.
printed electronics
energy saving graphics**

rethinking waste



what are the social drivers of innovation?

some of the key social challenges

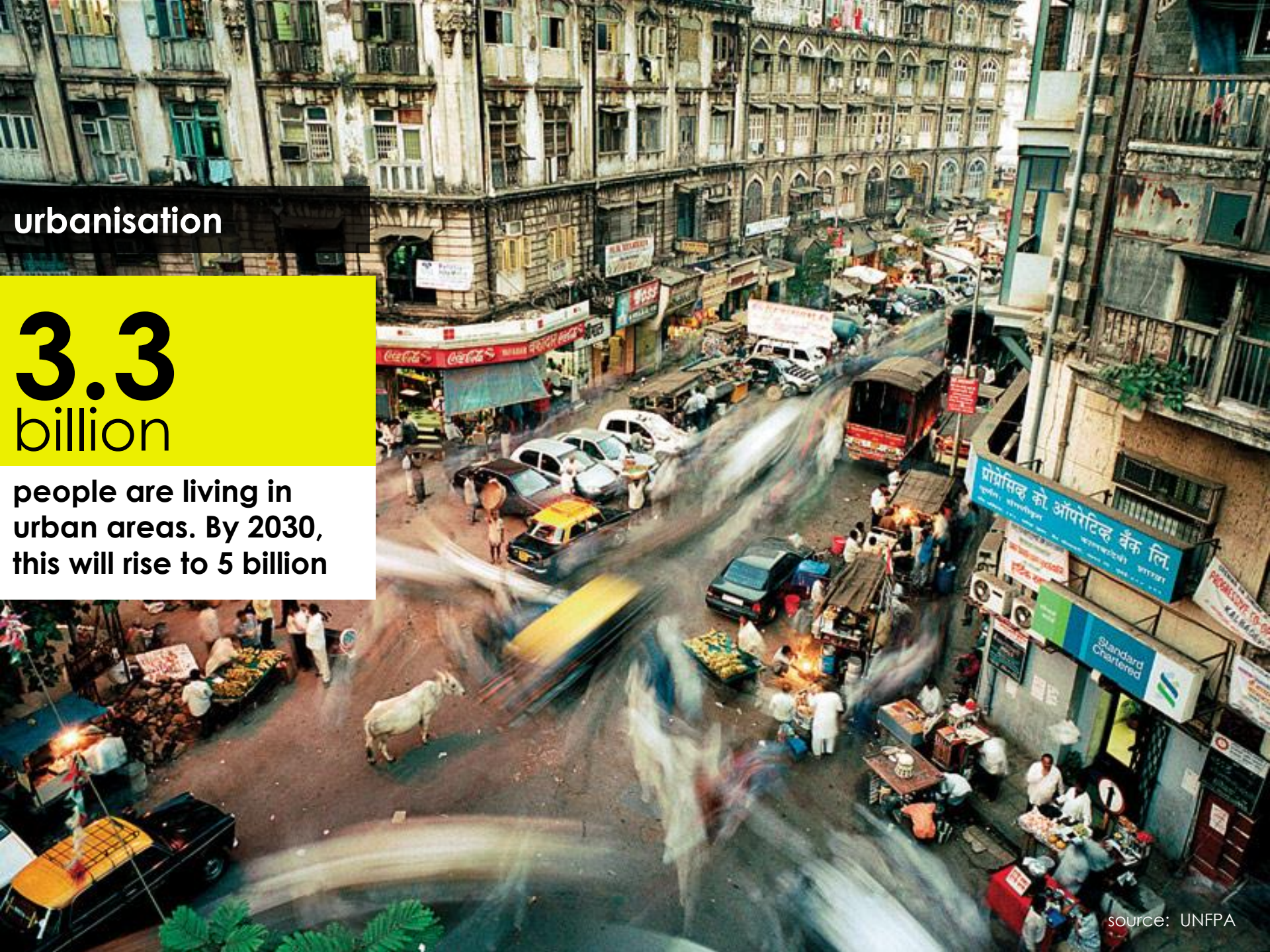


An aerial photograph showing a vast, dense crowd of people from a high angle. The individuals are packed closely together, filling the entire frame. They are wearing a variety of colorful clothing, including red, blue, green, and white, which creates a mosaic-like pattern from above. The perspective emphasizes the sheer scale and density of the gathering.

population growth

7
billion people

**and the population is
projected to be more
than 11 billion by 2100**



urbanisation

3.3
billion

people are living in
urban areas. By 2030,
this will rise to 5 billion



emerging economies

1
billion

**of these people are
living in slums, squats &
unofficial settlements**



ageing

60
and over

**in 2001 there were more
over 60's than under 16's
in the UK for the first time
ever**

source: engine group and UK statistics

vulnerable poor

90%
of lives lost

through natural
disasters occurred in
poor communities



trade

60,000
tonnes

of Christmas decorations
were imported into the UK
from China in 2006



social responsibility

50
million tonnes

of e-waste is produced annually. Much of this waste is dumped in countries such as China and Africa



design solutions / responses / reactions / evolutions

1.

product innovation

the product concept stays the same, but parts of the product are developed further or replaced by others

2.

function innovation

involves changing the way the function is fulfilled e.g. a move from answering machines to voice mail.

3.

system innovation

new products and services requiring changes in the related infrastructure and organisations.



social design



source: design21, Lifesaver

urban mobility



usable design



Problem

Why can't kitchen utensils be designed to be easy to use by people with arthritis?

Response

Extensive user research and innovative design create comfortable tools for all

Result

Sales increase by 50% year on year

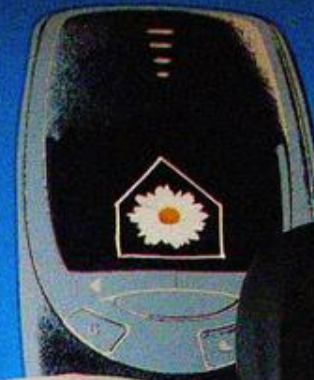


THE BODY SHOP.

DONATE A PHONE SAVE A LIFE

PLEASE USE THIS ENVELOPE TO
POST YOUR OLD MOBILE PHONE*

ERS OF
safety.



**COMIC
RELIEF**

ARE CO-FUNDERS OF
fonestorsafety

"I've seen for myself the real difference fonestorsafety
can make to women experiencing domestic violence.
By donating your old mobile phone today you can help
women at the most critical time in their lives. Thank you."

Anna McCall, Comic Relief



producer responsibility

fair trade

source: Fairtrade Foundation



Guarantees
a **better deal**
for Third World
Producers





low-cost technology

Unknown Unknowns

“There are known knowns; there are things we know that we know.

There are known unknowns; that is to say there are things that, we now know we don't know.

But there are also unknown unknowns – there are things we do not know, we don't know.”

United States Secretary of Defence,
Donald Rumsfeld, 2002