



Water Demand

Demographic Change and Uncertainty

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Demographic Forecasting

- POPGROUP model suite
 - Development
 - Support
 - Application
- Local authorities
 - Population, household & labour force forecasts
 - Housing, education, planning & policy
- Water industry
 - Population & household forecasts
 - Hidden & transient populations
 - Debt and deprivation



A screenshot of the Edge Analytics website. The top navigation bar includes the "edgeanalytics" logo and the tagline "The in d...". Below the logo are two dropdown menus: "Demographic Forecasting" and "Scenario Planning". The main content area features a large image of a snowy mountain peak with a quote: "The trouble with our times is that the future is not what it used to be." attributed to ~ Paul Valery ~. Below this is a section titled "Demographic Change" with a pie chart and text: "During the last 100 years the world's population growth has been greater than at any other time in its history. The population of the world has more than doubled since the 1960s, reaching 6.8 billion in 2010...". To the right, another section titled "Methods & Models" is partially visible, with text: "The most effective planning infrastructure is one which combines the experience and local knowledge of an analyst with relevant data...".

- A decade of change (2001-2007)
 - Housing boom
 - High mobility
 - EU expansion
 - Rising fertility
- A decade of change (2008-2011)
 - Financial crisis
 - Economic recession
 - Low mobility
 - Housing development decline




- A new government / policies
- Decentralisation - localism
- RSS housing targets now redundant
- Economic recovery?
- Demographic uncertainty?
 - Fertility, Mobility, Household size, Points Based System
- Data uncertainty
 - ONS revisions to population estimates, new SNPP
 - new Census data still 18 months away
- **Robust and reliable demographic statistics are key to renewed planning efforts to support the localism agenda**

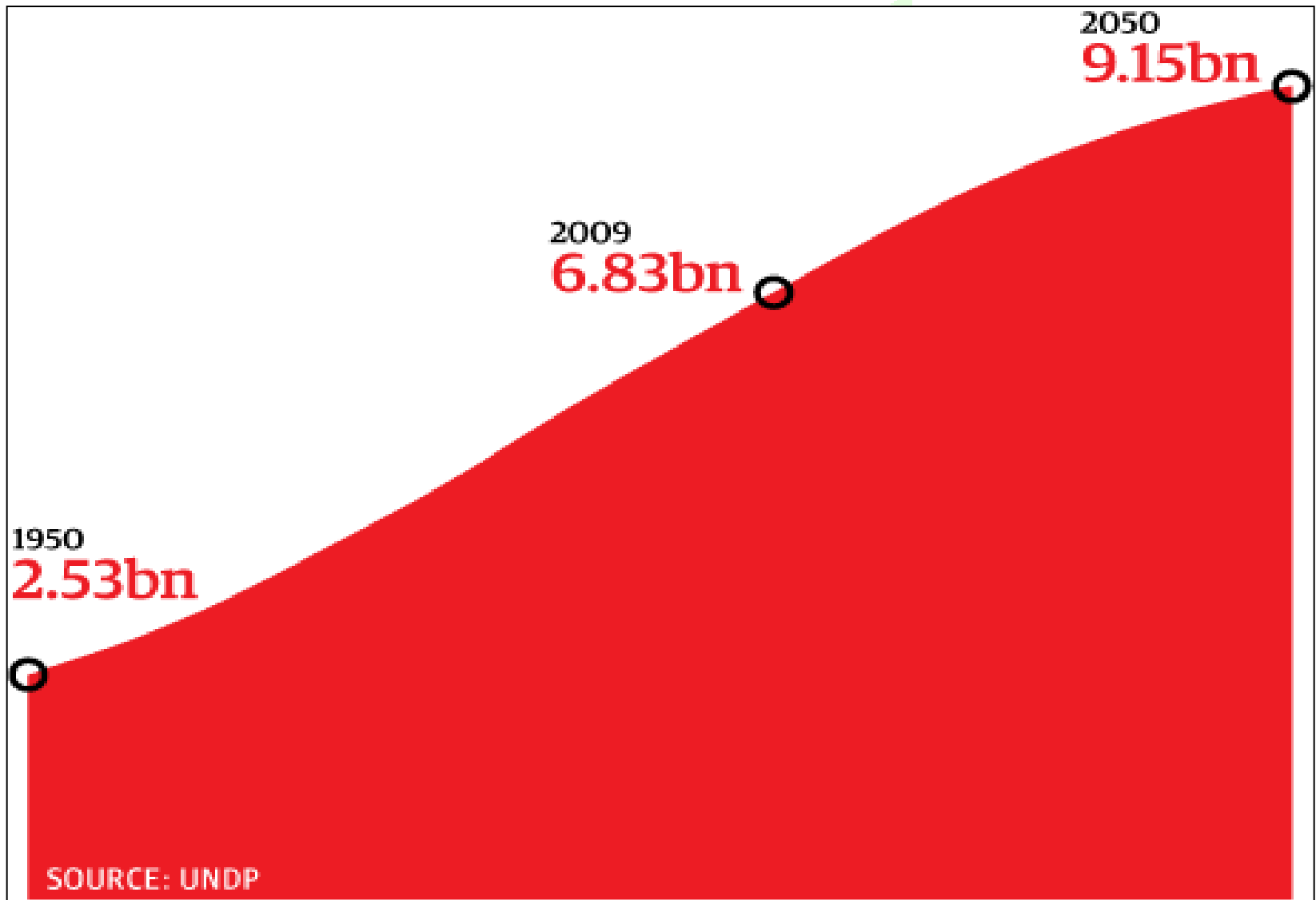


Localism

Policy Working Group



Why is the study of population so important?



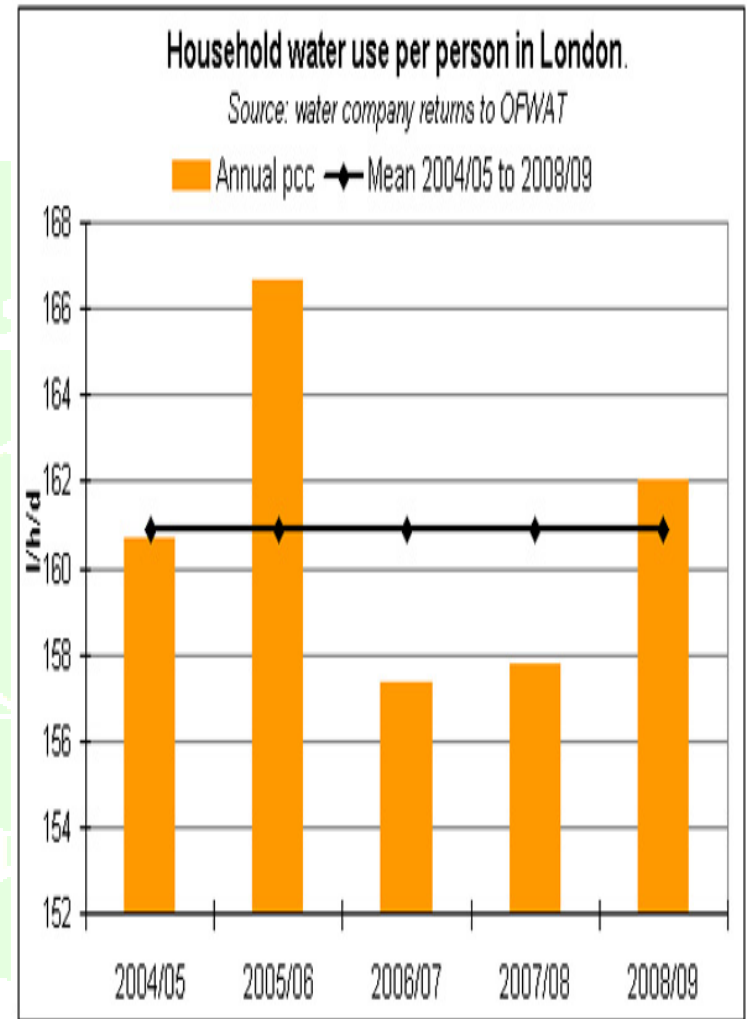
- *It describes our own individual life-course...*

- *Birth*
- *Childhood*
- *Adolescence*
- *Adulthood*
- *Middle-age*
- *Old age*
- *Death*

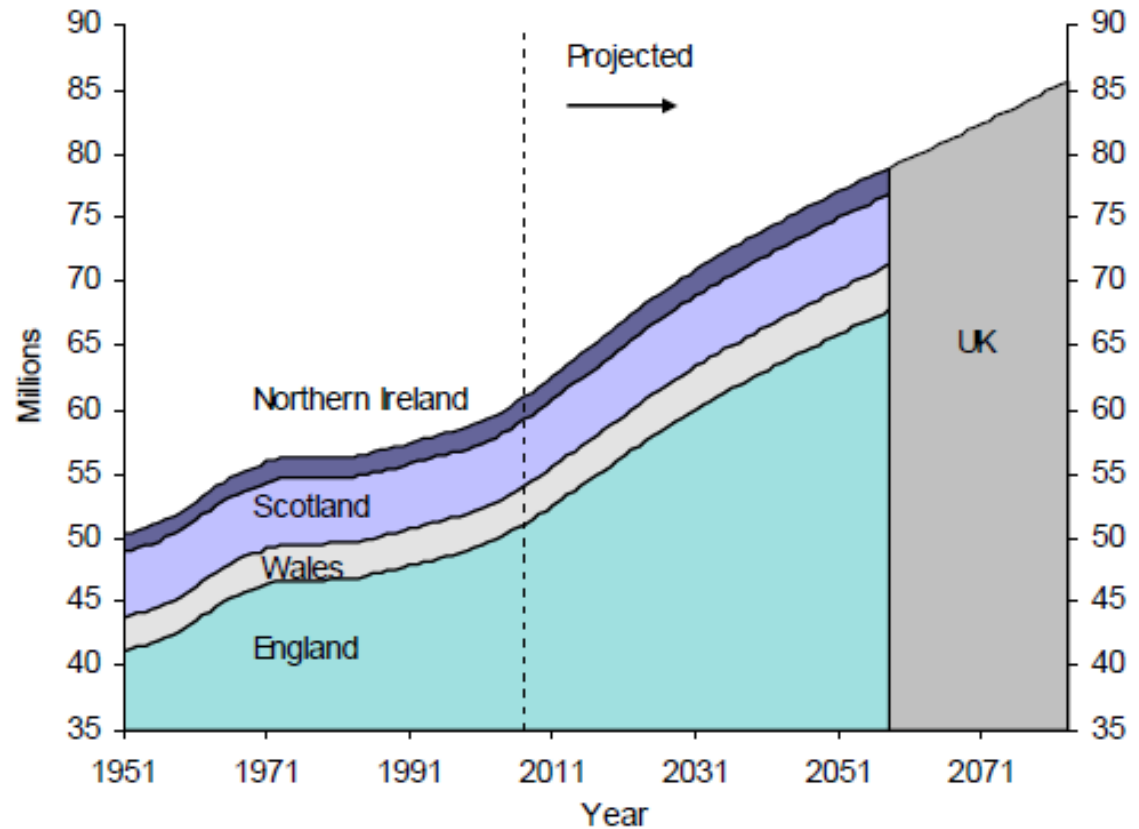


Population change has an impact upon:

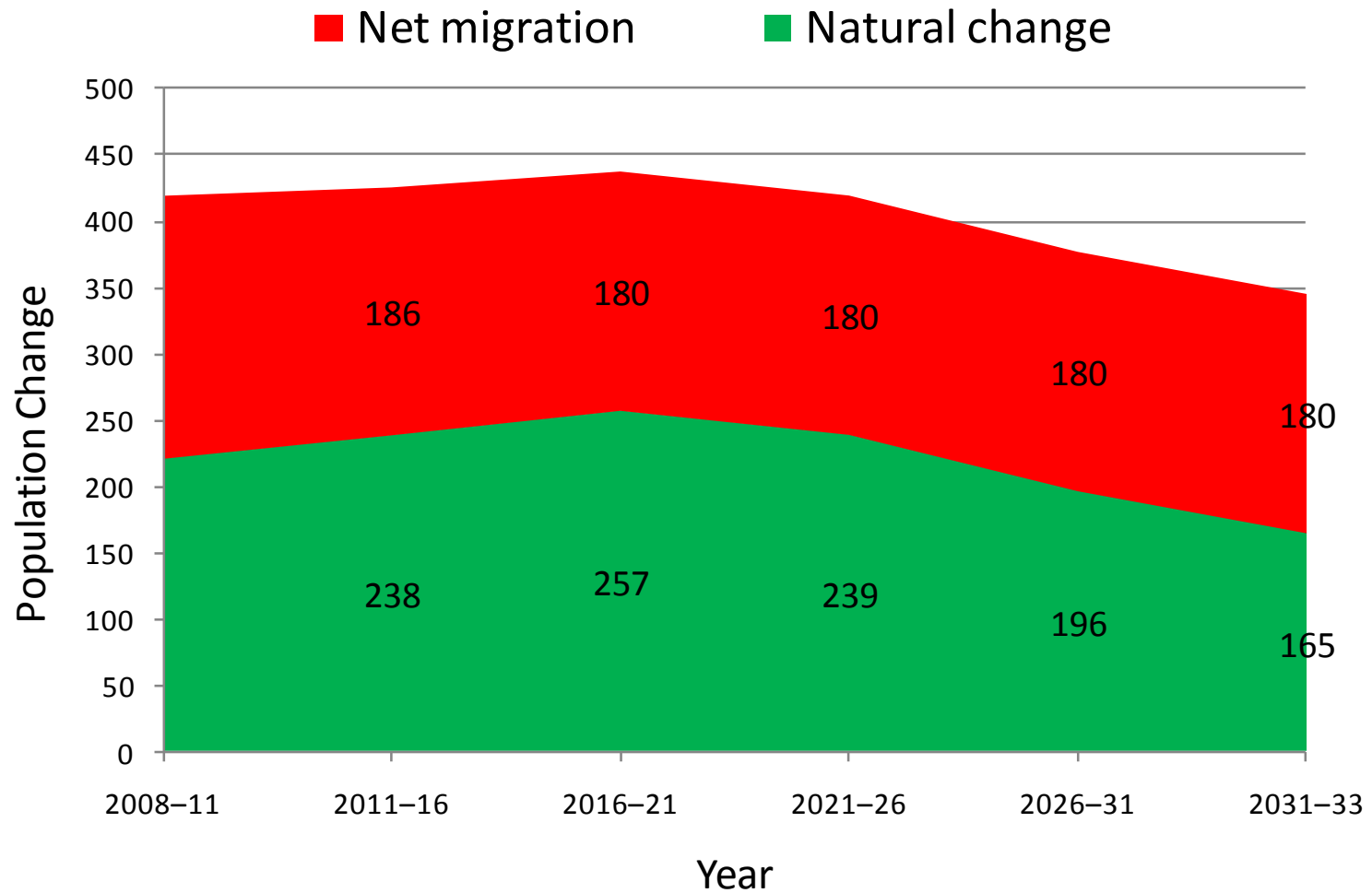
- Economic development
- Size and profile of the labour force
- Health care provision
- Pension provision
- Housing
- Consumer spend
- Number of cars on the road
- Number of students at university etc....
- **Water usage / water efficiency**
 - **Population size – population profile**
 - **Household size – dwelling -type**

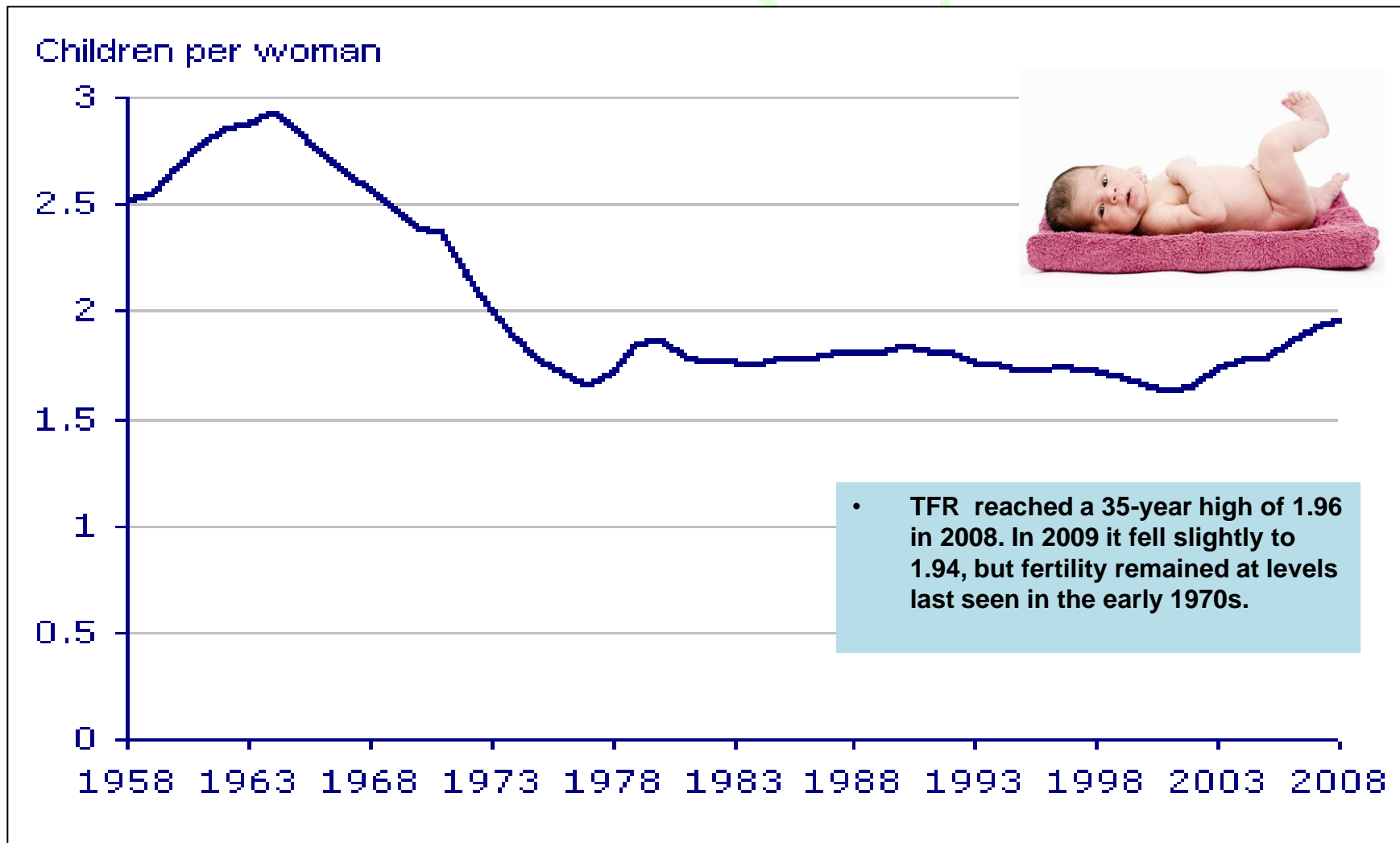


- 1963: 54 million
- 1990: 57 million
- 2009: 62 million
- 2033: 72 million
- 2050: 75 million



Source: Office for National Statistics



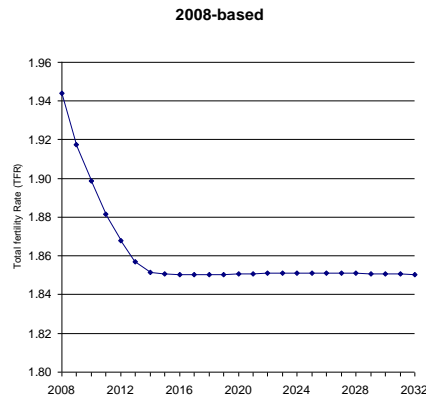


- Increase in births to mothers born outside the UK

- 16.5% in 2001

- 24.1% in 2008

- Future fertility?



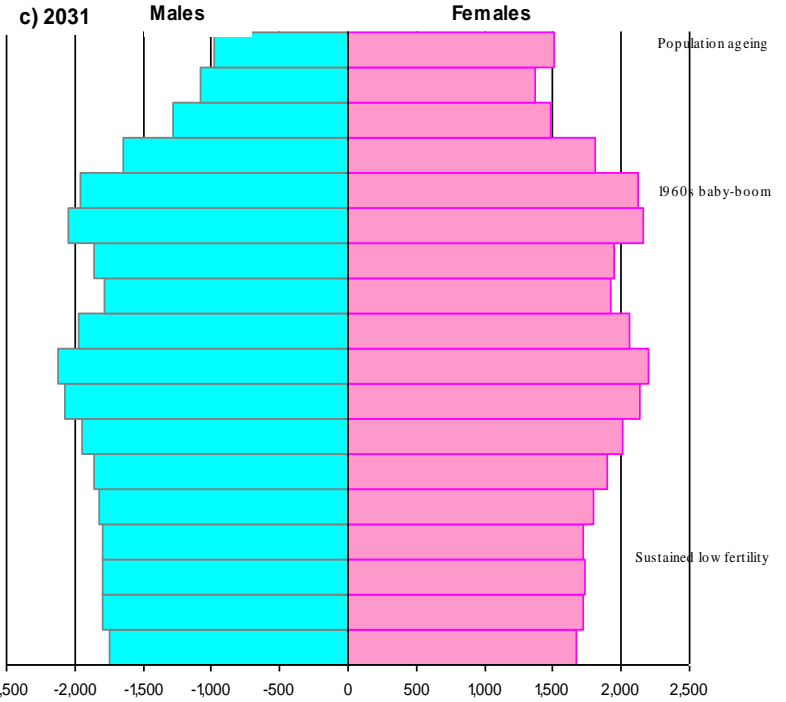
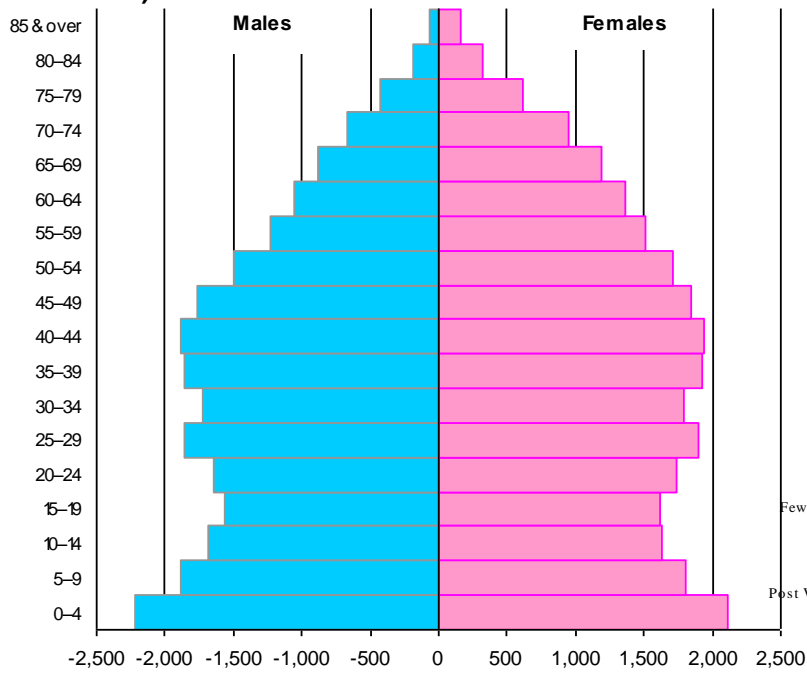
Country of birth of mother	2008	
	Number	Percentage of all live births
Pakistan	18,826	2.7
Poland	16,101	2.3
India	12,453	1.8
Bangladesh	8,629	1.2
Nigeria	6,974	1.0
Somalia	6,058	0.9
Germany	5,084	0.7
South Africa	4,542	0.6
Ghana	3,722	0.5
Sri Lanka	3,329	0.5
	170,834	24.1

- Life expectancy at birth has increased steadily over the last 20 years
- In 2007–09 it was 77.7 years for males and 81.9 years for females.
- Centenarians have tripled in the last 25 years.
 - In 1984 there were 3,300
 - In 2009 there were 11,600.
- Increased survival between the ages of 80 and 100, due to an overall improvement in medical treatment, housing, living standards and nutrition.

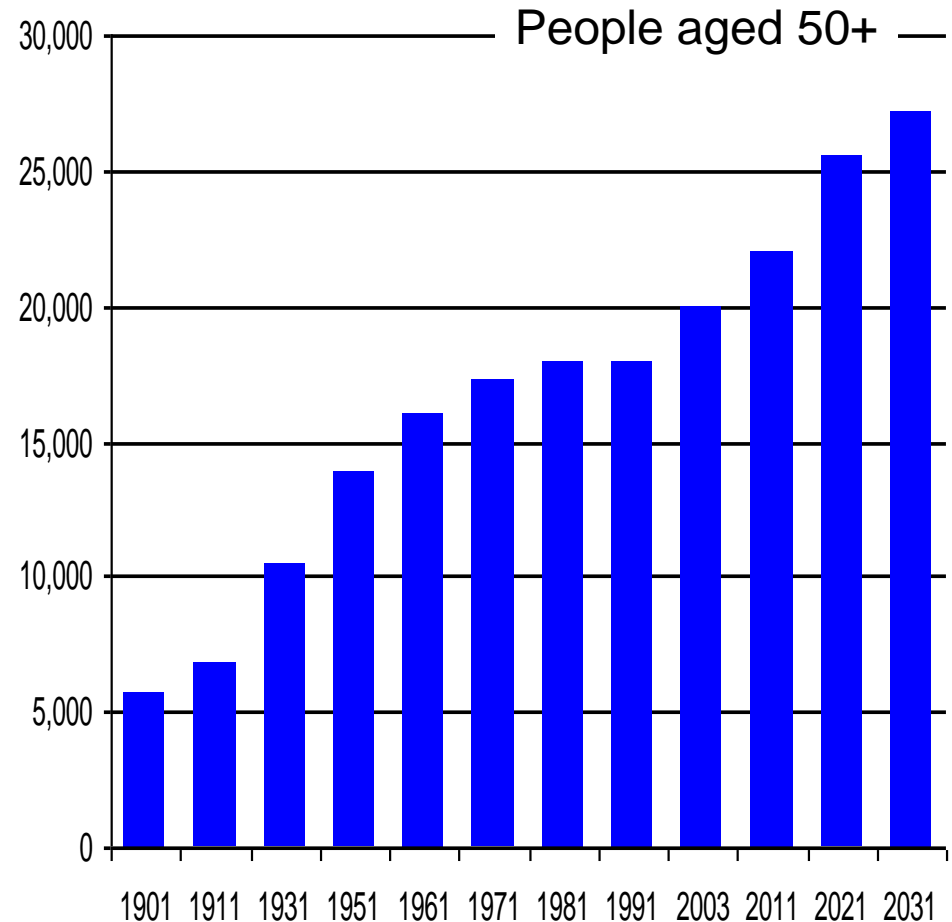


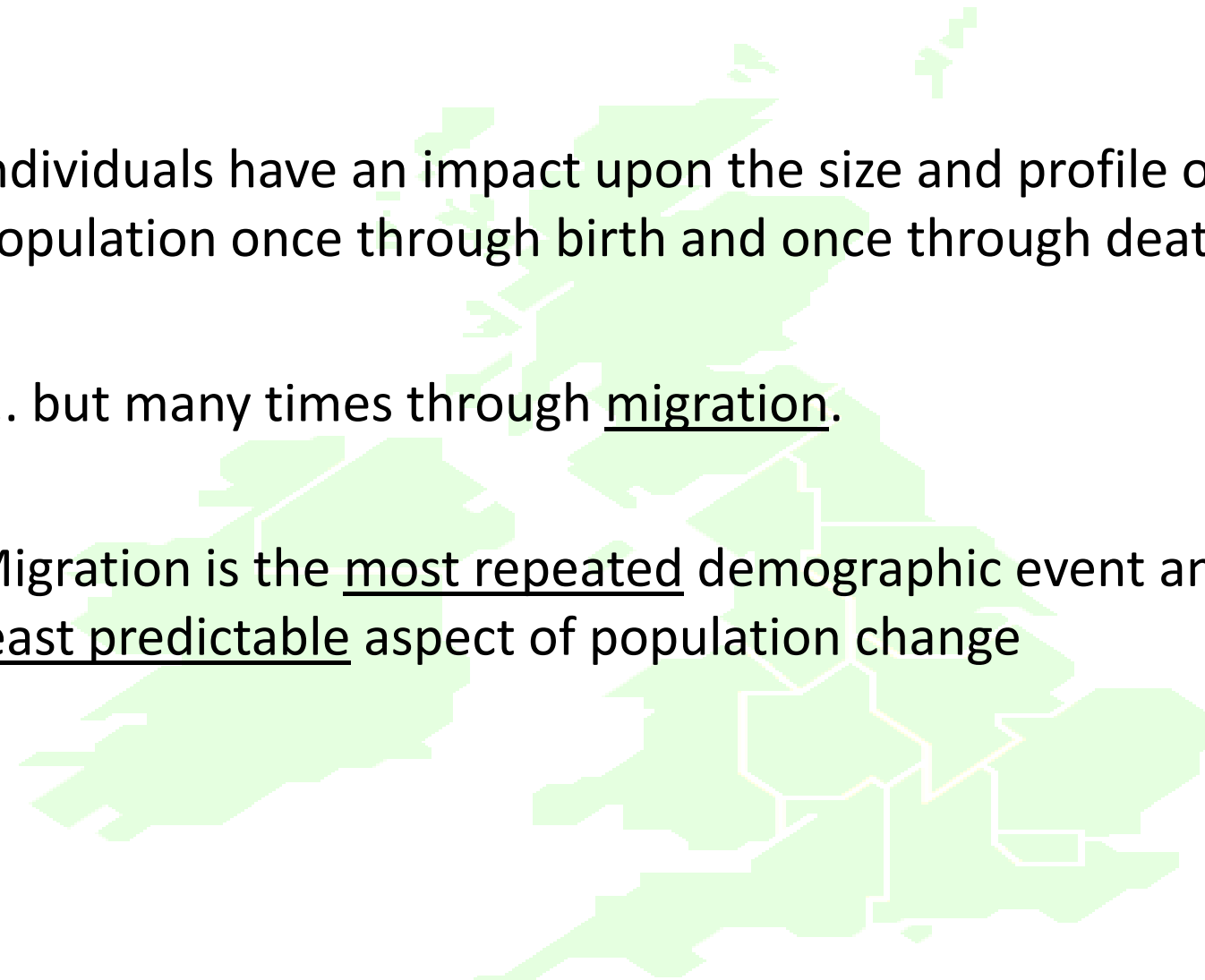
1951

2031



- In 2007, for the first time, there were more people over State Pension Age (SPA) than children aged 0-15.
- As more reach retirement age, the **old age dependency ratio** will continue to rise.

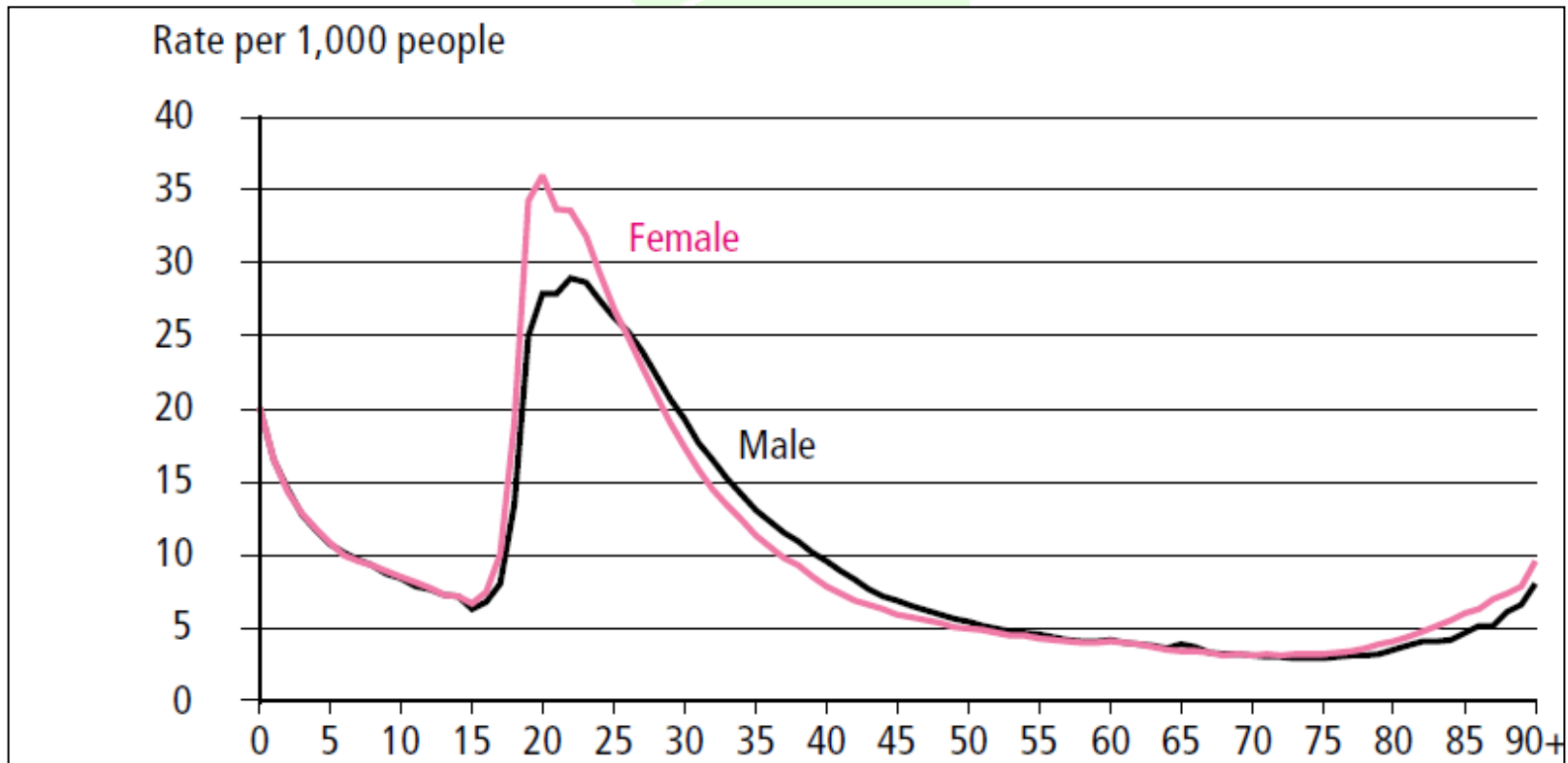


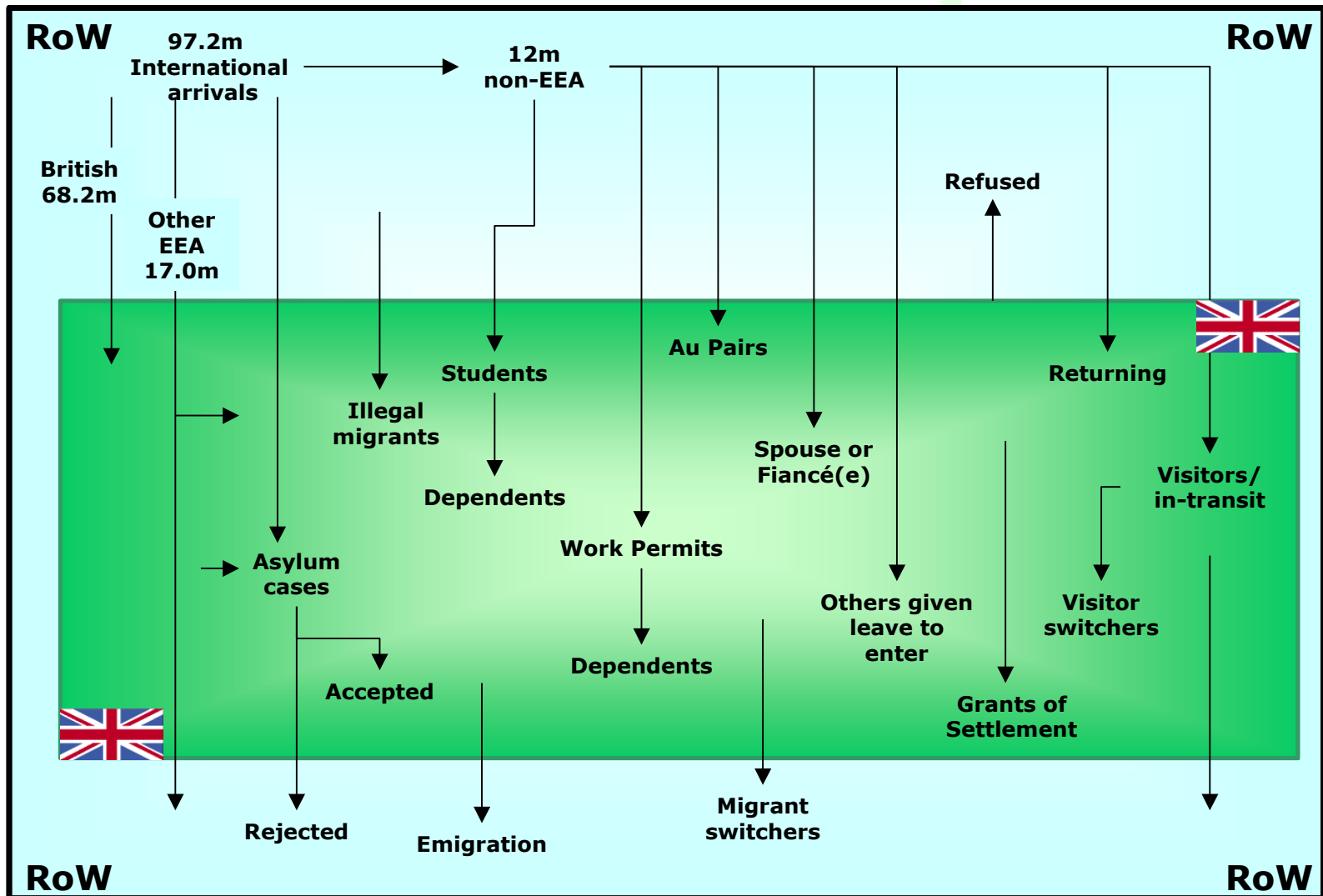
- 
- Individuals have an impact upon the size and profile of a population once through birth and once through death...
 - but many times through migration.
 - Migration is the most repeated demographic event and the least predictable aspect of population change

- Non-permanent moves
 - Journey-to-work
 - Shopping trips
 - Leisure
 - Visits to family and friends
 - Holidays
- Temporary moves (short-stay)
 - Employment
- Permanent moves - migration
 - Relocation of a person's usual place of residence for at least six or twelve months

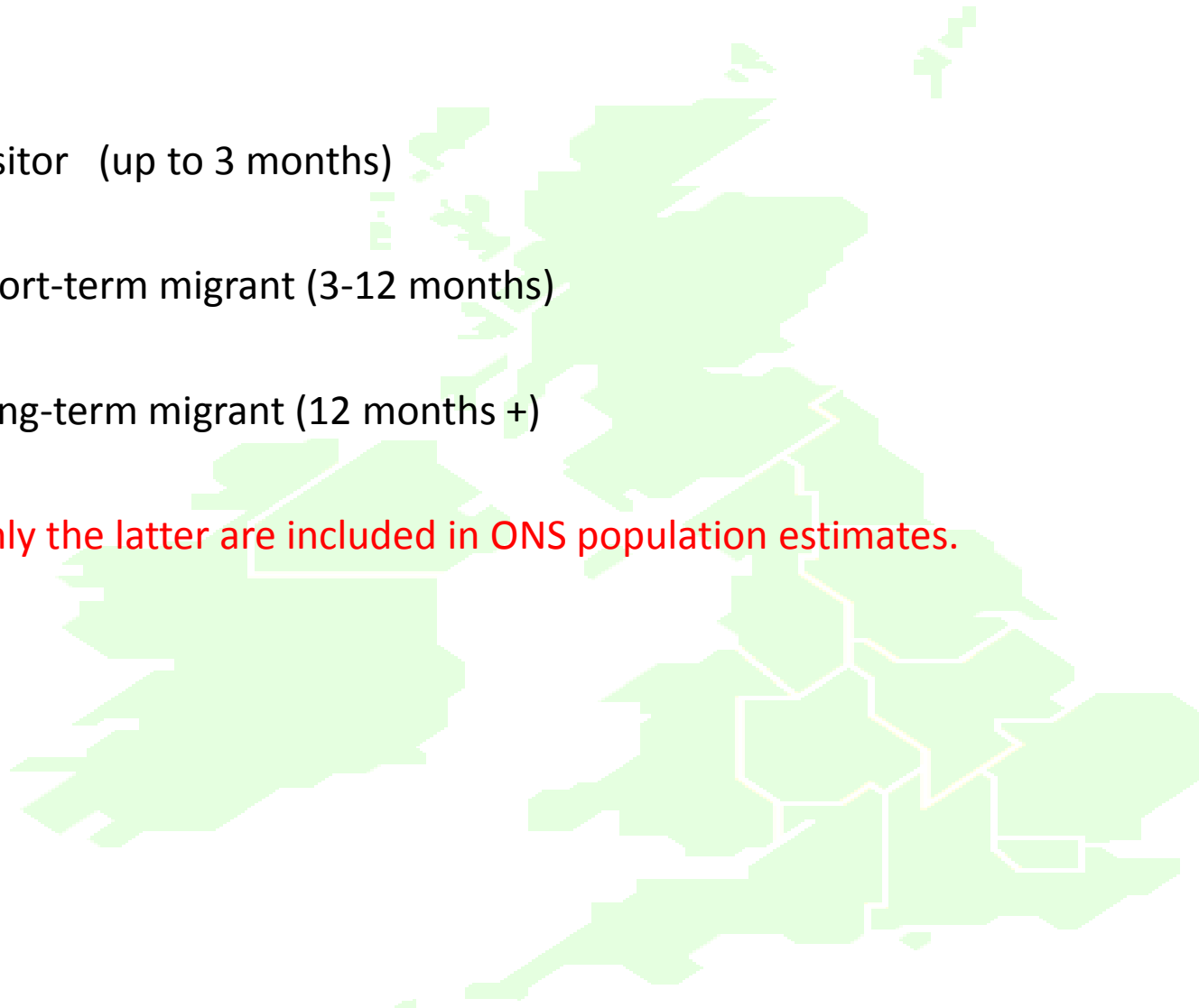


- Some types of people change address much more frequently than others.
- This is especially true for young adults, particularly the single and childless.
- Students moving to and from university and changing address while at university contribute to the peak in migration at these ages, as do other young people leaving the family home.

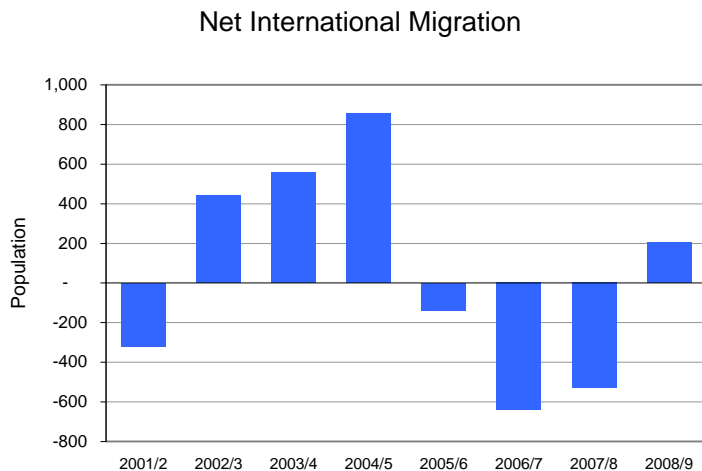
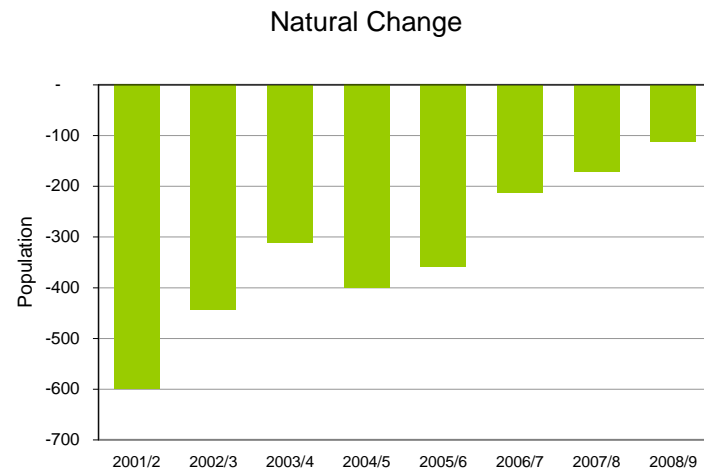
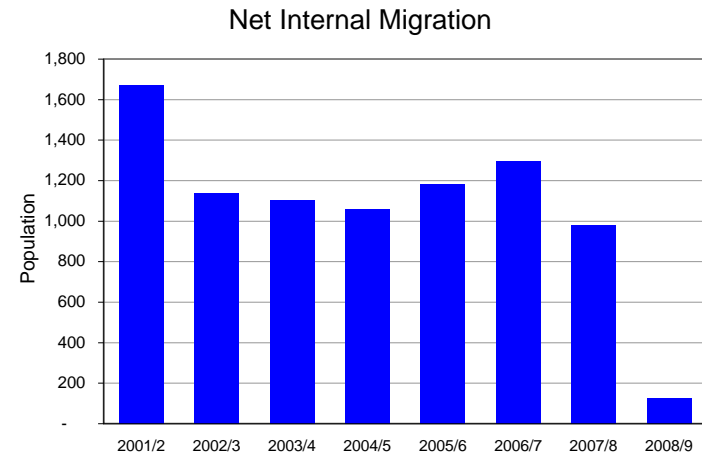
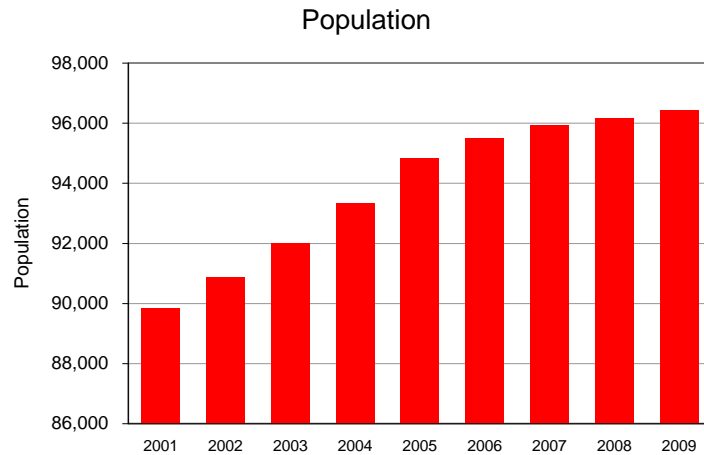


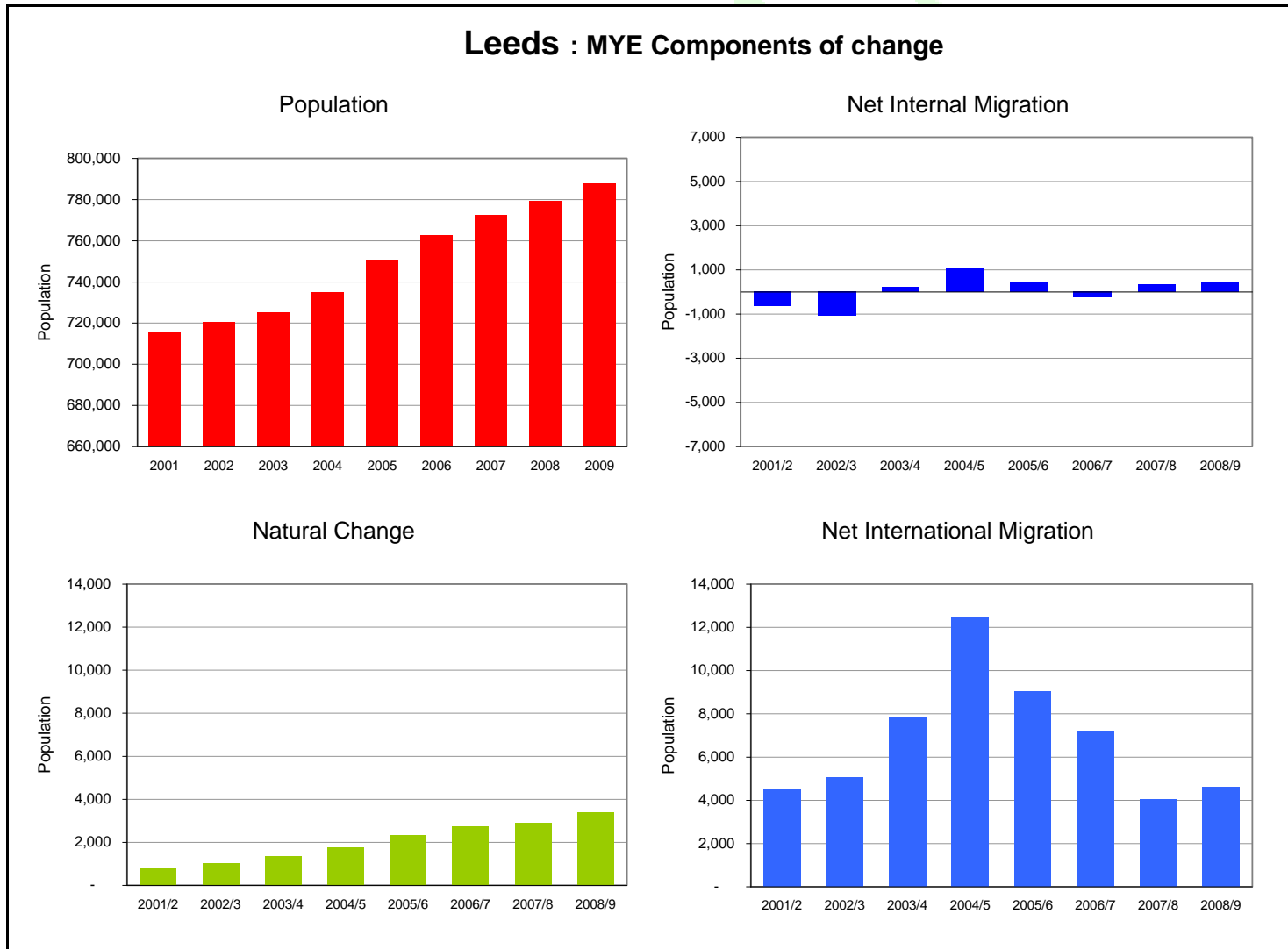


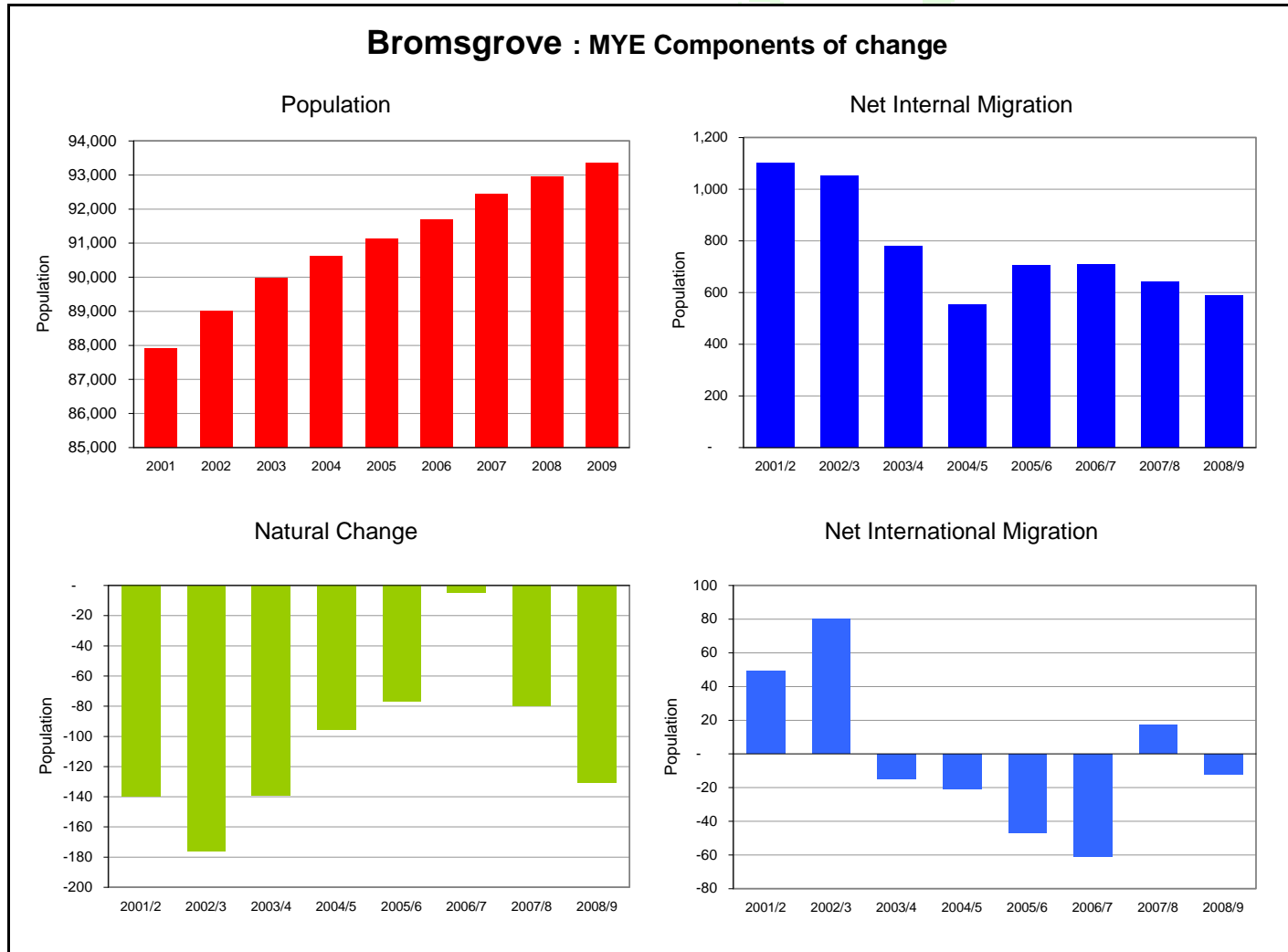
- Visitor (up to 3 months)
- Short-term migrant (3-12 months)
- Long-term migrant (12 months +)
- Only the latter are included in ONS population estimates.



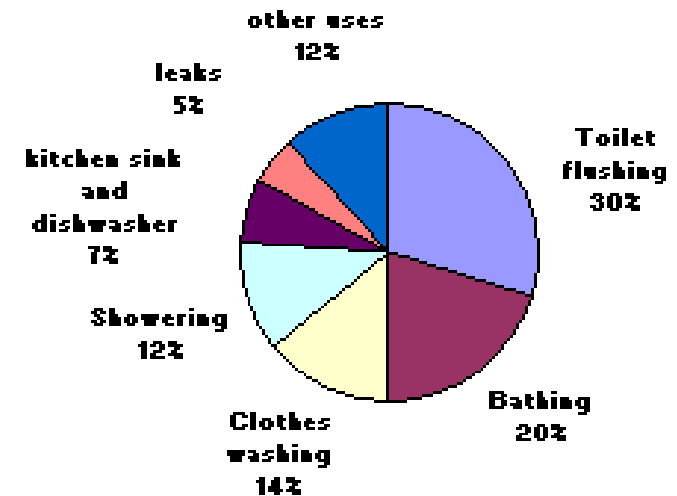
Eastbourne : MYE Components of change



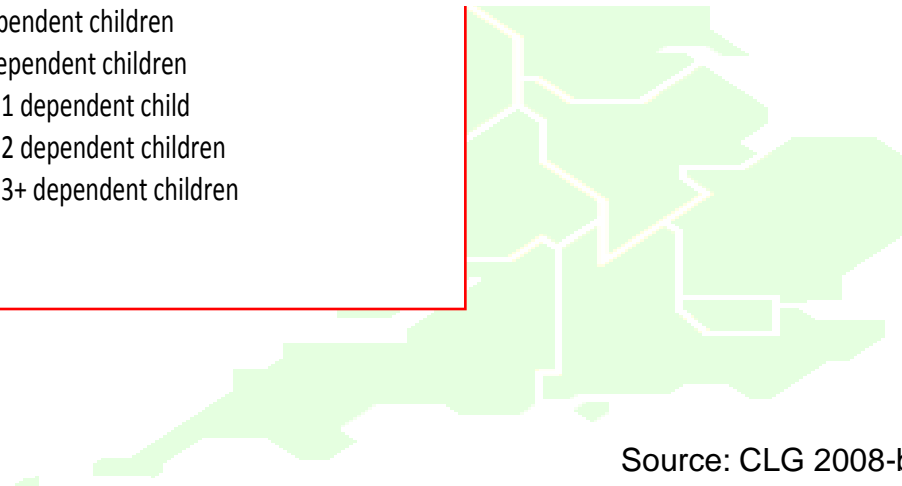




UK Domestic in home water use



1. One person households: Male
2. One person households: Female
3. One family and no others: Couple: No dependent children
4. One family and no others: Couple: 1 dependent child
5. One family and no others: Couple: 2 dependent children
6. One family and no others: Couple: 3+ dependent children
7. One family and no others: Lone parent: 1 dependent child
8. One family and no others: Lone parent: 2 dependent children
9. One family and no others: Lone parent: 3+ dependent children
10. A couple and one or more other adults: No dependent children
11. A couple and one or more other adults: 1 dependent child
12. A couple and one or more other adults: 2 dependent children
13. A couple and one or more other adults: 3+ dependent children
14. A lone parent and one or more other adults: 1 dependent child
15. A lone parent and one or more other adults: 2 dependent children
16. A lone parent and one or more other adults: 3+ dependent children
17. Other households

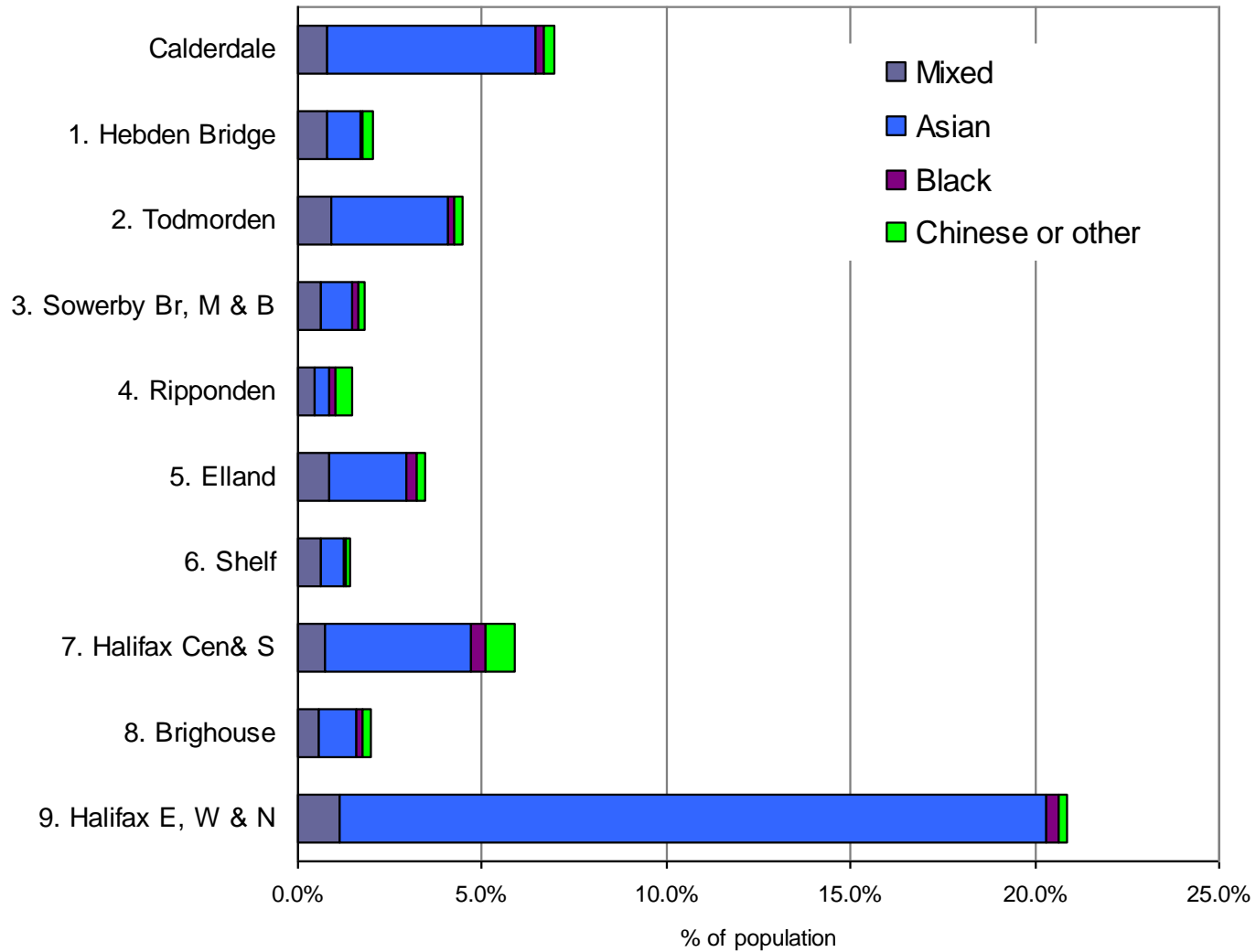


Source: CLG 2008-based

Eastbourne






Category type	2001	2006	2011	2016	2021	2026	2031
OPMAL	5,841	7,286	8,475	9,874	11,299	12,778	14,292
OPFEM	9,922	10,370	10,848	11,729	12,584	13,617	14,655
FAM C0	11,121	11,646	12,033	12,733	13,403	14,060	14,826
FAM C1	2,079	2,173	2,223	2,303	2,425	2,469	2,467
FAM C2	2,573	2,410	2,184	2,002	1,889	1,752	1,600
FAM C3	1,226	1,341	1,398	1,446	1,565	1,687	1,781
FAM L1	1,065	1,235	1,366	1,507	1,679	1,821	1,922
FAM L2	796	871	907	947	1,022	1,095	1,146
FAM L3	365	433	480	533	615	695	750
MIX C0	2,104	2,013	1,848	1,746	1,694	1,611	1,504
MIX C1	592	521	470	432	401	358	331
MIX C2	282	277	274	266	272	280	282
MIX C3	97	85	73	64	58	52	47
MIX L1	274	266	259	255	260	257	250
MIX L2	121	130	137	146	160	170	176
MIX L3	66	87	100	113	135	156	170
OTHHH	2,539	2,559	2,485	2,515	2,491	2,470	2,453
Total	41,064	43,703	45,559	48,612	51,952	55,329	58,651

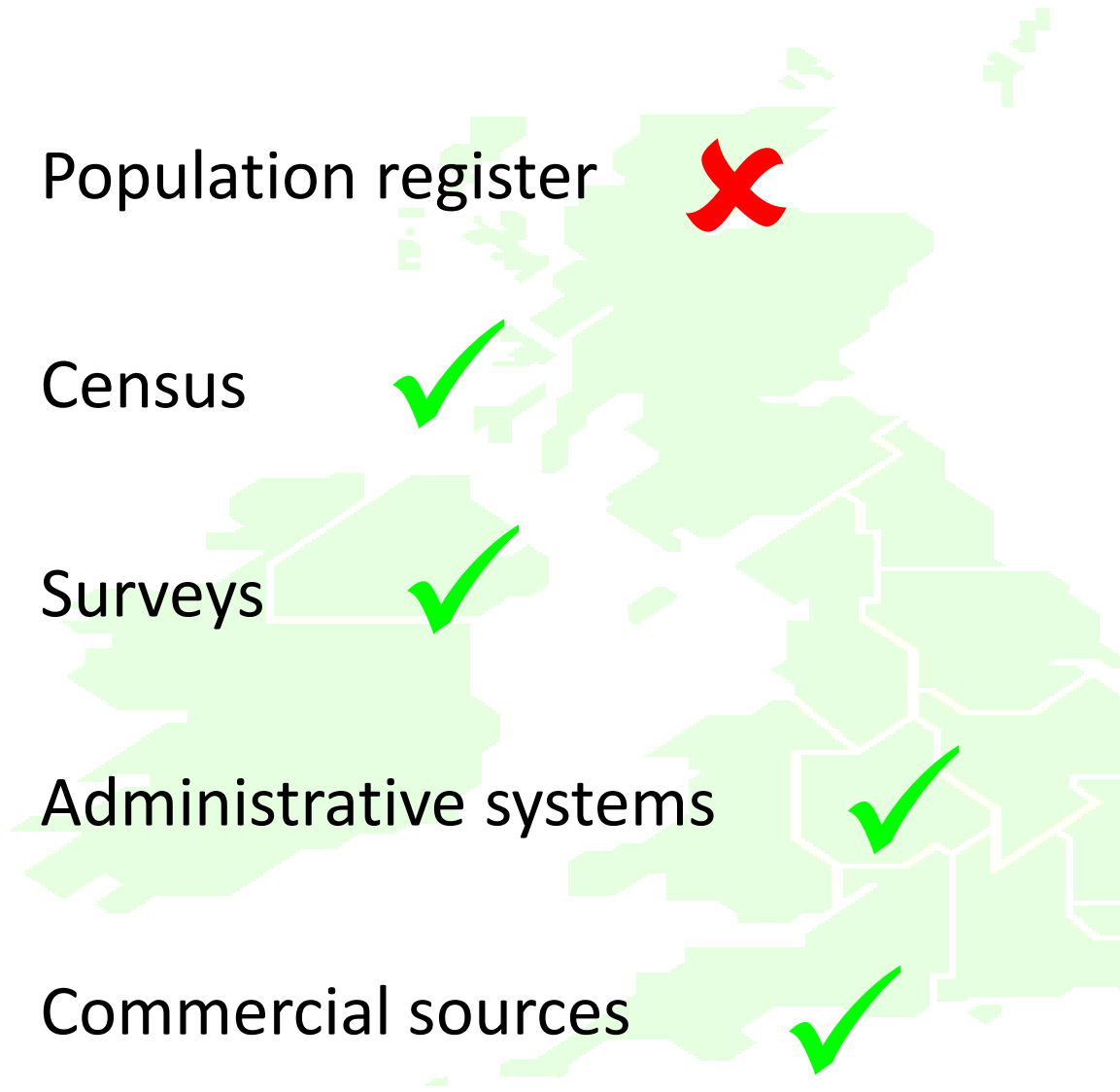
- From households to dwellings:
 - link on size of household
 - taking account of vacancy rates, second homes



- Armed Forces
- Institutional populations
- Hidden populations
- Transient populations



- Population register 
- Census 
- Surveys 
- Administrative systems 
- Commercial sources 

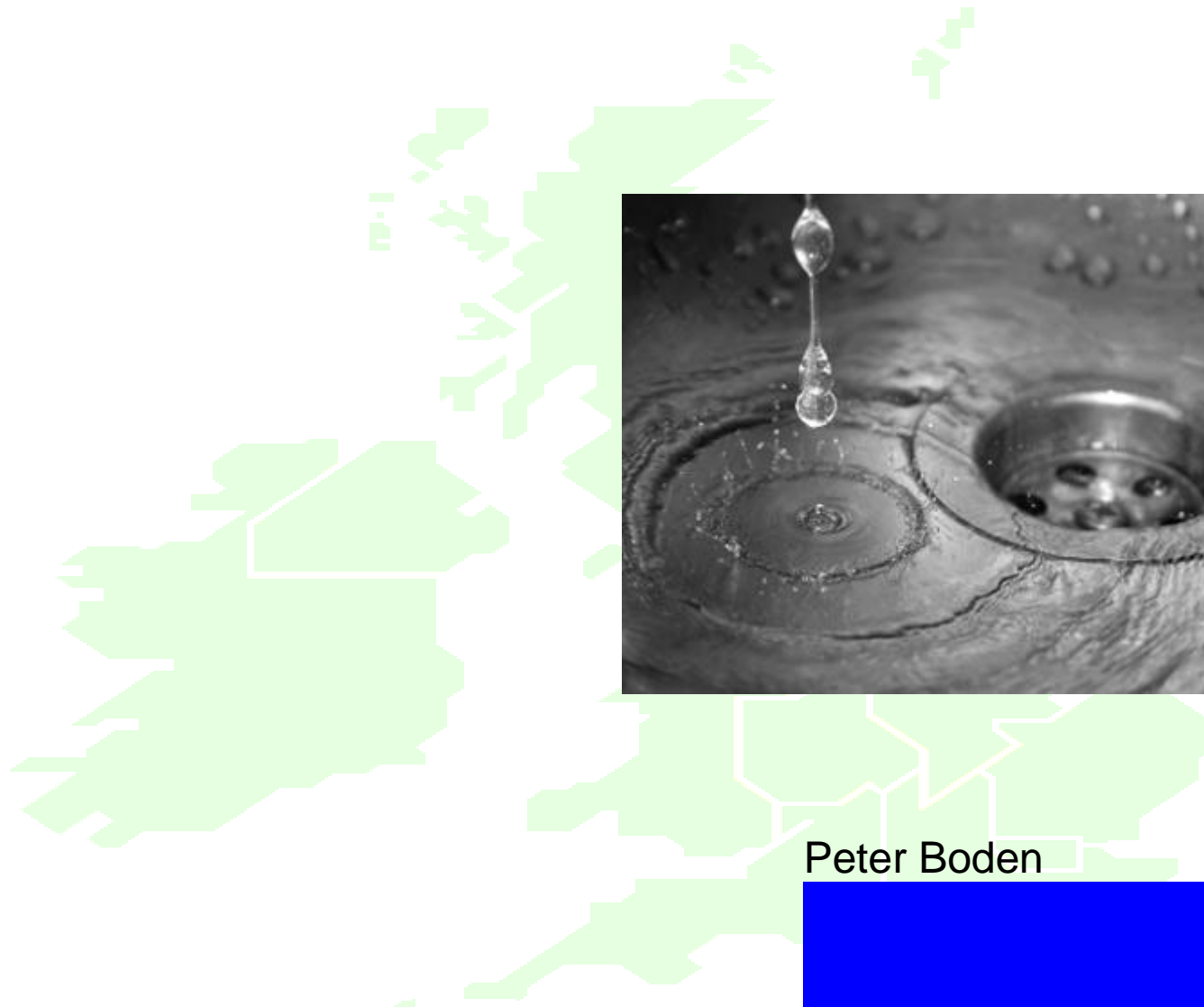




- **Population estimates**
 - For years between successive censuses
 - Take account of annual impact of
 - Births
 - Deaths
 - Migration
- **Population projections**
 - Projections of future population
 - 5 - 50 year time horizon

- Long-term planning is a key requirement in the Water Industry supply-demand balance
- Demographics is a key driver of the planning process and a source of change and uncertainty
- Water Demand drivers
 - Population size - Population profile
 - Household size - Dwelling type
- Evidence base
 - Official statistics
 - Alternative/complementary statistics
 - Alternative scenarios
 - Regular review





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