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Part One

The Main Issues

World Population
Global Economics
International Relations
World Society
Politics and Power
Ecosystems
Climate Change
Global Public Health
Emerging Technologies
Disasters and Existential Risks

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World Population

Things that may interest you

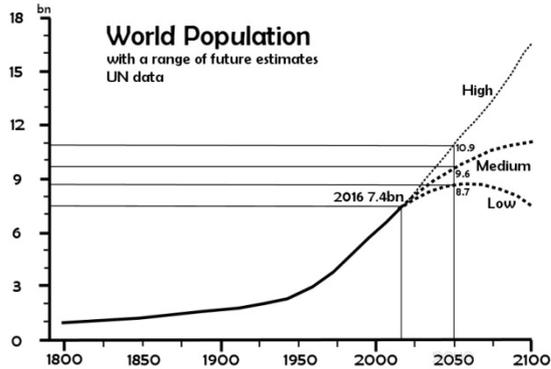
- In 1950 the world's population was 2.5bn. Some experts calculate such a population to amount to Earth's maximum natural carrying capacity. Since then the population has tripled.
- Earth's population grows by about 83m per year - more than the population of Britain (65m).
- A rise in fertility of just one quarter of a child per family in Africa yields a population increase by 2100 of 600m people.
- Infanticide in China, due to the one-child policy of past decades, means that China now has 106 males per 100 females. Meanwhile, in many Chinese cities, 20% of women in their thirties are single and won't have children, being too busy supporting parents and working long hours. So China has a shortage of mothers and its population will not grow further.
- 46% of the world's population lives in nations where the birth rate is lower than replacement rate - such as in Europe, China, USA, Brazil, Russia, Japan and South Korea. The main ways out of economic decline in these countries are immigration or automation.

If we could identify one single main driver of change, it would be population growth. It increases economic growth, ecological impacts, urbanisation, climate change, social stresses and the pace of technological change. Rapid population growth began in Europe two centuries ago, spreading worldwide by the 1950s, and now it is concentrated in Africa, India and some parts of Asia.

Demography can easily be reduced to bland statistics, but for each unit of humanity there is a real person experiencing life's ups and downs, with brains, love in their hearts, a life-story to tell, aptitudes, skills and a spark of human spirit. In recent decades Earth's body count has skyrocketed but the volume and contrast of

collective human experience, if we could quantify it, has probably jumped geometrically. Even the few remaining undiscovered Amazonian tribes are impacted: one anthropologist tells of a tribe using printed circuitry from a crashed airplane as jewellery.

While the *rate* of population increase has declined since the 1970s (its peak was 1955-1975), population is still increasing and numbers have more than doubled, and total



our

population still rises faster than back then. More people are living longer too: in 2015, 12% or 900m people were aged over 60, and by 2050 it will be 25% or 2.1bn (the same as the total world population around 1930).

Population is expected to level out between the 2040s and 2100 (estimates vary), thanks mainly to contraception, women’s changing priorities, people’s busy lives and, associated with urbanisation and education, the rising costs of raising children and the declining benefits of large families.

Underlying all this is a change of heart: fulfilment, progress and meaning-in-life are now what increasingly matter to people. This reflects a generational change: one-third of the world’s population is made up of Millennials (born roughly 1984-2005), 37% of them being in India and China, and they want fewer children and to have children later in life. More people than before will have no children. The eventual demographic downturn will have marked emotional consequences for the world – fewer children, smaller families, more old people and more social isolation.

In SE Asia and Latin America family size dropped from six to two children in the forty years up to 2008. The timing of a similar decline in Africa and countries such as India, Pakistan and Indonesia will depend on economic growth, fair living conditions and reduced insecurity. The end of world population growth depends on the speed with which birth rates in these countries decline.

The demographic transition

Here we come to the *demographic transition*. When the conditions are right – decent governance, law and order, jobs, fairness – population growth stimulates economic growth and development. In the early stages, death rates fall while birth rates remain high, and labour supply is boosted for a generation as children grow up, move to cities and find jobs – think of the Asian tiger economies of the 1980s-90s. Then the birth rate gradually drops and the proportion of productive people, increasingly freed from parenting, increases. Women enter paid work and children grow up better fed and educated. As prosperity rises, the bulge population, now in middle age, consumes more and amasses pensions, investments and property. This economic virtuous cycle turns developing into middle-income countries. This is called the *demographic dividend*.

But then growth slows as the boom generation grows older, less productive and more dependent on a diminishing number of younger people to support them by paying taxes and doing the work. This is the situation today in richer countries and increasingly in countries like China, Korea, Russia and Brazil. Life expectancy, pensioners and the years children spend at school all increase, and more is spent on social support, healthcare and pensions – this is the *demographic burden*. It can be offset by immigration, automation and creating conditions where dependents can be more active and productive (such as grandparents looking after grandchildren).

This suggests that, barring mishaps, today's high population-growth countries will become stronger around mid-century, since their

population bulges will be peaking and their economies maturing. But these countries have a new problem: modern medicine has brought an early onset of ageing people before national GDP has risen significantly, so dependency grows in societies that are socio-economically unready to carry it, and this erodes the demographic dividend. In the 21st Century, Earth has an ageing issue. Add in the sheer quantity of other questions ahead of us, outlined in this report, and there's a sizeable challenge ahead.

Sustainability

Then there is the small matter of *sustainability* – something often talked about while less is actually done about it. Sustainability is here determined by four main factors: population size, the scale of global consumption, the efficiency by which economies use resources, and Earth's biocapacity to support all this. At present, population and consumption are still rising significantly; resource use efficiency is improving slightly but is still excessive and wasteful; and biocapacity is crucially declining, with new evidence suggesting a sharper deterioration than most people appreciate.

The world is consuming the equivalent of 1.6 Earths – this is our *global footprint*, and it's in overshoot. USA uses up the equivalent of 4.8 Earths, countries like UK and Japan use 2.9, China 2.0, Brazil 1.8 and India 0.7. Poorer people have more sustainable consumption patterns than richer people, though many of them might justifiably feel dissatisfied with this since richer people have more than they do, and the poor pay a big price for that.

Unless catastrophes happen – with pandemics, nuclear or biological warfare or mass tragedy wiping out billions of people – world population decline awaits the 22nd Century. And unless humanity radically changes its environmental behaviour, biocapacity will not rise to meet the population and consumption increases we are seeing today. There is a problem.

This leaves two main alternatives: cutting consumption and raising resource-use efficiency. Overall consumption needs to fall,

particularly for the richer third of humanity, most of whom will not be happy about that. Socio-economic inequality needs to sink so that scarcer resources are spread more evenly and fairly – remember, the richer half depends on the poorer half to grow its food, make its clothes and clean its toilets, so this is important. Fairness means not only pulling poorer people up, but also bringing richer people down – reducing extremes of wealth, poverty and power.

Efficiency, meanwhile, means not only technological efficiencies such as automation, robots and artificial intelligence. It means wasting less, recycling, re-using and repairing more, using simpler systems and designing out waste, keeping to essentials, and improving ecosystems and natural processes so that biocapacity rises. We need to grow more food and improve the environment at the same time – that’s a tricky combination. Efficiency is hampered by ecological degradation, pollution, resource exhaustion, soil depletion, habitat destruction, biodiversity loss and systems complexity. The story is not good. This equation doesn’t square up.

So population demographics affect everything else. Add to this an unscientific, commonsense reminder: we humans are not just units of production and consumption who can be moved around at will and easily imposed upon. There’s the matter of human contentment, and this crucially affects the politics of the future.

If people feel okay, public consent and cooperation, pluralism, tolerance and dialogue, public health, mental health and many other issues generally improve, while social stress, waste, violence, war, overconsumption and environmental damage generally fall. We are therefore not just talking about straight population numbers but also about subjective life-quality issues too – *happiness*. It concerns our psychology and feelings, not just our material circumstances.

Research in developed countries has shown that, once a person’s income rises above a certain moderate level, reported happiness does not increase significantly as income rises further. So there is an optimum level of prosperity, difficult to define and different for

different people, but many of us are over it while many more are under it. This century, the richer half of humanity will need to learn what *having enough* means, otherwise hunger and shortage will become endemic for the poorer half, and the richer half will have to rest easy with such a tragedy.

It is conceivable for ten billion people to live on this planet but, to do so, a lot needs to change, particularly with reduction of consumption and inequality, buildup of ecological capital, increased basic contentment and good international relations. It would involve a lot of change and hard work – a new approach to everything. Without this, life on Earth could become difficult, dystopian and dispiriting, even for the privileged, with a lot of conflict and tension, starvation, undernourishment and tragedy. Richer countries will not be exempt and will probably not be as prosperous and stable as they once were. Migrant numbers could grow into tens of millions.

Population and Earth's carrying capacity are thus vital issues in coming times.

Interesting links

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