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A perfect storm approaches as our finite earth is taken to its limits through exponential growth of consumers and of consuming

“We have not inherited the earth from our grandparents – we have borrowed it from our grandchildren” (Kashmiri proverb) (1)

“Sustainable development...meets the needs of the present without compromising the ability of future generations to meet their own needs.”(2)

“I have not seen a major problem facing our planet that would not be easier to solve if there were fewer people – or harder, and ultimately impossible, with ever more” (3)

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INTRODUCTION

The Government’s Chief Scientist and the last President of the Royal Society both referred to the approaching ‘perfect storm’ of population growth, climate change and fossil fuel scarcity. Reliable reports on the planet’s health have found water, land, plants, animals and fish stocks all in “inexorable decline”. Climate change is terrifying enough, especially with the risk of runaway positive feedbacks (methane release from permafrost; less albedo effect as the white ice disappears). But it is far from being the only life-threatening global problem.

The United Nations’ Global Environment Outlook-4 report (4) revealed a scale of unprecedented ecological damage. Put bluntly, that report warns that world population, now over 7 billion, still (despite welcome reductions in birth rates) increases by over 80 million annually, “has reached a stage where the amount of resources needed to sustain it exceeds what is available”. Every week a city for 1.5 million people is appearing, somewhere – with all that that implies for additional energy use, CO₂ production, destroyed habitats for wildlife.... Climate change, the collapse of fish stocks and the extinction of species “may threaten humanity’s very survival”. Environmental damage could pass unknown points of no return.

Overshoot: Each person’s environmental footprint has grown (2006 data) to a mean of 2.6 global hectares (gha) per person, yet the total biological capacity of the planet would allow only about 1.8 gha per person (5). Those who consume way beyond their share, the rich over-consumers in every country, must massively reduce their environmental footprints – but also relevant is the ‘number of feet’ involved. Reducing over-consumption and overpopulation are two sides of the same coin.

Or to put it another way, contraceptives are at least as important for sustainability as bicycles....

The 2010 Living Planet Report (6) calculates that humankind will need greater than 200% of the planet’s total biocapacity (forestry, fisheries, croplands) by 2050. What does that mean? Such gross unsustainability, for any length of time, is simply not an option. By 2050, do we find another planet? Or, will half of humanity have to die? Wouldn’t voluntary contraception be a far more humane way to lower numbers? See below.

Pressure on the global fresh water supply has

become a serious threat to human development as the demand for irrigated crops soars. The UN reports that only one in 10 of the world’s major rivers reaches the sea all year round, because of upstream irrigation...., with close to 2 billion likely to suffer absolute water scarcity by 2025. Humans will soon be fighting over the last gallons of water just as they did, and will, fight over oil.

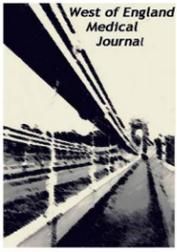
- Biodiversity: A sixth major extinction is under way, this time caused by human behaviour: species are becoming extinct a hundred times faster than the rate in the fossil record. Of the major vertebrate groups that have been assessed comprehensively, over 30 per cent of amphibians, 23 per cent of mammals and 12 per cent of birds are threatened. Of the total land vertebrate biomass, 97 percent is now the flesh of humankind or our cows, sheep, goats... leaving just 3 % for ALL wild species put together....
- Critically, fish stocks, a key protein source for several billion people, are in crisis. The oceans while helpfully absorbing excess CO₂ are acidifying, threatening marine habitats including all coral reefs. About 30 per cent of global fish stocks are classed as “collapsed” and 40 per cent are “over-exploited”.
- The need for land has increased as populations, living standards, meat-eating (responsible for circa 18% of greenhouse gases) and demand for biofuels all rise. The earth being finite, there is no new land: except through continuing forest destruction (over 1 million hectares per month). A hectare that yielded 1.8 tonnes of crops in 1987 now yields 2.5 tonnes, through greater use of fertilisers and water - but often leading to land degradation and pollution. The rise in productivity has been made possible only by ever greater use of fossil fuels (eg for tractors, oil-based fertilisers, refrigeration and transport). Yet already (2011) oil is used faster than new oil can be supplied (Peak Oil), threatening the whole world economy.

In his RSA President’s lecture Sir David Attenborough quoted from Foresight: The Future of Food and Farming (201) (7) That report, he said: *describes the many obstacles to feeding 7000 million people, increasing in numbers by 80 million (the population of Egypt) each year: soil erosion, salinisation, the depletion of aquifers, over-grazing, the spread of plant diseases by globalisation, the absurd growing of food*

crops to turn into biofuels to feed motor-cars instead of people, and so on. It makes a number of eminently sensible recommendations, including the need for a “second green revolution”. But, surprisingly,... it doesn’t state the obvious fact that it would be much easier to feed 8 billion people than 10, so measures to achieve this – voluntary accessible family planning and women’s education and empowerment - should be a central part of any programme of action for food security. It doesn’t mention what every mother subsisting on \$1 per day already knows, that her children would be better fed if there were four of them round the table rather than ten.

Why the silence? Why is this the “elephant in the room that no-one talks about”? *Sir David went on: I meet no-one who privately disagrees that population growth cannot ever continue indefinitely. No-one except flat-earthers can deny the planet is finite. We can all see it in that beautiful picture of our earth taken from the Apollo mission. So why does hardly anyone say so publicly? There is a bizarre, sustained taboo around the subject.... The taboo doesn’t just inhibit the politicians and civil servants who attend the big conferences. It even affects the people who claim to care most passionately about a sustainable and prosperous future for our children, the environmental and development NGOs. Yet silence implies that their admirable goals can be achieved regardless of how many people there are in the world, even though they all know it can’t.*

I simply don’t understand it. It is all getting too serious for such fastidious niceties. It remains an obvious and brutal fact that on a finite planet human population will quite definitely stop at some point. And that can only happen in one of two ways. It can happen sooner, by fewer human births – in a word by contraception. This is the humane way, the powerful option which allows all of us to deal with the problem, if we collectively choose to do so. The alternative is an increased death rate – the way which all other creatures must suffer, through famine or disease or predation. That translated into human terms means famine or disease or war – over oil or water or food or minerals or grazing rights or just living space. There is, alas, no third alternative of indefinite growth (8)-----



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POPULATION MATTERS

'Too many people, not enough planet'

The biblical command to multiply and “fill the earth” has been obeyed; there was no order to “overfill” it!

1 *“The world has enough for everyone’s need, but not enough for everyone’s greed!”*

- Are both parts of Mahatma Gandhi’s famous saying still true? Or is the first statement no longer true? Isn’t it probable that by 2050 it will be a case of too many “everyones” for the world to supply?

2 How did this come about? Mostly not by people actively planning to increase numbers (though some groups, mostly religious or political, do just that, to increase their voice or voting strength). It was the unintended consequence of the GOOD we did when medicine became effective for the first time, primarily through public health since the mid-19th century and then antibiotics since the mid-20th. Whereas from the dawn of history a couple would have to have 6 or more children for 2 to reach child-bearing years, now most of them do this. The world in general and the caring professions in particular were slow to recognize the (fairly obvious) need to bring those numbers back into balance, through voluntary family planning.

3 Even when that need for balance is accepted, a common myth is that any quantitative concern about population must necessarily and intrinsically be coercive - of poor people. Not so, as well as being plain wrong, compulsion in reproductive health has usually proved counter-productive anyway. Forget compulsion - indeed to help end this myth it is best to avoid even saying together the two words population control - so long as we are inadequately resourcing the voluntary things: primarily, ensuring that any sexually active woman on the planet who wants to use contraception has that choice. Not doing this is probably the ideal way to ensure that more future Governments will legislate, most regrettably, for birth control policies that do lead to coercion.

Others distrust this quantitative concern as inevitably exclusive of other key interventions: social justice, contraction and convergence (9), poverty alleviation, healthcare, measures to improve child survival and women’s education and rights. Not so, we surely do not have to talk “either-or” here, it can be “both-and” thus making contraceptive services a fully-funded and priority component of humanitarian aid.

4 If the world were run by biologists rather than economists, our leaders would have known sooner what all species get to know by hard experience: that multiplication beyond ecological limits leads to a population crash. To quote Sir David again “I have seen how increasing populations of elephants can devastate their environment until, one year, when the rains fail on the already over-grazed land, they die in hundreds”.

Politicians, if population growth ‘gets on their radar’ at all, commission demographers to study population trends in each country: but they treat it as a “GIVEN”, something to which we must forever adapt, by first predicting then providing (always, for however many, and for ever). This is analogous to a man, granted a last request before being pushed out of an aeroplane, who chooses an altimeter rather than a parachute! With a catastrophic impact looming he continues to say, as he monitors each 1000 metres of descent, “we’ve managed fine so far”...! Yet, for the population crisis, for humans unlike elephants a parachute really does exist: it’s called family planning (fully accessible and with no obstacles impeding women’s voluntary choice to use it).

5 Unsurprisingly, SEX is at the root of all population growth! Economists who argue that poor people need and choose to have large families ignore one vital fact: that potentially fertile intercourse occurs far more frequently than the minimum needed for desired conceptions. Hence having a large rather than a small family is usually not, as so often portrayed, a planned decision - couples in low resource settings (LRSs) actively setting out to have many children for economic and ‘social security’ reasons, or, given expected high child mortality in such settings, to ‘be on the safe side’.

It is instead an automatic outcome of human sexuality. Something active needs to be done to separate sex from conception—namely, family planning (FP). Without that intervention being accessible, the biological norm or ‘default state’ for absolutely all fertile couples on the planet is a large family. They quite simply happen when you are not able to not have a large one... It’s not the poor having more sex. If fertile, sex at normal frequency plus absent FP means a large family. No “trying” needed!

But access to FP is often difficult for poor people, many children arrive, often by chance not choice, but are, naturally, then welcomed. The crucial factor is the numerous powerful barriers to women being able to choose to have a smaller family - including the basic barrier of not having ACCESS to the FP methods.

Obviously increasing per-capita wealth usually removes that and other barriers. Yet there is no need to wait in the (often forlorn) hope of that happening, or use compulsion to hasten change. There is no country with above replacement

fertility which cannot now, without a whiff of coercion, make a good start in enabling couples to reduce their average family size:

For a start, there is a wide-open door of need. Despite the well-known cultural and religious endorsement for large families in many LRSs, very few women want the maximum biologically possible number of children (>8), and teenage and late-order births are frequently regretted. Between a 1/3 and 1/2 of all conceptions are not planned, totalling c 80 million per year. Survey data show that about 215 million women without access to modern contraceptive methods want no more children.

To change the context of decision-making in LRSs requires contraceptives to be available and accessible and promoted, by good use of the Media (10). Primarily by education the multiple barriers to their use need to be removed. These include fatalism (‘God has planned my family size’), misinformation about contraceptive side effects, religious prohibitions, political correctness. Dealing with barriers to women, caused largely by men, in a rights-based way is the tried and tested means which worked in the success-story countries (eg Iran) & states (eg Kerala).

6 Back in 1992 James Grant of UNICEF said in their Annual Report:

Family planning “*could bring more benefits to more people at less cost than any other single technology now available to the human race*” (11).

But, he went on to say: “*it is not appreciated widely enough that this would still be true if there were no such thing as a population problem.*”

This is because it is a directly humanitarian intervention: people – mostly women and children – suffer if family planning is inaccessible. The 2007/9 APPG report mentioned earlier has a Table which shows exactly that, how all of the Millennium Development Goals that are essential to improve the lives of individuals are adversely impacted by population growth, for example:

Goal 2 to achieve universal primary education requires two million extra teachers per year just to maintain existing standards of education; Goal 4 to reduce child mortality necessitates - inter alia - fewer, wider-spaced births which can reduce infant mortality by over 60%; and Goal 5 (Target 5A) reducing by three quarters the maternal mortality ratio must require the elimination of unwanted pregnancies estimated as c 41% of the global total conceptions. People rightly worry about coercive contraception, but it is also possible for there to be coerced conceptions: forcing women to conceive, through not allowing them to exercise their modern-day human right to control their fertility, as they may choose. Without those conceptions the outrageous avoidable mortality of 800 mothers every 24 hours could reduce by 35%. In sum, you cannot die of a pregnancy you don’t have (and would have avoided if you had had fully accessible family planning).

Based on the lecture to the Bristol Medico Chirurgical Society Wednesday March 12th 2014

“Sex and the Planet. Is sex the most dangerous human activity - for humans themselves, and ultimately all life on earth?”



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These facts make this a win-win intervention, indeed a moral imperative: but over the years cost-benefit analyses have never failed to show how it also always saves money. They differ only in how much it saves: a recent estimate (2006) is that for every dollar spent in family planning, between 2 and 6 US dollars can be saved in interventions aimed at achieving other development goals. This is without consideration of avoided environmental damage, which would be a far greater sum.

7 What are the 5 Rs of the environment?
Answer: Refuse - Reduce - Re-use - Repair - Recycle (& of course bicycle!) All but the first in that list are aided by greener technologies, which we must of course research and utilise much faster. But aren't all those R's rather a nuisance?...if we can get away with it (often using the possibility of techno-fixes as excuses for ourselves), wouldn't we all prefer to avoid the lifestyle changes they require? There is in short absolutely no unmet need for us to reduce consumption! Contrast the reality of unmet need just described, for the fully accessible family planning that would ensure fewer humans on the planet to be doing the consuming/polluting.

8 When the camel collapses with a broken back, it is important to remember that the last straw did not really do it. It was the fault of all the straws. To achieve environmental sustainability, everyone must be involved, reducing per-person consumption (each person's environmental footprint) AND bringing the whole world's average family size down to replacement (an average of just over 2).

When a field of common land is right at the point of being over-grazed, Garret Hardin called it the "Tragedy of the Commons". This is because each herdsman continues to find it advantageous, personally and for his family, to put yet one more cow on the land – and another and another, even if the later new arrivals are thinner and less productive than before – right up to the point that the grazing limit is finally exceeded and all the cows die and all the families suffer.

The private gain of the individual is thus at the common cost of the whole group, progressively and -without intervention - ultimately catastrophically. This is Hardin's "tragedy"..

A more modern example is: to each fisherman it remains acceptable to take his boat to the nearly over-exploited fishery - getting ever smaller and fewer fish; but still he says "my boat is my livelihood, it's those Spanish fishermen that are doing the over-fishing" - right until, predictably, the fishery collapses.

Much is encapsulated in the sayings: "My car is my car – everyone else's car is traffic!" and "My extra baby is my right – everybody else's extra baby is over-population"

Hardin said the intervention to avoid 'tragedy' was "Mutual coercion, mutually agreed upon", meaning everyone agreeing to be regulated by peer-pressure or fiscal "sticks and carrots". So in the fishery example each takes an agreed smaller quota, which is sustainable. But not every relevant thing that happens in the environmental 'Commons' can be so regulated: eg the multiple decisions made by each individual re cycling/ walking rather than going by car; switching off lights; choosing to have a small family.... When push comes to shove - especially when we see so much continuing gluttony in energy use by large corporations (office blocks with lights blazing all night etc) - all of us can feel "Why bother to do the right (often inconvenient) things to help the environment, when seemingly no-one else does?" Friends of the Earth have a booklet "I will – if you will". It should have had a sub-title: "But why should I bother? - if you don't bother"!

So the central question here is: given the fundamental problem that there will always be people in denial - and cheats - how can this mutually assured per-person reduction of environmental impact by everyone possibly work, without strong personal motivation. All religions encourage love for one's neighbour. But how can we ever claim to be really 'loving our neighbour' if we leave out of consideration our neighbour overseas (who will suffer most from climate change) or, as Brundtland highlighted, our future neighbour (receiving from us a potentially trashed planet)? Besides the use of 'greener' technology and less consumption per-person, this surely means reducing growth in sheer numbers of 'future neighbours' by using the contraceptive parachute (see No 4 above); but only and in all circumstances wisely, democratically and compassionately. (See also the author's 2013 TED lecture Sex and the Planet (12))

REMOVAL OF THE BARRIERS TO AN INDIVIDUAL'S CONTROL OF HER OWN FERTILITY

Costa Rica, Cuba, Iran, Korea, Mexico, Sri Lanka, Taiwan, Thailand and SOUTH India (even) have reduced their Total Fertility Rate (TFR or "average family size") to close to 2 which is replacement - as quickly as China, but primarily through a rights-based approach and without the coercion that has featured in China.

How? What do these vastly different developing countries have in common? Their governments recognized the population-poverty connection and removed the barriers to fertility planning (FP). Vanishingly few women desire the biological maximum of children (> 8). Most want far fewer. So there is always some perceived unmet need (varied, often >25 % acc to Demographic Health Surveys). We need to push at that open door...

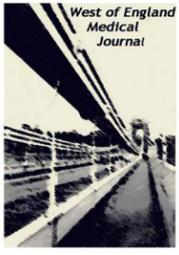
Some barriers to optimal Reproductive Health (RH) plus FP provision (not a complete list!)

- *Pronatalism*: operating at a deep level through culture and increased by competition between tribal or religious groupings ("numbers give power") or enlarging markets – affecting both genders but esp male.
- *Gender inequality and abuse*. Also double standards: "if my wife has contraception I won't be able to trust her not to go with other men" (Fact that he often goes with other women not seen as relevant!)
- *Religion*: mainly but not only Roman Catholic (RC), with Vatican prohibiting all but Natural Family Planning (NFP) which fails ++ because requires MUCH abstinence to work. [Yet another "double standard" here: in ALL developed nations use of all non-NFP methods by RCs is same as by non-RCs!]
- *Misinformation*: eg the Pill or injection permanently harm future fertility; or are adulterated (understandable as indeed reported in Sub-Saharan Africa (SSA) for other drugs); FP more dangerous than being 'natural' [yet life-time risk of dying from pregnancy is between 1:10 and 1:20 in SSA whereas is 1: 30,000 in Sweden where contraceptives are universally used!]
- *Deliberate disinformation*: eg condoms have tiny holes to transmit HIV.
- *Lack of supplies of contraceptives*: eg not available (or only condoms and sterilization), not accessible (husband or priest stopping use), not affordable (eg Implant, needs subsidy), and not predictably obtainable (supplies run out but sex continues!).
- *Perception that using condoms within marriage must mean "either you have HIV or you think I'm a risk to you"* [argues for availability of more effective FP like injections to be used AS WELL]

Removal of barriers

Benign government endorsement measures, education and varied appropriate use of all Media

- Women's education helps much (eg South India); but MEN need much sexual RE-education too!
- Media crucial: both direct and indirect promotion, best using humour (eg Mechai's weekly radio chat-show in 1970s Thailand) and health-promoting radio 'Soaps'. These info-tainments inform and correct misinformation, as popular characters discuss taboo issues (10). The 'morning-after pill' can be discussed (even how to make it yourself from widely-available FP pills).
- Using text-messaging to give correct information, eg to counter rumours about FP side effects. Endorsement by "celebs" like football stars and TV personalities, and by peers – esp for the young



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- Endorsement by religious leaders, re-examining the issues (eg in Iran they issued edicts that FP is NOT against the Koran): and saying in public that God wants us to have only the children we can properly care for so FP is truly a good thing not sinful.
- As in Iran, requiring couples to learn about family planning before obtaining a marriage licence.

Resourcing of supplies – making a wider choice available, accessible and affordable.

- Removal of the “medical barrier” by direct social marketing of Pill and injections through dukas (small local shops). This IS good practice especially when combined with simple check-lists - and works!
- Means less reliance on sterilization, so people accept ‘strong’ long-acting FP methods (including IUDs as appropriate) at lower parity than they are bound to do when sterilization is so final.
- Vasectomy – can be a relevant option in Africa. Even back in 1987 ONAPO in Rwanda reported to the IPPF that more than 50 Rwandans had accepted this and were beginning to tell their friends about it. (1,13,14)
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