

More is *Less*

ASHOK KHOSLA argues that eradicating energy poverty is essential to any effective strategy for stabilising climate change

Most governments drive into the future with only the rear-view mirror to guide them. Despite growing scientific evidence that our present patterns of consumption and production are leading to massive disruption of the planet's life support systems – particularly its climate and its living resources – the momentum of our economies only seems to grow. International treaties have been negotiated to slow this headlong race to self-destruction, but the foot on the accelerator pedal continues to press harder than the one on the brake; the biggest polluters are still the biggest defaulters.

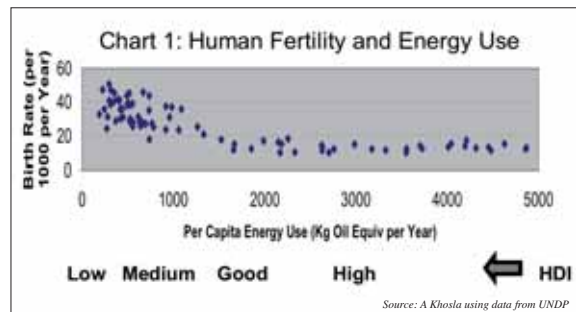
Given the long time lag between cause and effect – the emission of greenhouse gases and changes in atmospheric temperatures – the global climate will be modified no matter how soon the world's economies reduce their fossil fuel use and forest destruction. The legacy of some 150 years of profligate energy and material use will see to that. Much of this change – which will in turn lead to alterations in rainfall, sea levels, frequency of natural disasters and other unpleasant phenomena – is widely considered to be unfavourable, if not outright harmful.

Scientists, environmentalists and diplomats must, of course, work day and night to rectify this and bring about global agreements and national policies that will reduce the future causes of global climate change. But we must now also evolve ways that go beyond the simplistic knee jerk solutions currently being sought by those who have an interest in continuing the status quo.

It is a characteristic of complex societal or natural problems – especially those for which the effect follows long after the cause – that the solutions that actually produce the desired results are not necessarily the obvious ones. The most effective solutions may even be sufficiently counter-intuitive to evoke considerable derision from the experts. So it is with climate change. Responses must be in tune with the time scales of the atmospheric processes that cause it – decades or even centuries.

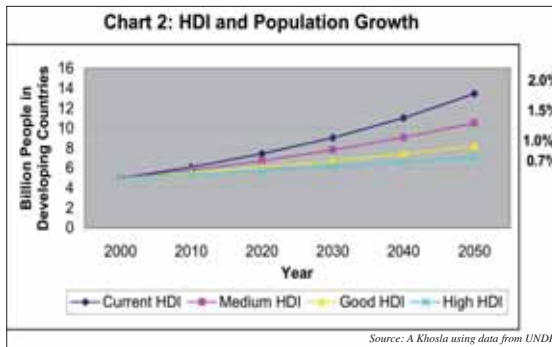
Of course, we need action now for immediate results, both to satisfy the public that governments and corporations are indeed responding, and because every ton of carbon not emitted is a ton of grief saved somewhere down the road. But even more urgently, we need action now for real long-term results, where the impact will be even greater. The carbon emissions that most urgently need to be controlled are those of the global economy fifty years from now – a world inevitably more democratised and equitable than today, and one, therefore, in which everyone will have the right to demand a much higher level of total energy use.

Counter-intuitive though it might appear, the most effective way to reduce the long term impact of human activity on the climate is to accelerate, as quickly as possible, energy use (or at least the services that energy makes possible) among the planet's poor.



The two primary numbers that will determine the state of the climate in, say, the year 2050 are the global human population and its per capita energy consumption – particularly in the form of fossil fuels. A society’s population growth rate is not an independent variable: it is closely related to the level of energy services available to its members. Human fertility has a strong inverse correlation with the state of economic development. The better the living conditions and opportunities available to people,

UN population projections with a simple model for how HDI influences fertility. The numbers indicate that the expected global population varies drastically with different energy use patterns



the lower, generally, the family size. UNDP’s Human Development Index (HDI), a widely accepted measure of the quality of life, is highly correlated with availability of energy services. Thus, as Chart 1 shows, improving access to energy services is an excellent way to bring down fertility – whatever the specific causal links may or may not be. Where possible, this should be done by using energy more efficiently – but also, where necessary, by accessing additional primary energy.

The projections shown in Chart 2 give a rough idea of the impact on population growth of improved access to energy services - and therefore of a higher HDI - in the developing countries. The curves show the population growth trajectories that can be expected over the next fifty years: they result from using

Table 1: Global Population in the Year 2050

HDI in the 3rd World:

- If Low HDI (2.0%) Continues: **13.5 Billion**
- With rise to Medium HDI (1.5%) **10.5 Billion**
- With rise to Good HDI (1.0%) **8.2 Billion**
- With transition to High HDI (0.7%) **7.0 Billion**

Business As Usual → **Several Billion Extra People**

→ **More Carbon Emissions**

Source: A Khosla using data from UNDP

introduced into low-income countries today. As Table 1 shows, the global population, and thus the total annual carbon emissions, would be much lower in, say, 2050 if the demographic transition to low growth takes place – and that needs, among other things, immediate delivery of improved energy services to the poor.

Paradoxical as it may seem, therefore, bringing the energy services available to the poor to a reasonable level – through improving efficiencies and use of renewables and other alternatives, not just by pouring in more raw energy – is the most important intervention required to reduce climate change. It could cut the world’s population in the year 2050 by as much as 30 per cent from a potential of around 10 billion, resulting in a huge reduction in carbon emissions ■

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