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What will matter in 2020? – the challenge of scarcity and resilience

Alex Evans, 31 January 2008

One thing that will matter in 2020 is scarcity issues – climate change, energy, food, water. Why will they matter? Take a look at Financial Times columnist Martin Wolf’s last article of 2007 – which, he later said, was his most important of the year. He wrote:

“...the biggest point about debates on climate change and energy supply is that they bring back the question of limits. This is why climate change and energy security are such geopolitically significant issues. For if there are limits to emissions, there may also be limits to growth. But if there are indeed limits to growth, the political underpinnings of our world fall apart. Intense distributional conflicts must then re-emerge – indeed, they are already emerging – within and among countries.”

For Wolf, you see, what we’ve been enjoying for the past few centuries is what he calls a “positive sum economy” – an economy, he explains, in which “everybody can become better off”, where “real incomes per head are able to rise indefinitely”. It is in such benign circumstances, Wolf says, that consensual and democratic politics become possible. Can they continue, he worries, in a zero sum economy?

I want to argue two things today. First, that Wolf is right to be worried. Scarcity issues are real, and they’re a big part of the reason why we’re going to have a turbulent few decades. But I also want to argue that we have the capacity to *weather* that turbulence – and that in the long term, the outlook is good.

The issues

Let’s start with a quick look at the issues that are causing Wolf such concern – firstly climate change. We all know it will be exceptionally challenging to meet Europe’s goal of limiting global warming to two degrees Celsius. Even if we do, we’ll still be exposed to significant damages: the familiar litany of floods, drought, heatwaves, sea level rise and so on – all with extensive potential for conflict and refugee flows.

Second, energy security. The last World Energy Outlook reckoned that global energy needs will be over 50 per cent higher in 2030 than today. To meet this, the International Energy Agency reckons that \$22 thousand billion of investment will be needed in energy supply infrastructure – that’s a little under half of 2006’s gross world product. So far, there’s no sign of this investment happening. And we’re already seeing increasing friction in competition for existing supplies, as well as our own worries in Europe about gas security.

We must also consider food and water security, which Wolf doesn't address explicitly – but which analysts in the US Defence Department's European Command think will become even more important for security than energy.

On food, global consumption has outstripped supply for the last five years, thanks especially to drought, biofuels and higher demand from China and India. The result: average food prices in developing countries went up by 10.5 per cent between mid-2006 and mid-2007. On the global market, wheat rose 50 per cent and corn 60 per cent over the same period. Already, Russia, China, India and even we in Europe have taken measures such as capping food prices, increasing subsidies, scrapping import tariffs or suspending some exports.

It's going to get more acute, too. Between now and 2030, the World Bank estimates, global food production will have to rise by 50 per cent. Yet for the last few years, global production has been static. Moreover, not all of this new production can come from increasing yield: more acreage will be needed, too. So competition for land between food, feed, fuel and fibre – and, increasingly, carbon sequestration too – will become more intense.

Then, water. Global demand for fresh water has tripled in the last fifty years. As population grows and as per capita consumption levels rise, less is available per person. Already, half a billion people live in countries chronically short of water; by 2050, this will rise to more than 4 billion.

We need to worry especially about depletion of groundwater stocks – from which over 99 per cent of the world's fresh water comes. In many countries – including the Israel, Saudi Arabia, Pakistan, India and China, as well as the US – the amount withdrawn from these aquifers is greater than the annual rate of recharge. In some regions, like Europe's near neighbourhood in the Sahel, aquifers aren't recharged at all. So according to the International Water Management Institute,

“Many of the most populous countries of the world have literally been having a free ride over the past two or three decades by depleting their groundwater resources. The penalty for mismanagement of this valuable resource is now coming due and it is no exaggeration to say that the results could be catastrophic for these countries and, given their importance, for the world as a whole.”

So there are our four key scarcity issues. All with security implications. All involving big questions about how to share out scarce common resources. All of them unpredictable, non-linear, and likely to involve a lot of volatility between now and 2020.

But above all, these issues are *interlinked* – so much so, that it's almost impossible to think about one without taking the other three into account. Some of the links are obvious. Climate change causes droughts; droughts cause crop failures; climate change and energy scarcity both demand a retreat from oil dependence. But other linkages are more subtle.

- Think about the extent to which water security relies on energy security. 40 per cent of the costs of water in developing countries are for the energy used to extract and pump it.
- Consider that because food can be turned into fuel, there is now an arbitrage relationship between prices for the two – from now on, in other words, higher oil prices equal higher food prices.
- Or think of how the global food trade is effectively also trade in “virtual water”: in the case of a kilogram of wheat, the 1,300 litres of water that it took to grow it.

We need to get much better at understanding the linkages and feedback loops between the four scarcity issues – and we need to do it fast.

So that's why Martin Wolf is worried. What are the decisions and actions that will matter in meeting this challenge?

The response

Well, one action that's well within our reach – the single action that matters most, in fact – is to agree a comprehensive global framework on managing climate change.

- That means agreeing a safe ceiling for greenhouse gas levels in the air (such as 450 parts per million);
- it means working out the size of a global emissions budget that shrinks over time to keep us beneath it;
- and it means finding a way to share that budget out between 192 countries, where the price of developing country participation will almost certainly be convergence towards equal per capita shares to the atmosphere by some future date.

Why is this the most important step? Two reasons. First, precisely *because* scarcity issues are all linked. A solution to climate change will help us on energy security; and it will address one of the principal drivers of food and water insecurity. But second, because we'd be agreeing globally on a demonstration project of an 'operating system' for managing scarcity: identifying the safe limits, enshrining the principle of equity in access to resources within those limits.

Second, within our governments, we need to get better at risk surveillance – on scarcity and other global risk issues. We already have good global surveillance of each scarcity issue individually: the IPCC on climate, the World Energy Outlook and so on. But what about how they all come together – where is *that* data?

Intellipedia, in the United States, is a great example of what we need to move towards. It's like wikipedia, except that you need a much high security clearance: its users come from 18 different US intelligence agencies. Analysts share their assessments online; like sellers on e-bay, they're awarded star ratings by other users depending on their accuracy. And it's quick, too. When, in 2006, a light plane hit a skyscraper in Manhattan, a web page was immediately created, and edited 80 times over the next couple of hours, by staff from over a dozen intelligence agencies. Together, they rapidly concluded that it wasn't a terrorist attack.

We need better data integration at the local or regional level, in particular. We need to update conflict early warning systems to include data on climate variability, water and land availability, global energy and food prices - and how they all connect. And we need to understand how resource issues have contributed to recent conflicts – in Darfur, in Nepal, in Haiti, or right now in Kenya.

This theme of integration, of joining up the dots between agencies and governments, is not limited to surveillance and early warning, either. All of us have battle scars from organisational turf wars; all of us have seen how often institutional 'silos' or 'stove-pipes' hamper effective action. But to manage scarcity issues – which could not care less about the neat boundaries we place between our organisations – all that must change.

Here too, I think the security sphere can have quite a lot to teach the rest of their governments about this challenge of jointness and interoperability. Admittedly, this was not always the case. My favourite story about this tells of legendary US Air Force General Curtis LeMay, who - it is said - once interrupted a briefing from an air force intelligence officer about Soviet battle plans, which was

full of “the enemy” will do this and “the enemy” will do that, by removing the cigar from his mouth and saying:

“Let’s get one thing straight. The Soviets are our *adversary*. Our *enemy* is the Navy. Proceed.”

Now parts of the Pentagon may still be like that – but on the ground, things have moved on. Military requirements for jointness mean that not only do soldiers, sailors and airmen work with each other constantly; they also do so with aid workers, civil affairs officers, cultural advisers and others besides. We need that ethos of jointness and interoperability in the rest of our governments.

Finally, let me conclude with some final thoughts about resilience. However well we do on the prevention and mitigation front, we’re likely to experience quite a lot turbulence over the next two decades. Much of what lies ahead is inherently unpredictable; rather than trying to forecast it, we need instead to analyse where our vulnerabilities lie and how we can reduce them.

So we need to be thinking about climate adaptation at home and in our aid programmes. We need to be investing in efficiency measures, on energy, water and food. We need to assess our emergency management capabilities. We need to evaluate the vulnerability of our key energy, food and water supply chains, and thinking about buffers.

But let’s also be realistic about our chances of successful “management” of scarcity issues and other global risks. We’re not much good at understanding complex technological, social or natural systems, much less managing them; so, breakdowns are going to happen. But, as the author Thomas Homer-Dixon emphasizes, that’s not necessarily all bad. He writes,

“Breakdown happens - in our personal lives as well as in our societies. If seldom desirable in itself, it’s nonetheless rarely the end of the world, and much good can come of it. We can boost the chances that it will lead to renewal by being well prepared, nimble, and smart and by learning to recognise its many warning signs.”

Now I think this is exactly right. I think that we need to be as wary of people who say that we’re headed for an inevitable “overshoot-and-collapse” scenario, as we need to be sceptical of those who say that there’s no problem with scarcity, that there are no limits whatsoever to consumption. Both of those views are too deterministic; they underplay the fact that we have political choices, and those choices have consequences.

One last thought. Although there are technical measures we can take to improve our resilience, let’s remember that in the end, resilience is a bottom-up, distributed, participatory endeavour – it involves *everyone*. It’s a property that emerges when communities can manage and integrate conflicting viewpoints; when they understand the need for fair shares of common resources; when they are high in trust and social capital; and when they can accept reality, figure out why it’s happening, and show some adaptability in responding to it.

It’s these bottom-up, distributed properties that will truly determine security in the 21st century. If we can master them, as circumstances now demand we must, then I think there’s every reason to believe that we’ll share an upbeat perspective when we meet in 2020.