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The Future of Philanthropy and Development in the Pursuit of Human Wellbeing

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Resource Scarcity, Wellbeing and Development

Alex Evans Jules Evans
NYU Center on International Cooperation, New York

Jules Evans
Centre for the History of the Emotions,
Queen Mary University of London, London

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Resource scarcity, wellbeing and development

Alex Evans[1] and Jules Evans[2]

NYU Center on International Cooperation, New York and
Centre for the History of the Emotions, Queen Mary University of London, London

Introduction

The last few years have seen a significant increase in political concern about issues of resource scarcity, especially in the areas of food, energy, land and water. This concern has followed both volatility in food and oil markets, and growing awareness of longer-term challenges such as climate change and the need to meet major increases in demand for these basic goods.

This paper begins by providing a brief overview of resource scarcity issues in the four areas of food, water, land and energy, in each case focusing primarily on the global level and setting out the basic supply and demand drivers involved. The paper then discusses why it may make sense to see these issues as an interconnected set rather than as discrete single issues. Finally, Part 1 discusses whether concerns over resource scarcity are misplaced, given that Malthusian concerns about resource depletion have often been misplaced in the past.

The second part of the paper then discusses some of the ways in which resource scarcity could affect development and human wellbeing. In doing so, the paper considers three different approaches to assessing wellbeing – the economic or resource-based approach, the subjective or 'happiness' approach, and the capability or freedom approach – and discusses how resource scarcity could impact each of these forms of wellbeing.

Finally, the paper concludes with a brief discussion of some of the questions and policy options that the resource scarcity and development agenda may introduce for governments, aid donors and philanthropic foundations. The paper argues that:

- Resource scarcity is likely to be an increasing concern in the international development context. This is not to suggest a deterministic 'Malthusian' outlook: on the contrary, markets, institutions and communities are likely to innovate and adapt to resource challenges as they always have in the past. But this process of adaptation will involve significant time lags, during which risk levels will be substantially heightened – especially for poor people and poor countries.
- Using a wellbeing-based frame of analysis can help to highlight a range of ways in which resource scarcity will affect international development. Scarcity impacts will not merely affect how poor people and countries meet their material needs, essential though this dimension is. They will also affect a much wider range of 'consequences of consequences' – in areas including governance, migration, political economy and conflict risk – implying the need for a broad-based resilience agenda both on the ground in developing countries, and at international level.

[1] Non-Resident Fellow, NYU Center on International Cooperation. Email: alex.evans@nyu.edu

[2] Policy Director, Centre for the History of the Emotions, Queen Mary University of London. Email: jules.evans@me.com

- Within developing countries, philanthropic foundations should focus on and invest in scaling up humanitarian assistance capacities, investing in social protection and safety nets, policies to address unsustainable population growth, investment in agriculture and food security, and equitable and accountable systems of natural resource governance. None of these areas was well covered in the Millennium Development Goals agenda; but the approach of the 2015 MDG deadline provides an opportunity to bring these areas closer to the centre of development policy.
- Finally, philanthropic donors should also recognise that the challenge of responding to resource scarcity is not just an in-country agenda. It is at international level that there is arguably most to be done, given that the key drivers of the challenge are global. Accordingly, foundations should also consider scaling up their advocacy work on areas like policy coherence for development, global public goods and international institutional reform. Above all, they should recognise that the emergence of natural resource limits (even if only temporary) is a fundamental game-changer for political agendas on equity and fairness, and that these considerations may increasingly come to be seen as a new front line for international development over the next decade and beyond.

Part I: The challenges of resource scarcity

The issue of resource scarcity – particularly of food, energy, land and water – now stands at the top of the global agenda. It has become a fixture on the agendas of the G8 and G20, the focus of major projects by organisations from McKinsey and the World Economic Forum to Oxfam and the United Nations, and it has become recognised as a fundamentally cross-cutting issue, relevant not only to environment but also to international development, conflict risk, investment, trade and global governance reform.

At the heart of the issue are two fundamental drivers. First, there is the fact that demand for resources of all kinds is rising rapidly – the result of both a larger and more affluent 'global middle class' and of a steadily increasing population that appears set to pass the 9 billion mark by mid-century (Evans 2010a; UN DESA 2006). But at the same time, secondly, constraints to supply growth appear to be emerging, which place a question mark over whether projected demand levels will in fact be met.

- On **food**, first, demand is projected to increase by 50 per cent by 2030, even before diversion of crops to biofuels is taken into account (World Bank 2007). At the same time, supply growth is already being constrained by a legacy of underinvestment, by rising input costs, and by the fact that the productivity gains of the 'Green Revolution' appear to be running out of steam (Evans 2009). Global food consumption exceeded production for seven of the eight years from 2000 to 2008 (Trostle 2008).
- On **water**, demand is forecast to rise by around 30 per cent by 2025, yet even existing consumption is already beyond sustainable levels in many parts of the world (Clarke and King 2004). Water scarcity will intensify over the next decade as groundwater depletion continues in many regions. Climate change is likely to exacerbate the situation further, with IPCC data suggesting particular impacts on regions dependent on glacial melt-water and trans-boundary freshwater resources (Parry 2008).

- Competition for **land** is already a growing issue – both globally (for example between land uses including food, animal feed, biofuels, conservation, carbon sequestration and the world's growing cities) and in regional hotspots such as the Horn of Africa, where land degradation, desertification, fast-growing populations and weak systems of land tenure and governance create the risk of political discord or violent conflict (Evans 2010a, 2010b).
- On **energy**, finally, the International Energy Agency estimates that US$26 trillion of investment is needed between now and 2030 to meet projected energy demand – a figure that rises to around US$36 trillion once the need to reduce emissions is factored in as well (IEA 2010). However, current investment levels are nowhere near this level, prompting the IEA to warn that the world remains at risk of more oil price spikes as global demand recovers (IEA 2009).

Climate change will exacerbate the challenge presented by these scarcity issues across the board. As well as reducing water availability and increasing land degradation, it will also reduce crop yields – initially in low latitudes (where most developing countries are located), and at all latitudes above two degrees Celsius of warming, exposing tens of millions more people to the risk of hunger (Parry 2008). At the same time, global food and energy production systems will need to adapt to the need to reduce their own very high greenhouse gas emissions. To complicate matters still further, climate change impacts will be unpredictable, non-linear and marked by sudden shifts as key thresholds are passed: so whilst projections of gradually rising temperatures or sea levels can lead policymakers to assume that change will be slow and incremental, they are in fact often likely to be the opposite (Mabey 2009).

Most fundamentally, the four scarcity issues described above need to be understood as an integrated whole, rather than as separate 'single issues' – for four main reasons.

- First, **common drivers** are at play in all four cases: exponentially rising demand, together with hard questions about whether supply growth can keep pace.

- Second, because all four issues are linked together by highly complex **feedback loops**. For example, high oil prices tend to mean: *higher food prices*, given modern agriculture's high dependence on fossil fuels (which are used as the feedstock for fertilisers and in on-farm energy use, processing and transportation); *more competition for land*, as biofuels become more attractive; and *higher water prices*, because of the energy intensity of water pumps, desalination plants and purification systems. Many more such linkages exist (Evans 2010a).

- Third, because **policymakers often struggle to recognise and act on such linkages**. Unless policymakers look at the whole scarcity picture, there is a high risk of policy merely displacing problems from one aspect of scarcity to another. The case of policy support for corn-based ethanol in the United States is a case in point: a measure intended to improve domestic energy security had the unintentional consequence of contributing to a decline in international food security.[3]

- Fourth, because **perceptions of scarcity change actors' behaviour**. One obvious example of this outside the natural resources context is a run on a bank, where perceptions of a scarcity of deposits lead account holders to panic. Similar dynamics can and do manifest themselves in the resources context. During 2008, for example, over 30 countries imposed food export bans or restrictions as countries attempted to address domestic pressure on food prices, leading many import countries to start panic buying on world markets, further pushing

[3] See for example IMF (2011); FAO *et al.* (2011).

up prices (World Bank 2008). When actors start to believe that there is not enough to go round, the risk of zero-sum games is immediately heightened, posing important questions about how to design institutions that can maximise confidence and reduce the risk of such outcomes.

To be sure, there is considerable uncertainty about how all the drivers and variables described above will play out in the future. History suggests that over the long term markets, institutions and communities will adapt to the challenges set out above. Malthusian projections have often been overstated in the past, and the same may well be happening again now to some extent.

It is also undeniably the case that for many of the world's poor people, resource access is *already* a crisis, even before the supply and demand drivers discussed above come into play. The reason why just under a billion people are undernourished, or why 1.4 billion people lack access to energy services, has nothing to do with a fundamental constraint on the supply of food or energy. Rather, it is because of a deficit in poor people's capacity to *access* them – which is in turn the result of their lack of purchasing power, political voice and so on.

But by the same token, it is also important to recognise that neither of these caveats suggests a basis for disregarding the risk (especially to poor people) of more resource scarcity in future. While humanity is likely to adapt and innovate in response to resource constraints, as it always has in the past, these processes of adaptation will often have inbuilt time lags, given (for example) perverse subsidies for inefficient resource use, path dependency, vested interests, political impediments to action and so on. In the meantime, this process of transition is likely to involve considerably elevated risk – in particular, as the next section discusses, for poor people.

Similarly, while many poor people already lack access to food, energy, land and water, the risk of absolute rather than relative scarcity of these goods is again likely to hit poor people and poor countries disproportionately hard. These risk factors are discussed more fully in the next section.

Part II: Scarcity through the perspective of human wellbeing

To start with, it is worth recalling that the definition of wellbeing is itself highly contested, with very different definitions put forward in different cultures and eras. The next three elements of the paper look at how scarcity threatens wellbeing through three different lenses for assessing wellbeing, drawn from the Stiglitz-Sen-Fitoussi Commission convened by President Sarkozy to advise his government how to broaden its economic measurements beyond GDP and towards wellbeing (Commission on the Measurement of Economic Performance and Social Progress 2009; Sen 2010). The three approaches are: economic or resource-based wellbeing; subjective wellbeing (the 'happiness' approach); and the capability or freedom-based approach to wellbeing.

The economic and resource-based approach

First, wellbeing has often been defined and equated with economic and material conditions. In the international development context, this approach is arguably the most common understanding of wellbeing among bilateral donors and multilateral development banks, who tend to define countries' levels of development primarily with reference to GDP or GNI per capita (this is the basis of the typology of upper-, middle- and low-income countries, for example) (World Bank 2011).

It is certainly not hard to identify ways in which resource scarcity can pose threats to human wellbeing as understood through an economic and resource-based approach. For example, three quarters of the world's poor people live in rural areas, with the effect that they rely heavily for their material needs on natural assets such as land and water; if these resources become more scarce or contested, then this directly impacts wellbeing (Parry *et al.* 2009).

Similarly, both poor people and poor countries tend to spend relatively higher proportions of their incomes on basic goods such as food and energy, with the effect that they are particularly exposed to price spikes in the cost of these goods. Poor households often spend up to 80 per cent of household income on food, for example, which explains part of the reason why the global total of undernourished people rose from 854 million before the food price spike that peaked in 2008 to over a billion after it (FAO 2011). At the country level, meanwhile, a 2007 International Energy Agency study found that in 13 oil-importing African countries, including South Africa, Ghana, Ethiopia and Senegal, increases in the cost of oil between 2004 and 2007 came to more than the total of aid and debt relief that they received over the same period (Crooks and Wallis 2007).

However, there are also problems with purely economic approaches to analysing the impacts on wellbeing of resource scarcity. They may take little account of the impact of environmental factors on citizens' quality of life or the wellbeing of other species, for example. Similarly, some important scarcity issues are 'externalised' from price signals that therefore fail to tell the whole story about the environmental costs of a particular good or service: carbon emissions, for instance, are often not adequately priced into the costs that consumers pay for fossil fuels.

The Sen-Stiglitz-Fitoussi Commission tried to introduce a greater focus on sustainability into national economic measurements, to cope with what it described as the 'looming environmental crisis' (Commission on the Measurement of Economic Performance and Social Progress 2009). It suggested that France and other countries should put together 'sustainability dashboards' on natural resource stocks. Some have also suggested converting these natural stocks into monetary value, so that policymakers can see the country's sustainability performance in a single index, and can consider trade-offs between, say, the market value of a forest versus the value of building a motorway through that forest.[4]

Other experts, however, have raised concerns about this substitutability approach, pointing out that some environmental damage might be so severe and irreversible that there is no reasonable financial cost to it.[5] This concern is lent added weight by recent research on 'planetary boundaries', which has attempted to identify critical natural thresholds in areas such as climate change, freshwater use or ocean acidification, beyond which there is a risk of irreversible damage to essential natural systems (Rockstrom *et al.* 2009).

The subjective or 'happiness' approach

While the economic or resource-based approach captures some aspects of how resource scarcity affects human wellbeing, it also has its problems. In particular, it is limited by the fact that it focuses on means not ends: as Aristotle wrote in his *Nichomachean Ethics*: 'wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else' (Aristotle 1962). To define development and human progress purely in material terms is to overlook

4 See for example Le Kama (2001).

5 See for example Comolli (2006).

individuals' lived experience of a situation – or, to put it in philosophical terms, the phenomenological dimensions of wellbeing.

An alternative approach, endorsed by the Sen-Stiglitz-Fitoussi Commission and subsequently taken up by the British national statistics agency among others, would seek to incorporate measurements of happiness or subjective wellbeing into national indicators of progress (Commission on the Measurement of Economic Performance and Social Progress 2009); UK Statistics Authority 2010). Since the eighteenth century, utilitarian economists have argued that economic measurements should focus on the happiness, or 'utility', of individuals, and in the last decade this approach has returned to the mainstream of economics. Contemporary 'happiness economists' argue that the true measurement of a society's development is the happiness of its citizens (although there is disagreement among them on whether the most appropriate unit to measure a nation's happiness is daily subjective wellbeing (SWB) or a broader measure of 'life satisfaction') (Layard 2005).

Here too, it is possible to identify ways in which resource scarcity can be expected to threaten human wellbeing. As well as having direct material impacts, as discussed in the previous section, resource scarcity also leads to a range of indirect 'consequences of consequences' in the wider political economy context.

For example, resource scarcity caused by climate change may contribute to ripple effects such as political instability, economic weakness, large-scale unplanned migration or heightened risk of violent conflict (although it is important to underline that it will rarely if ever be the sole driver of any of these trends, the risk of which depends as much on the vulnerability of a given population, ecosystem, economy or institution as on the magnitude of scarcity or climate change impacts) (Smith and Vivekananda 2007; Evans 2010b).

These indirect consequences could in turn be expected to exert a negative impact on people's subjective sense of wellbeing. And while the published data on such factors remains relatively limited, interesting examples do exist in which life satisfaction metrics not only help to illustrate ways in which resource scarcity impacts human wellbeing, but do so in a way that purely financial measurements may not.

One such example is provided by the cases of Egypt and Tunisia over the last ten years. Throughout that decade, both countries recorded impressive growth in GDP and average national income. However, these countries' average life satisfaction scores, as measured by Gallup using the Cantril Self-Anchoring Striving Scale, started to decline from 2005 on, and fell precipitously from 2007 to 2008 (Mogahed 2011).

In this sense, life satisfaction scores were arguably a better predictor of the social unrest that later engulfed these countries than purely financial measurements. While it is of course true that GDP per capita measurements for both countries could have been adjusted to take account of distributional inequalities or the impact of price inflation on purchasing power, thus perhaps giving a clearer picture of rising dissatisfaction over food prices, these metrics would still not have captured how discontent over prices, wage stagnation and unemployment became entangled in a larger story of unrest about governance, participation, corruption, rule of law and the overall 'direction of travel' for the country.

While purely economic indicators may be able to isolate individual scarcity factors and their impact on human wellbeing, measurements of subjective wellbeing may help to capture another part of the story: the bigger picture of how scarcity trends interact with other social, political and economic drivers of change.

But there are also problems with focusing entirely on subjective wellbeing as a measurement of a country's development. While happiness may indeed be one important aspect of wellbeing, this is not the same as arguing (as utilitarians do) that it is the *only* factor worth considering (Sen 2009).

In particular, subjective measurements of wellbeing may be better at charting the impact of scarcity trends when they are relatively rapid in onset (as in the case of a food price spike, for example). Where they may be less effective, by contrast, is in measuring the impact of slower-onset, more chronic forms of scarcity on wellbeing. This is because humans typically adapt to their current situation, and recalibrate their subjective assessment of the situation accordingly. Whilst a food price spike may show up strongly in subjective wellbeing indices, for example, longer-term scarcity issues – such as ecosystem degradation or gradually increasing pressures on land – may not.[6]

By extension, measurements of individuals' present happiness can focus on the contribution that current consumption patterns make to people's happiness, without making clear whether or not these consumption patterns are sustainable – and hence whether they are jeopardising the wellbeing of future generations. It also ignores the issue of the wellbeing of other species (Sen 2009).

Finally, the utilitarian approach can be critiqued for assuming that wellbeing is the same thing as happiness, that happiness is readily definable as 'individual pleasant feelings', and that it is straightforward to measure and compare different experiences of happiness across peoples and cultures (Parfitt 1984). In fact, recent work on wellbeing in developing countries has highlighted the extent to which non-Western cultures may in fact have different definitions of wellbeing, which are less individual and more relational (White 2010).

The capability and freedom approach

Finally, a third approach to understanding and assessing wellbeing is provided by the capability or freedom approach, associated particularly with the work of Amartya Sen.[7] This approach argues that the proper measure of development should measure individuals' freedom and capacity to pursue a good life, as they themselves define it.

This approach, argue its defenders, has the benefit of focusing on ends rather than means, at the same time as allowing different individuals and cultures to have their own definition of a good life, rather than measuring it through one particular definition of wellbeing.[8] The capability approach helps to capture two particular ways in which resource scarcity can present a threat to human wellbeing.

First, it can help to unpack aspects of scarcity that are not merely economic (e.g. undernutrition as a result of poor people being unable to access enough food) or subjective (e.g. dissatisfaction over high oil prices) but that are to do with deeper questions of vulnerability versus resilience, and dignity versus dependence.

For a practical example, consider the trend of land access deals (so-called 'landgrabs') and their impacts on poor people. More than 80 million hectares of land have been acquired over the past decade, more than half of it in sub-Saharan Africa (*The Economist* 2011). In many cases, poor

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6 See for example Deaton (2011).

7 Sen (1985); see also Alkire and Deneulin (2009), Nussbaum (2003) and McGregor (2007).

8 At the same time, the approach contains its own normative assumptions, for instance the ethical priority it gives to freedom and to individuals' agency and ability to choose their own way of life. This could open up the capability approach to the criticism that it presents a Western-centric definition of wellbeing, which foregrounds Western ideas of freedom, agency and autonomy. Sen has disputed this view, pointing to ancient traditions of freedom and public reasoning in non-Western cultures. See Sen (1997).

people have been displaced from common land that they may have farmed for many years, but to which they lack formal title.

While this kind of impact would certainly affect subjective wellbeing, there is also arguably a much deeper issue at play than simply that communities would be unhappy about a net worsening of their circumstances. More fundamentally, land displacement might be expected to result in a loss of these individuals' and communities' whole livelihoods and their sense of being autonomous actors with the capacity to take their own decisions – to the extent of bringing fundamental questions of identity and belonging into play.

At the other end of the spectrum, secondly, the capability approach is also relevant to resource scarcity in that it can help to capture people's capacity to be part of the *solution* to resource scarcity, in a way that the other two approaches may be less able to do.

By rooting human wellbeing not in merely material concerns, nor in subjective 'snapshots' of wellbeing today that disregard wellbeing in the future or at levels other than the individual, the capability approach arguably points the way towards a fuller and more diverse conception of human flourishing.

The value of such an approach as compared to the resources approach or the happiness approach is that it sees people not simply as passive 'vehicles of wellbeing', nor as 'patients with needs', nor simply as bellies to be filled, but rather as agents with the capacity for reasoning and moral choice.

This is no small advantage when considering scarcity issues. The reality of planetary boundaries means, after all, that individual consumption decisions can have direct implications for the wellbeing of others: something that can readily be taken into account in a capability approach that regards individuals as having moral choice, but which is harder to capture through economic or subjective approaches to wellbeing. In the same way, the capability approach can also capture individuals' capacity to factor the long term into their decisions – another factor that the other two approaches to wellbeing may be less able to do.

Significantly, the capability approach's ability to capture people's capacity to take informed, rational, integrative decisions is relevant not only to individuals, but also to institutions – and is hence also relevant to how scarcity issues are handled at the international level. As Part I of the paper described, scarcity issues can potentially lead to slides into zero-sum behaviour, such as food export restrictions or the 'scramble for oil' underway in regions from Africa and the Arctic to the Caspian and the South China Sea.

Yet such zero-sum dynamics are by no means inevitable. Indeed, scarcity can also – in the right circumstances – act as a catalyst for effective institutional design that succeeds in maximising trust among interested actors: shared water resources, for example, have frequently prompted cooperation rather than competition (Conca and Dabelko 2002). While increasing resource stress in future can be expected to test this positive dynamic, even so the capability approach to wellbeing suggests at least the potential for hopeful outcomes.

Part III: Resilient responses

How should development actors – including developing country governments, bilateral and multilateral donors, philanthropic foundations and civil society organisations – change their approach in light of scarcity issues and the threat that they present to wellbeing?

Work at country level

To start with, there are strong arguments for them to focus on a number of key policy areas in developing countries that have the potential to reduce the risks posed by scarcity issues. A common theme across many of these areas is reducing vulnerability, managing risk and investing in resilience – a cluster of themes that was largely overlooked in the Millennium Development Goals agenda, but which has the potential to be brought much more to the centre of the development agenda beyond the MDGs' target date of 2015. Some of the most important areas are as follows.

First, **upgrading international emergency response capacity** to deal with the effects of scarcity. At present, an informal rule of thumb in the UN humanitarian system is that emergency relief agencies can reach up to 100 million people at any one time. In fact, though, peak caseloads are already exceeding this level and, given projected future trends, it is not unreasonable to suppose that international support might need to be able to help 200 million people at once within a decade or so (UN High Level Taskforce on the Global Food Crisis 2008).

At the same time, the humanitarian system will need to anticipate different kinds of emergency. Traditionally, humanitarian assistance needs have tended to be in rural areas, following either wars or natural disasters. In the future, more situations can be expected in which none of these conditions apply, and where the problem is instead that, as the World Food Programme's Director Josette Sheeran put it in 2008, 'there is food on the shelves, but poor people are priced out of the market' (Borger 2008).

Second, investing in **social protection systems and safety nets** – some of the most powerful tools available for tackling vulnerability and replacing it with resilience. During 2008, more than three dozen countries saw civil unrest because of high food and energy prices. Many governments responded to this with panic measures like economy-wide subsidies, price controls or export restrictions – all of which merely made the problem worse. Social protection systems can offer a more sophisticated approach, but developing countries are starting from a low base: only 20 per cent of the world's people currently have access to them, and the obstacles to scaling them up are significant (UN High Level Taskforce on the Global Food Crisis 2008).

This said, recent years have seen striking improvements in social protection provision in many emerging economies, notably Mexico, China, India and Brazil – where the *Bolsa Familia* (Family Grant) system has contributed to steep declines in hunger and a fall in the poverty rate from 22 per cent in 2003 to 7 per cent in 2009 (Evans 2011). While international donors are now attempting to pilot social protection programmes in many low-income countries, they need to bear in mind the need for such systems to be firmly owned by national political actors rather than transplanted from outside if they are to prove durable over the long term.

Third, mitigating **unsustainable population growth**. While global population growth rates have slowed markedly since their peak in the 1960s, and are now on course to stabilise at somewhere between nine and ten billion, growth rates remain high in a range of low-income and often fragile states – many of which also have poor natural resource endowments. Unless these high growth rates are mitigated, these countries are likely to face increasingly acute pressures on land, water and ecosystems, as well as increased social vulnerability and conflict risk.

The issue of population is often controversial – unsurprisingly, given alarmist accounts of population growth such as Paul Ehrlich's 1968 book *The Population Bomb* that seemed to blame developing countries, rather than unsustainable consumption in developed countries, for environmental degradation, to say nothing of draconian policies such as China's one child policy (Ehrlich 1968). In reality, however, there is a strong development case for reducing unsustainable rates of population growth, and the best means of doing so is through programmes based firmly

on the principle of ensuring that women have the power to make their own decisions on family planning (which in turn depends on availability of reproductive health services, girls' education, and a broader agenda of women's empowerment) (Evans 2011).

Fourth, scaling up support to **agriculture and food production**, an area where philanthropic donors have played especially important parts, whether in the Rockefeller Foundation's pivotal role in making the twentieth century Green Revolution a reality, or in the Bill and Melinda Gates Foundation's work with the Alliance for a Green Revolution in Africa today.

The challenge here is not only to produce 50 per cent more food by 2030, but also to do it in a way that is more *sustainable* (given that agriculture accounts for 70 per cent of human water use and 32 per cent of greenhouse gas emissions), more *resilient* (given the impacts that climate change and other scarcity trends will have on agriculture), and more *equitable* (given that, as already noted, three quarters of the world's poor people are located in rural areas) (IPCC 2007; World Bank 2007). Instead, the proportion of aid spent on agriculture has fallen from nearly 20 per cent in 1980 to under 5 per cent today (Diouf 2008).

This trend needs to be reversed, as does a correspondingly precipitous decline in spending on public research and development for agriculture over the past 15 years. Scaling up support to small farmers (the majority of whom are women) will be especially important, given that of the three billion rural people in developing countries, one and a half billion depend on smallholder agriculture for their livelihoods (World Bank 2007). At present, low crop yields mean that most small farmers are nonetheless net food purchasers (and have hence lost out from high food prices) – but success stories such as Vietnam's small farm sector show that targeted policies can generate substantial dividends.

A fifth key area for increased work is **natural resource governance**, including in areas such as land, water or forestry, all of which will have substantially increased potential to be conflict flashpoints. While part of the requirement here is for institutional capacity building, it is important to recognise that the challenge is about political economy and social exclusion as much as institutions. When political processes are seen as inclusive and transparent, they can help to mediate tensions over access to resources, but where they are not – for instance by rendering marginalised communities such as pastoralists 'politically irrelevant' – such processes can actively increase the risk of conflict (Evans 2010b).

As well as addressing issues of equitability in access to resources, it is also important that natural resource governance regimes create clear incentives for the sustainable use of those resources. In many cases, this may entail pricing. Many countries currently fail to price water use, for example, with the effect that farmers, for example, have little incentive to use water efficiently (a fact reflected in the low global uptake of efficient irrigation systems such as drip irrigation). However, pricing is by no means the only approach to managing common property resources sustainability, as for example the work of Nobel Prize-winning economist Elinor Ostrom has demonstrated (Dolsak and Ostrom 2003).

Work at international level

At the same time as investing in these areas at country and local level, development actors also need to keep in mind that the challenge of managing scarcity and its impacts on poor people is *not* just an in-country agenda: on the contrary, it is at the international level that there is arguably most to be done (Evans 2010a).

While individual countries can adapt to scarcity to some extent (and international donors and foundations can do much to help them in this), ultimately global solutions are needed given that it

is global consumption patterns and supply limitations that lie at the core of the issue. As a result, donors and foundations also prioritise work that can help to address these dimensions, including policy coherence, global public goods and reform of the international system to make it more resilient to the stresses that resource scarcity is likely to impose on it, as well as more integrated in its handling of the interconnections between issues.

Perhaps most of all, they can do much to set a global agenda of **fair shares** within sustainable resource use limits (Evans 2011). Global food security, for example, will not only require a revolution in how the world produces its food, but also in how it consumes it – including a dramatic reduction in how much food is wasted (up to a third, in many OECD countries), a decisive shift towards more sustainable diets (which also tend to be markedly healthier), and a rethink on the most inefficient 'first generation' biofuels, above all corn-based ethanol (Evans 2009). Similarly, the need to find an equitable means of sharing out a safe global 'carbon budget' remains a prerequisite for any genuinely comprehensive global framework for managing climate change. In this sense, equity and justice arguably cease to be a merely normative agenda in a world of finite resources and high interdependence – instead becoming a basic design principle for institutional effectiveness and sustainable resource management.

Conclusion

Resource scarcity – especially of food, water, land and energy – shows every sign of being a major driver of change for international development over the next decade and beyond. Poor people and poor countries were disproportionately impacted by the food and fuel spike that peaked in 2008; the fact that food prices have already broken their 2008 record since then, or that oil is once more over US$100 a barrel at the time of writing, suggests that it would be unwise to dismiss the 2008 spike as a mere anomaly.

Against this backdrop, many aid donors are playing a game of catch-up, struggling to get to grips with issues that have often been overlooked in recent years, alongside contemplating the need to mobilise significant investment flows at a time of austerity in many OECD countries.

Philanthropic foundations have the potential to play a major catalytic role in taking this agenda forward. Many foundations are already influential investors in areas such as agriculture and sustainable development, and well versed in pioneering innovative approaches through their willingness to be venture capitalists rather than wholesale financiers.

But they also have extraordinary capacity to help drive change through research and advocacy. At a time when the political space for multilateral solutions and collective action appears to be closing down just as the need for it increases, philanthropic donors have the potential to be important 'storytellers' about how the context for and nature of international development is shifting. Resource scarcity offers a clear example of the kind of emerging issue on which their leadership will be essential.

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