iied

Future world?

Addressing the contradictions of planet, people, power and profits

Camilla Toulmin and Kate Lines

Discussion paper
May 2013

Governance

Keywords:
strategic planning, sustainable development, global trends, drivers of change

About the authors

Camilla Toulmin is director of IIED. Kate Lines is a senior coordinator at IIED and part of the Strategy Support Group.

Acknowledgements

With grateful thanks to IIED colleagues and the Strategy Support Group.

IIED Discussion Papers

Our Discussion Papers aim to provide a platform for dialogue and debate around a timely and significant issue in the field of sustainable development that IIED and our partners are working on. Readers are encouraged to get involved and contribute to the debate by submitting comments and reflections to the online discussion that accompanies each discussion paper.

For more information on this Discussion Paper, please contact strategy@iied.org.

Published by IIED, May 2013

Toulmin, C, Lines, K.. 2013. *Future world? Addressing the contradictions of planet, people, power and profits.* IIED Discussion Paper. International Institute for Environment and Development, London

http://pubs.iied.org/17158IIED

ISBN 978-1-84369-941-5

Printed on recycled paper with vegetable-based ink.

International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org
www.iied.org

This paper provides an overview of six global trends and drivers of change to which IIED will need to respond in some way in our next five year strategy. The paper is intended as a background to discussions around formulating this strategy, and highlights the continuing relevance of sustainable development as a framework for addressing some fundamental challenges to 'business as usual'.

We draw on a range of global scenarios to illustrate likely trends, with 2030 and 2050 usually taken as milestones by which to measure change. We also look at a selection of countries we know well, to show how these trends play out at national and local levels, and to explore the range of practical responses being pursued on the ground.

We invite your responses to the questions at the end of each section and any comments on the paper itself. We look forward to hearing from you. Please write to: strategy@iied.org.

Summary

IIED's mission is to build a fairer more sustainable world using evidence, influence, and action in partnership with others. Our work is guided by the key propositions and principles that underlie sustainable development. Over the next two years a set of UN Sustainable Development Goals (SDGs) will be agreed by the world's governments, to come into effect at the end of 2015. Just as the Millennium Development Goals (MDGs) framed development cooperation from 2000, these new goals have the potential to steer international collaboration in a better direction. To meet this potential, however, and tackle connected challenges of improving the lives of the poorest people while reducing harmful human impacts on ecological systems and resources, will require an enormous shift in attitudes, commitment and policies.

Sustainable development imperatives

Whereas the MDGs increased accountability for aid donors and recipients, the new set of goals will be relevant to all countries and will measure a much broader set of factors. This shift mirrors the rapid change in the balance of power and influence among countries since the start of the 21st century, and recognition of the increasing interconnectedness of our economies and societies. All countries face a complex and growing set of risks, which require heightened cooperation and common frameworks for action.

But there are also powerful vested interests and political agendas at work, that seek to downplay the need for major transformations in the distribution and use of resources, within and between countries. Many of the issues on the agenda for inclusion in the SDG set are highly sensitive politically, including energy policy, food systems, access to water and provision of basic needs. It is likely that the outcome will be heavily compromised as a result, and may not adequately capture the scale of the challenge humanity faces.

What further principles should underpin a consolidated effort to achieve greater ambition from this process?

Holistic problem solving given interactions between different trends. It makes little sense to address food security in isolation from water availability, climate fluctuations and consumption patterns. Coherent efforts to tackle this complexity must combine work at local, national and global levels, and build effective institutions that can deliver stable, sufficient and sustainable livelihoods to all people, whether poor or rich.

Achieving greater equity in distribution of resources. Although progress has been made towards the headline targets in some of the MDGs in recent years, we have also seen rapid increases in inequality. Persistent inequality in income, access to education, health services, and environmental assets is evident between and also within many countries in both North and South. The priorities of the world's least developed countries (LDCs) in the SDG process should be a key focus. Extremes of wealth and poverty are both unjust and inherently unsustainable, and will continue to drive unfair and short-term patterns of resource extraction. There are strong developmental arguments in favour of greater equality on grounds of social cohesion, economic growth, reduced crime and disaffection, and better mental health. Greater equality in resource access is a key step towards more stable and legitimate governance systems, which can in turn increase resilience to shocks and uncertainty.

Change happens through policies informed by strong evidence-based research and science, grounded practice, focused influence and mobilisation of partners and politics. This combination can be a powerful lever for change. Increasingly it can be activated using new technologies, and through bringing together bodies of knowledge and actors from different geographies and disciplines. Rapid access to information and the ability to connect makes it possible to move much more quickly from research to action.

THE SIX TRENDS

- Growth and limits — planet, people and resources
- Climate change
- Urbanisation
- Society, values and livelihoods
- Economics and financial flows
- Technology and innovation

Geopolitical shifts and multilateralism: the current context?

Although much of IIED's background paper to our last strategy five years ago still holds true, there are some interesting twists on the trends we identified then. There have also been important further shifts in geopolitics and commitment to multilateralism. In this section we give a whistlestop tour of the key issues.

The big shift in economic and political power globally, from North and West to East and South, has continued — as seen by the decline of the G8 and the rise of the G20. We've moved from a US-dominated world to a multi-polar world. Economic growth in the last 10 years has been rapid in South and East Asia, sub-Saharan Africa, and Latin America. After the Western economic crisis and recession of 2008–09, however, Europe and North America are not back to growth. And the euro-crisis and threat to the political and economic integrity of the European Union (EU) have halted the progressive role played by the EU in many global debates.

The development of Sustainable Development Goals (SDGs), decided at the Rio+20 Summit in 2012, is an opportunity to strengthen UN and multilateral processes, especially after the damage wrought by failure at COP15 in 2009. In the absence of effective global governance mechanisms, corporate and financial interests can play off against each other and against nation states, with no means to hold them in check.

While the G20 might seek to make decisions on behalf of the 'world community', it has limited legitimacy. Regional bodies, such as the African Union, and regional development banks, are seeking to play a more proactive strategic role. Certain countries are seeking leadership on a regional or global scale, such as Colombia on the SDGs. And the LDCs are becoming more vocal both as a group and as individual countries, championing their position as poor and particularly vulnerable to climate change.

The rise of the BRIICS has been remarkable, although each country has followed a particular path, and China is more significant than the others in terms of scale, resources and ambition. There are many related questions, such as how will China exercise this leadership?

Is there a new political model to be designed? Democracy works very imperfectly, with many governments captured by vested interests. Lobbying, combined with a lack of transparency and the short termism of elected governments, leaves leaders incapable of taking decisions for the long term. No one seems to have a long-term vision. Might this change in the future and how?

Western nations no longer have an aid monopoly with their leverage reduced as a result. China, Brazil, India and others have become significant development actors: Brazil's growing role in Mozambique, for example, around education, agricultural technology and REDD, is a new model scaling up South–South cooperation as a central approach in development.

Alongside shifts in political power have been shifts in ideas and ideology. China, India and Brazil provide an alternative development model to the Washington 'Consensus' for lower income countries, in which governments play a more central role. Many innovations now stem from middle- and low-income nations, such as agricultural research in China and Brazil, mobile banking in Kenya, the experiences of BRAC, one of the largest enterprises in Bangladesh and now working in 12 African nations, and the design of social protection programmes in Brazil and India.

South-South connections are expanding greatly on the business, political and investment front. Investment flows are growing in a similar manner. Three quarters of all foreign exchange reserves acquired in the period 2000–11 were accumulated by the South.

Stimulating discussion

At the end of each section, we invite you to consider three questions to stimulate discussion. They may also give rise to further questions the strategy team should consider. These questions include:

- Do we agree with the global crisis narrative of resource scarcity and planetary boundaries,[1] or should the debate be around who manages and controls resources? How does a local or community-based perspective change the analyses and prospects?
- Should we just focus on getting a global carbon price agreed? What other complementary measures are needed?
- How can LDCs use the rapid urbanisation ahead to build more inclusive and sustainable cities?
- What will be the consequences for our societies, and those of many middle-income countries, from the ageing of the population?
- What are the best leverage points to bring corporate behaviour in line with social and environmental goals?
- In a time of pressure on public funds, how can we ensure sufficient public investment in research and development to complement private flows?

Growth and limits: planet, people and resources

We discuss the trends we can see in economic growth and the factors affecting it, population changes, the globalisation of consumption and increasing demands being placed on food, water and energy resources. This section considers the implications of all this for land and marine environments, and asymmetric struggles for control of these key assets.

1

The last 20 years have witnessed a major expansion of the global economy, doubling from US$35 trillion in 1990 to $70 trillion in 2011, bringing rising incomes to many in the 'developing' world. Many poor people, in Brazil, China and India in particular, have much improved their incomes and access to basic services according to the World Bank. Five hundred million people in China have moved out of poverty since 1990, and since 2000, Brazil has cut the number of its people in poverty from 17 to 6 per cent. Growth in sub-Saharan Africa has also started to offer much better economic prospects for an emergent middle class. But national averages mask increasing inequality in most countries with the benefits of growth skewed to the better-off, and much of this growth has been at the expense of the fundamental assets on which people's livelihoods and health depend. For example, China is held up by the development community as one of the main reasons why the MDGs will be attained in large part. But increasing inequality is a major problem in China, as is the life-damaging pollution of atmosphere and water, around which civil society activism is steadily growing.[2]

Looking forward to the next 30 years, the 'baseline' OECD projections (see Figure 1) show an increase in real global GDP from US$75 trillion in 2010 to more than US$300 trillion by 2050. Growing and disruptive impacts of climate change, combined with increased scarcity of raw materials and damaged provision of fundamental ecosystem services associated with current patterns of consumption and production lead many observers to judge such a continuation in real economic growth as increasingly unrealistic.

For world population growth to 2050, the projections show a flat line for OECD nations, a rise and levelling out for the BRIICS and a continuing increase for the rest of the world, much of which is represented by the significantly higher current rate of population growth in sub-Saharan Africa. Most demographers predict, in the absence of a major epidemic or other disaster, that global human numbers will level off around 2050–60 at between 9 and 11 billion, with the large majority living in towns and cities, in the current middle- and low-income countries.

The narrative of 'global population explosion' still heard today does not express the real story. Many high- and middle-income countries are below, or soon to reach population replacement levels, with significant consequences from such ageing for society, savings, pension provision and health. If sub-Saharan Africa follows a similar trajectory — which depends on sustained focus on women's education and empowerment — the years after 2050 are likely to see a wide set of global challenges associated with coping with a more elderly population globally.

However, rising demand for resources is less a consequence of population growth and more a product of rising incomes and associated consumption, especially in middle-income nations. By 2030, over 80 per cent of the world's 4.8 billion middle class is projected to be living in Asia, Africa and Latin America.

As incomes and consumption grow, there is a bigger resource gap between what is available from domestic resources and what is consumed. This means that market forces now stretch into most parts of the world, conferring global market values on land, water, energy, forests and minerals. The strength of market demand pits those who currently depend on these resources against more powerful interests. Such asymmetry in power is leading to a struggle for control of these key assets, governance of which is frequently flawed. Poor groups — forest dwellers, smallholders, pastoral livestock keepers, fisherfolk — are being squeezed out and left without land or livelihood.

Globalisation of market demand and interconnection between food and fuel markets will increase volatility in access to, and

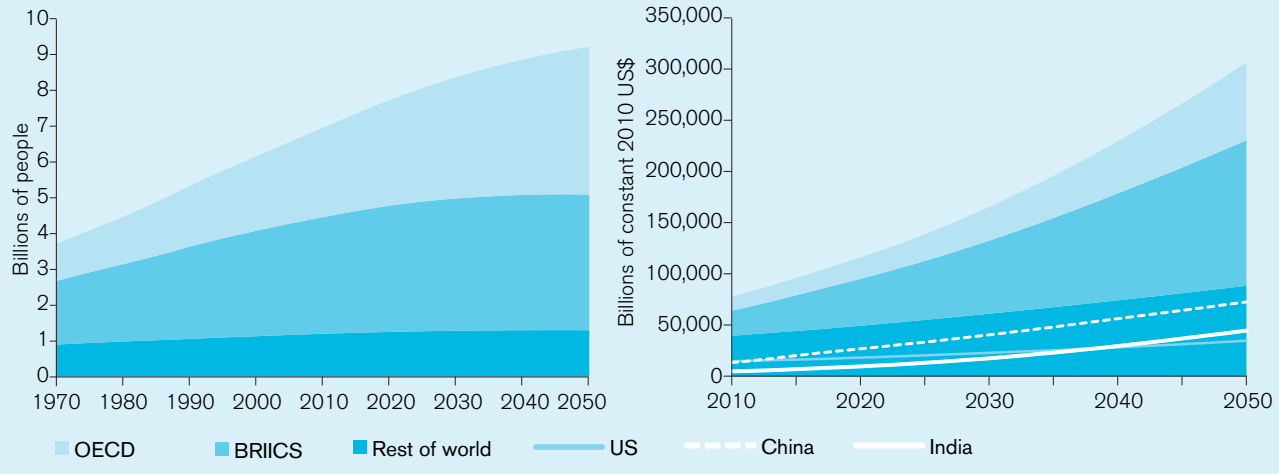


Figure 1. World population by major regions, 1970–2050 (left) and projections for real GDP (right). Source: OECD. 2012. *OECD Environmental Outlook to 2050*, Figures 2.1 and 2.6. Populations based on *UN world population prospects: the 2008 revision*, UN, New York

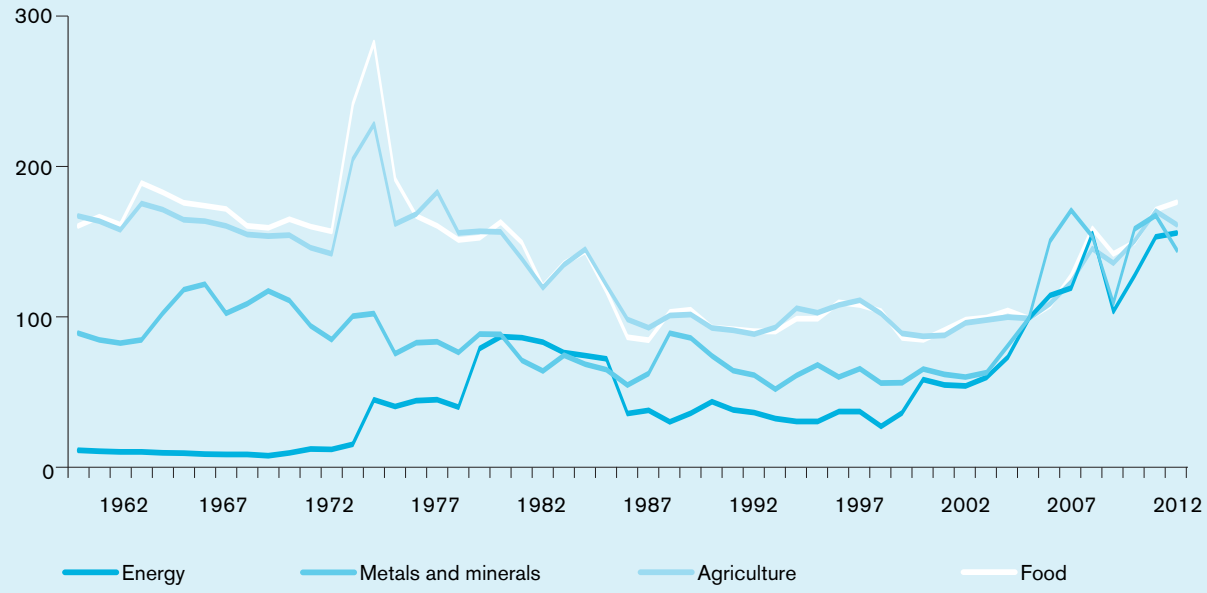


Figure 2. Volatility in commodity prices*. Source: World Bank Global Economic Monitor (GEM) Commodities. *2005=100, real 2005 $

prices of, key commodities, with particularly harmful impacts on poor countries and people. Since 1920 there has been considerable volatility of prices over time, linked to broader financial events (see Figure 2), and such volatility is expected to continue. This is seen by some as evidence that supply of certain commodities is nearing some kind of 'limit'. In 2011, influential investment strategist Jeremy Grantham declared we are facing a future of "peak everything".

Demand for food is expected to increase by 50 per cent by 2030, putting further pressure on land and water resources. The scale of increase needed in food production globally will depend significantly on how patterns of demand shift and are managed; factors include increases in meat consumption, changes to biofuel policy, reducing waste between field and fork, and addressing over-consumption. For example, despite both decline in its agricultural cropland and increasing agricultural trade, China has a policy of self-sufficiency in grain and staples. However, it has seen rapid changes in these consumption patterns and demands, particularly for meat, dairy and processed food, driving changing food trends and making the country increasingly dependent on imported food and feed. Between 2005 and 2010, Chinese food imports grew by 24 per cent a year, and China now imports 60 per cent of global soy bean production.

Likely further volatility in food prices is due to the close links that now exist between food production and energy markets. More than 40 per cent of the US maize crop is currently being used for production of bioethanol, for example. As the global energy sector is much larger than the formal food sector, small changes in energy market conditions generate disproportionate shifts in food prices.

Considering the timeframe for interpreting the data on food prices, the hike of 2007–8 was not a unique event. The big price spike in the early 1970s was led by food scarcity, low cereal reserves and the quadrupling of the OPEC oil price. Similar factors were at work in 2007–8, but there were also new factors, such as biofuels absorbing significant volumes of foodstuffs and speculation across different commodity markets.

Energy production and use on OECD baseline assumptions will grow 85 per cent by 2050, with most growth taking place in the BRIICS. In the absence of effective sequestration of carbon emissions, such high levels of energy use will generate ever higher levels of greenhouse gases, leading to a catastrophic increase in global average temperatures of 5 degrees Celsius or more by 2100.

The baseline projections for global water demand between 2000 and 2050 show a large increase in water used for

BOX 1. TANZANIA'S NEW FINDS

New gas finds in Tanzania are potentially one of the largest in history and bring hopes of great wealth to the country. Do poor Tanzanians have the skills and education to take advantage of possible new opportunities? How can their government be supported to think about opportunities for poverty reduction and distribution of wealth, and focus on models for use which benefit all? What can Tanzania and others in the same position learn from countries, such as Ghana, about the impact of significant energy finds? Why should such poor countries be persuaded to keep their oil/coal/gas in the ground, while US fracking and Canadian tar sands generate fossil energy at far higher carbon cost?

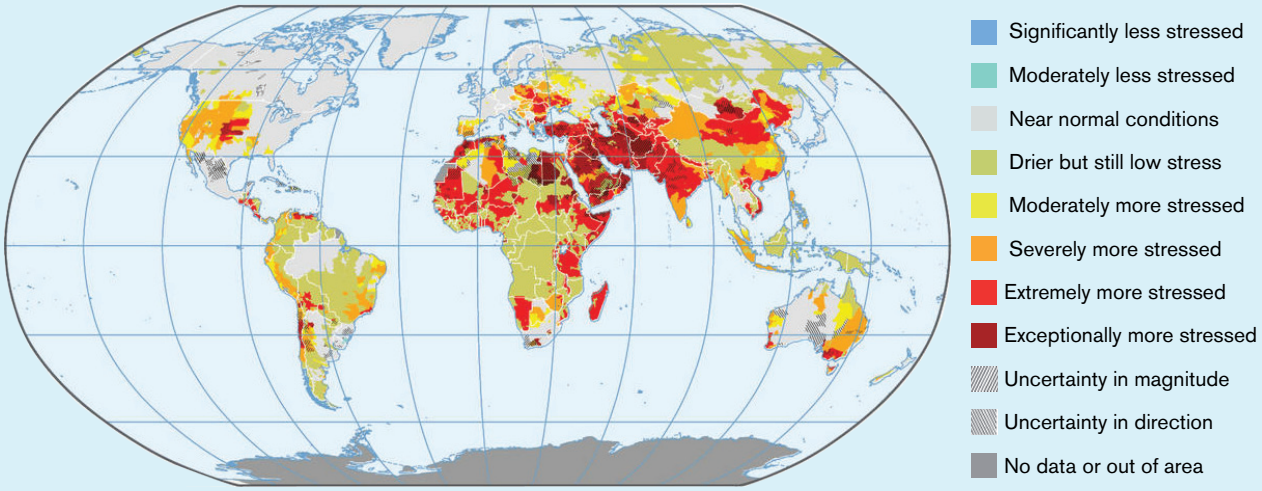


Figure 3. Environmental water scarcity index by basin: high stress belt by 2030. Source: US National Intelligence Council. 2012. *Global trends 2030: Alternative worlds.* Washington DC

hydropower, manufacturing and domestic uses, and a moderate decrease in irrigated agricultural demand based on more efficient systems, and a shift from furrow to drip irrigation.

But the water balance is very context specific. Many regions of the world are already highly stressed, with imbalances likely to be exacerbated by lower levels and more unpredictable patterns of rainfall due to climate change, combined with increased demands from industrial, energy and domestic uses. By 2030, several major river basins across the world will become 'extremely more stressed', with the most affected parts in West, North and Eastern Africa, the Middle East, Central Asia, north and central India, and northeast China (see Figure 3). Many of these river basins span a number of countries, raising concerns about growing competition between nations for this shared resource.

Global forest cover has fallen for the last 100 years with the expansion of agriculture into many areas, but this long decline is expected to reverse by 2020, with increasing plantations making up for the continued fall in primary forest cover everywhere. Although this offers the potential for significant increases in forest carbon stocks, forest cover by itself does not tell the true story of the value associated with the biodiversity found in forests, the reliance placed on these resources by millions of people in and around forest areas, and the significance of trees in fields, fallows and pastures.

Fisheries provide a social and economic bedrock for some 43.5 million people working directly in this sector, with the great majority in developing countries. Including those who work in associated industries, the sector supports nearly 200 million livelihoods. In sub-Saharan Africa, inland and coastal fisheries are the main source of animal protein for 20 per cent of the population, playing a significant role in tackling food security risks.

BOX 2. TACKLING OVERFISHING IN BRAZIL AND BANGLADESH

To fight overfishing and complement less effective regulatory mechanisms, some countries have started to introduce economic mechanisms to provide incentives to fisher communities to conserve their marine and coastal resources. These moves have reduced overfishing in Brazil and Bangladesh, where fishermen are compensated for lost revenue and abiding with no-take zones.

Global fishery stocks are under threat from overfishing and habitat destruction. If current trends continue, the UNEP Green Economy study suggests that we are very likely to see effectively 'fishless oceans' by 2050. Climate change poses added threats, with species extinction and changing ecosystems and migration patterns having consequences for poverty alleviation and reduction, the livelihoods of small-scale fishers and exacerbation of national food insecurity.[3]

Some of the actions that are countering the momentum of destruction include the creation of marine protection areas, tackling pirate fishing, climate change mitigation, and use of economic instruments to incentivise fisheries to manage their resources sustainably. Removing perverse subsidies and redirecting financial flows that currently drive most commercially valuable fish stocks to be over-exploited could improve global fisheries' performance by US$50 billion annually.[4]

Analysis of demand, supply and — perhaps more importantly — management of natural resources applies equally to mining

BOX 3. CONSERVATION ENDOWMENT FUNDS IN TANZANIA

The Eastern Arc Mountains are a series of islands of mountains with very high levels of biodiversity, flora and fauna, stretching from southern Kenya through Tanzania. The area has been the subject of much conservation attention and at least some level of protection over the years, although it is still under huge pressure of encroachment. Through donor funds and high level of support from the Tanzanian government, a concerted effort has been made to look at this entire chain of mountains as a 'landscape' of high biodiversity, focusing on recognising the value of wider ecosystems and the importance of the region's catchment areas, as well as local-level biodiversity.

In 2001, the Eastern Arc Mountains Conservation Endowment Fund was established as a joint initiative of the government of Tanzania, World Bank and Global Environment Facility (GEF). It is managed by professional fund managers with an independent trustee arrangement. Until the 2008 financial crash, interest gained by the fund was used to run activities around reducing the drivers of deforestation, raising awareness and community based management of forest resources. After 2008 the fund lost value, but a concerted international effort is now underway to re-establish it on a long term financially sustainable footing.

The Eastern Arc Mountains Conservation Endowment Fund is one of few successful examples of these kinds of conservation endowment funds. It is a potential model for REDD, and is used in policy circles for furthering natural capital accounting debates, for example by 'Valuing the Arc', an international research programme to develop a framework for evaluating ecosystem services that can be applied in a developing country context.

and minerals. China is a major consumer, and its share of global metals consumption will increase from 40 per cent today to about 50 per cent in 2020. Many countries have become increasingly reliant on mining exports to China. Mining also accounts for a significant proportion of water use in the industrial sector diverting it from agriculture. The mining industry has broadly taken a 'wait and see' attitude to climate change issues but harsher operating conditions are beginning to spur debate and action.

Other trends relate to governments reasserting control over their mineral resources in response to the boom in commodity prices on the global market by, for instance, changing their tax laws and mining policies or acquiring equity stakes in companies active in the sector. And we are seeing a rise in new investors and operators from China, India, Brazil and elsewhere, who are playing an important role in defining the sector's future direction.[5]

Increased demand for energy, water, minerals and food brings rising competition for land. The last decade has seen rapidly growing interest among governments and companies to secure access to land in third countries, and demand has been focused on countries where governance and transparency are weak. Given the difference between media reports and actual acquisitions, the scale of land acquisitions is subject to some dispute, but numbers suggest that between 50 and 250 million hectares of land were acquired between 2000 and 2010, in countries ranging from Lao PDR and Cambodia, to Zambia, Sudan, Mali, Brazil, Paraguay and Ukraine. Such transactions demonstrate the globalisation of markets for assets and commodities, and the rising anxiety about resource security amongst both corporate and state agencies.

BOX 4. LOCAL LAND RIGHTS IN MALI

Agriculture is a key element of the Malian economy and the main livelihood activity for most people. While sugar is produced on large scale commercial holdings, all other crops — cotton, cereals, groundnuts, livestock, fruit and vegetables — are produced by smallholder farmers. These farmers are often unaware of the laws and policies that govern access to the land and resources they have relied on for generations. This means they can lose out as access to resources is secured by large-scale agribusinesses or investors.

Who controls the land is a critical aspect of the law regulating land deals. In Mali, central government controls all or most land. In recent years, reforms have strengthened the legal protection of local land rights, including customary rights, but asymmetry in knowledge and power remains a big hurdle.

Key challenges

The increase in demand by 2030 for key resources assumed under a 'business as usual' model is significant and it is questionable whether such scales of increase are possible to accommodate given existing resources and technologies. How will demand and supply respond to increased prices, how can efficiencies be improved, waste reduced and productivity-enhancing technologies developed?

Globalisation of resource demand has major consequences for the people from whose land these resources are extracted, given the huge imbalance in power between those seeking resources and local people. Many governments do not acknowledge unwritten customary rights and offer little protection of assets to the less powerful. Protection of collective property is particularly weak and, even where such laws exist, poor people often cannot protect their assets in practice because governments are keen on gaining revenue from leasing land to extractive industries. Lack of effective regulation and access to law means these poor people are usually the losers.

Food price increases are particularly damaging for poor households, since foodstuffs make up such a large share of the family budget. Regulation of commodity markets may not be feasible, given the fluidity of capital, and need for forward markets. In light of that, and to ensure greater price stability in the face of increasing volatility, perhaps certain commodities should be placed 'off-limits' for speculative funds. Or perhaps national or regional reserves of strategic commodities should play a greater role. And should biofuel targets be re-thought, given their impact on land and basic grains?

Questions

Do we agree with the global crisis narrative of resource scarcity and planetary boundaries, or should the debate be around who manages and controls resources? How does a local or community-based perspective change the analyses and prospects?

There is far too much fossil energy to burn it all, and more is discovered every day. Can we keep fossil fuels unburned, in the ground, and how?

How do we find a better balance between competing demands for water (irrigation, hydro-power, ecosystem maintenance, industrial and domestic)?

Climate change

All nations now recognise the need to adapt to climate change, by investing in and building more resilient systems. But huge power is still held by vested interests, national and corporate. How can we get the message across convincingly about cutting greenhouse gas emissions? We consider whether we should focus on getting a carbon price agreed and if so, what governance mechanisms there are to implement it.

The rise in greenhouse gas emissions has already led to 400ppm of carbon dioxide in the atmosphere, with more than 2ppm added each year. On current trends, the average global temperature is expected to increase by 3–4 degrees Celsius by 2050 and 5–6 degrees Celsius by 2100. Because of the inertia in the world's atmospheric systems, the level of global warming we are likely to experience by 2030 is largely known today. Action taken now will influence the degree of climate change in 25 or more years' time. The consequences of climate change to 2030 will be felt particularly by middle- and low-income countries in the South and East, but the increase in extreme events will affect everyone.

Figure 4 shows the significant difference in global temperatures by region depending on whether atmospheric concentrations are held to 450ppm or continue to rise above this. Climate change brings a range of biophysical, economic, political, security, social, and health-related impacts, varying by region. Higher global temperatures mean a larger amount of water vapour is absorbed into the atmosphere, and a more energy-intense water cycle is at work, bringing greater extremes such as floods, droughts, storms and tidal surges.

The next IPCC assessment is due in 2014 and will provide further evidence of the current science, evidence of changes underway and projections for the future.

Sea level rise and increased extreme events pose major challenges for coastal conurbations, as was seen with Hurricane Sandy, which hit New York city and the north-east US coast in October 2012, and is now reckoned to have caused US$70–80 billion worth of damage. There is huge vulnerability along the east coast of China, for example, due to the high population density, and the massive sunk costs of investment in cities, industry and infrastructure.

All nations now recognise the need to adapt to climate change, by building more resilient systems, whether for food, energy, shelter, water or protection from floods and sea level rise. A growing body of experience demonstrates the great importance of community-based adaptation, building on the insights, knowledge and priorities of people facing daily threats to their shelter, livelihoods and prosperity. Some of the poorest and most vulnerable countries in the world, such as Bangladesh, are championing this approach.

There is a fundamental mismatch at present between the pledges made at COP15 of keeping global temperature rises to 2 degrees Celsius, the weak implementation of many such pledges, and the actual pathway we are currently following. As a consequence, debate in climate negotiations is now starting to consider issues of 'loss and damage' and options for compensation between nations. The current UNFCCC negotiations, due to conclude in Paris at COP21 in late 2015, seek to agree a global treaty to come into effect by 2020. But there is more scepticism of the likelihood and strength of such a global mechanism than before COP15. Most observers reckon that we may have to move forward with a series of regional agreements, rather than put all our hopes in a single integrated treaty.

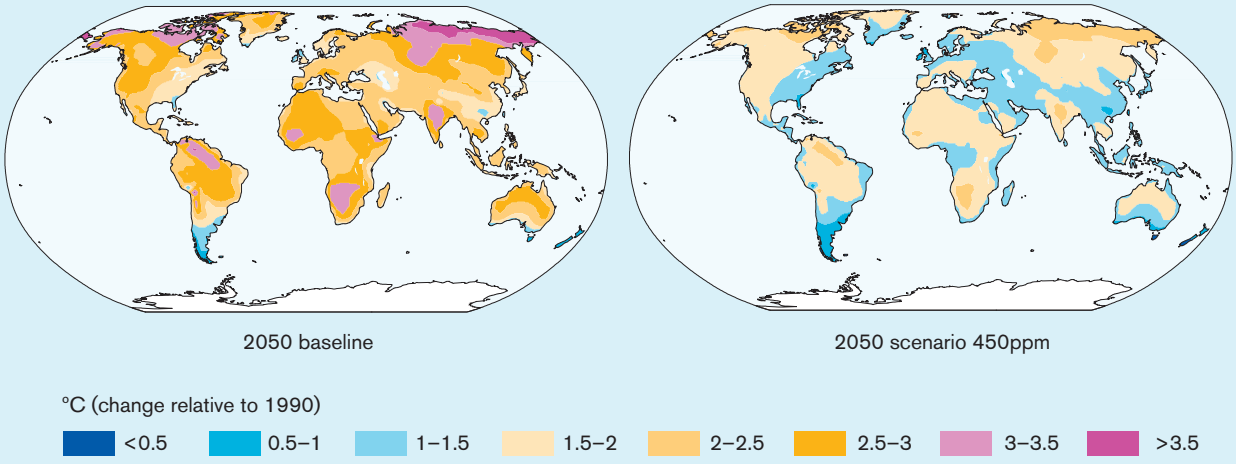


Figure 4. Change in annual temperature: baseline and 450ppm scenarios, 1990–2050. Source: OECD. 2012. *OECD environmental outlook to 2050.* Figure 3.10, output from IMAGE.

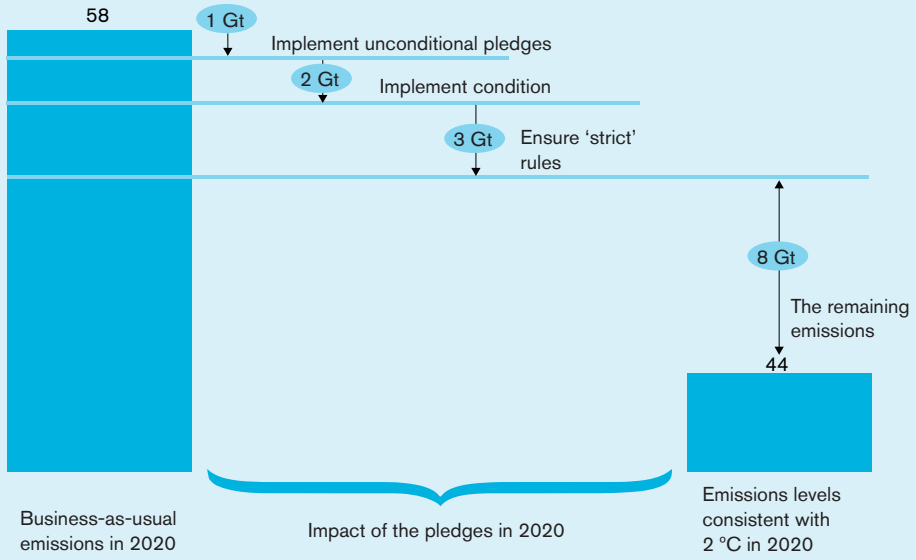


Figure 5. The climate gap. Source: UNEP. 2012. *The climate gap report;* Smith School of Enterprise and Environment, University of Oxford. 2012. *ReSource 2050.*

BOX 5. A LOCAL-LEVEL FRAMEWORK FOR CLIMATE ADAPTATION IN NEPAL

Climate change leading to more frequent extreme weather events and increased glacial melt in the Himalayas, will make Nepal's population even more vulnerable. Poor households with small landholdings whose primary occupation is agriculture face particular difficulties because they grow a limited variety of crops and have few other sources of income. This has already led to many families abandoning agriculture and migrating to Nepal's cities,increasing urban vulnerabilities to climate change impacts.[6] Inadequate drainage, for example, makes Kathmandu's urban population vulnerable to flooding after heavy rains.[7] The technical systems put in place are not sufficiently flexible to deal with a changing climate, and risks to people, such as the growing numbers of squatter settlements in Kathmandu, mostly located along riverbanks or on steep slopes.

Nepal has formally decentralised, and the process, which is providing larger funds for local governments to spend at the local level, is leading to opportunities for climate change adaptation.[8] Its emphasis is on a low carbon development model and adaptation at the local level. Nepal is the only country that has put in place a decentralised framework for climate change adaptation planning, integrating Local Adaptation Plans of Action (LAPA) into national adaptation planning frameworks, putting it ahead of many other countries in terms of planning for climate change.[9]

Many issues dog the negotiations:

- the huge power held by fossil fuel companies and producing countries
- the imbalance between those who emit and those who suffer the consequences
- emission levels based on production or consumption
- the short time horizons of those with political power
- the shift from rich to middle income nations as the biggest overall emitters.

However, even by 2050, historic emissions per person remain higher in the North and West than in the big middle-income emitter countries, which reaffirms the importance of 'common but differentiated responsibilities'.

Key challenges

The growth in emission levels needs to be curbed urgently. This could be achieved by putting a significant price on carbon and provoking a shift to low or zero carbon economies. But there are big difficulties in achieving the scale of transformation needed in elected democracies, where short termism, lobbying by vested interests, and climate denial sap political energy and long-term commitment. Recession in Europe and North America also makes business and governments cautious and loathe to lose their competitive edge by raising fossil energy prices, which also creates problems of fuel poverty for poor households. And it cannot be taken for granted that the general public is convinced of the pressing reasons for change. Achieving this transition to a low-carbon global economy, through democratic means, is a major and long-term challenge.

BOX 6. RESPONSES TO A 'FUTURE BEYOND OIL': DENMARK AND THE UK

It is interesting to compare how countries interpret and deal with shocks very differently, assigning them strategic significance and choosing how to build in resilience for themselves or their citizens. In the cases of Denmark and the UK, these very different responses to a 'future beyond oil' have also led to differences in the quality of their built environment.

After the 1970s oil price shock, Denmark's response was to invest heavily in energy efficiency and wind power. Brazil switched to running its cars on sugar cane ethanol. Britain, however, poured money into the North Sea oil industry to take advantage of high crude oil prices.[10]

Denmark now has one of the lowest energy intensities in the world, and is a leader in the OECD on well-designed policies for renewable energy, energy efficiency and climate change. Its long-term energy goal is to become completely independent of fossil fuel use by 2050.

For the UK, North Sea oil and gas production is declining, and UK dependence on imported fossil fuel energy is increasing. Despite relatively low gas and electricity prices, the UK has over 5 million households living in fuel poverty* — the highest rate in western Europe — largely because of the very poor energy efficiency of its housing stock.[11,12]

* This is defined as households having to spend more than 10 per cent of their income on energy in order to keep warm (www.ukace.org)

The message that in the long term the costs of inaction over climate change will vastly outweigh the investment needed for transformation has to be clearly understood and accepted by all constituencies across the world. Getting the communications strategies right and tailoring the messages appropriately in order to provoke change in attitudes and behaviour are substantial and challenging tasks. Adaption to climate change requires major investment in rich and poor countries alike. Building more climate resilient economies is critical to achieving greater prosperity in a time of change and uncertainty, but there are also limits to adaptation. If we want to improve the adaptive capacity of the most vulnerable populations, we must learn from the experience of community-based adaptation, and encourage approaches that combine, for example, bottom-up and top-down support and finance.

With weak international governance, powerful vested interests and high levels of inertia, there is little impetus to push for a carbon price, without which it is very difficult to see how to effect the scale of transformation required. Global or regional deals will have to be negotiated to address the distributional issues of winners and losers in the short and longer term. But the question of which global or regional governance mechanisms would be able to do this with any hope of success remains.

Questions

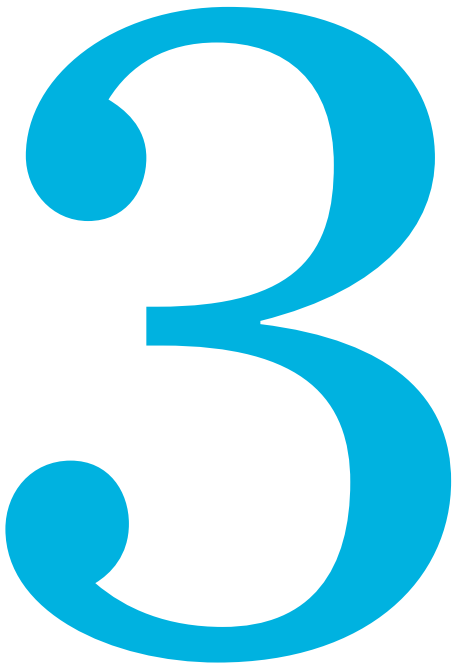
Should we just focus on getting a global carbon price agreed, and what other complementary measures are needed?

Getting the communications strategy right is key to engaging with people on a low-carbon agenda. The IPCC is clearly one opportunity to do this. How best to pitch the messages to do with rising costs of inaction, and positive benefits from a low-carbon pathway?

What is the best means to combine local and national action on adaptation, mitigation and resilience building with the global framework?

Urbanisation

Population growth is becoming largely an urban phenomenon concentrated in the developing world. Urban life potentially offers better access to key services but there are downsides. Getting city development 'right' will make a difference to equality, prosperity and greenhouse gas emissions over the next 40 years. Will cities be inclusive and welcoming to migrants, minimise congestion costs, and take advantage of agglomeration economies and the potential environmental benefits of density?



World population is increasingly urban and population growth is becoming largely an urban phenomenon concentrated in the developing world. By 2011, of the 7 billion people on the planet more than half live in urban areas. By 2050 this figure is projected to rise to around 70–75 per cent of the world population, and most of this growth will be in middle and low income nations (Figure 6). Over the next 20 years, the urban populations of South Asia and sub-Saharan Africa, for example, are expected to double to over 3.5 billion people. Although urbanisation is often seen as synonymous with the growth of mega-cities, in practice much of the growth will continue to be in middle- and small-sized cities.

Urban growth is leading to a transformation in urban-rural relations, in terms of jobs, livelihoods, migration and changes in employment sectors. Urban life potentially offers better access to education, health and incomes. But there are downsides to living in urban areas in terms of cost, tenure insecurity, and crime. For governments, unemployed and under-employed urban youth represent a significant political risk. The informal urban economy is likely to remain significant.

The MDGs set a target to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020. So far, there has been a reduction in percentage of the urban population living in slums, but the absolute number has grown, not fallen: according to the UN, 863 million people are now estimated to be living in slums compared with 650 million in 1990 and 760 million in 2000. UN-Habitat estimates that by 2020, about 1.03 billion people will live in slums.

Cities currently occupy only 2 per cent of the earth's land, yet account for 60 to 80 per cent of energy consumption

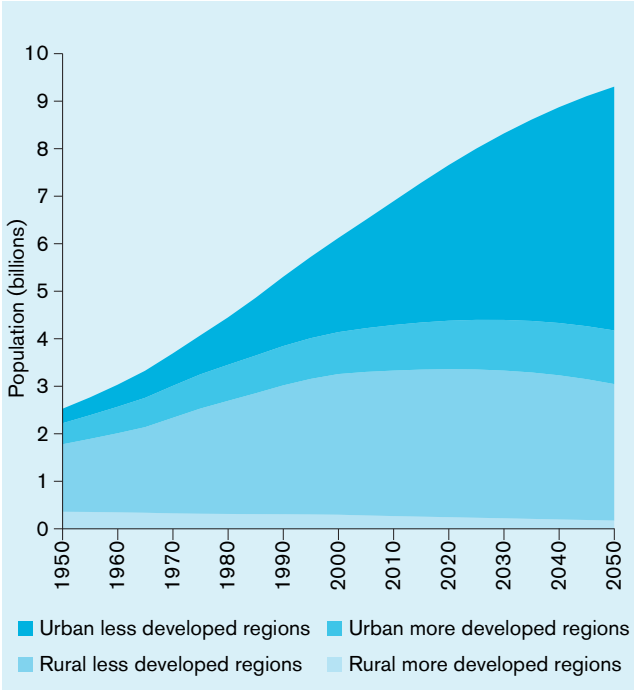


Figure 6. Population estimates of the world 1950–2050 by rural/urban and more/less developed regions (cumulative). Source: UN. 2012. *World urbanization prospects: the 2011 revision.*

and 60–75 per cent of carbon emissions. Coastal and urban migration, with its associated unplanned urban sprawl, exacerbates risks in the future. Of the impacts projected for sea level rise in 31 developing countries, only 10 cities account for two-thirds of the total exposure to extreme floods. Highly vulnerable cities are to be found in China, Mozambique, Madagascar, Mexico, Venezuela, India, Bangladesh, Indonesia, the Philippines and Vietnam.

Building inclusive cities and urban areas that are resilient to the impacts of climate change needs local competence and capacity, partnerships between local governments and those most at risk , and basic infrastructure and services, including piped water, adequate sanitation and good drainage, reaching everyone. Unless the global energy mix changes, fossil fuels will supply about 85 per cent of energy demand in 2050, implying worsening urban air pollution. This will have a disastrous impact on quality of life and, according to the OECD, premature deaths from exposure to particulate pollutants could double from current levels to 3.6 million every year.

Key challenges

Getting city development 'right' will make a difference to health, incomes, prosperity and greenhouse gas emissions over the next 40 years. How Asia and Africa's transition to urban living unfolds will be a major factor in determining how wealthy, environmentally sustainable and equitable they are as the 21st century progresses. Important questions include whether their cities are inclusive and welcoming to migrants, and whether they will minimise congestion costs, and take advantage of agglomeration economies and the potential environmental benefits of density.

In the rest of the world, already predominantly urban, what happens in cities and smaller urban centres will be more constrained by locked-in settlement patterns. Urban settlements are the sites of a large share of infrastructure investment. And how urban settlements are organised, and the extent and manner in which their citizens organise themselves, are also central to the future of governance, collective action and civil society. Achieving global goals, such as water and sanitation coverage, for local environments, will depend on how much inequality is allowed to persist in cities, and the extent to which aspiring urban dwellers are excluded politically and economically.

Most cities are at increasing risk from the effects of climate change, including heat waves and, for coastal cities, rising sea levels and storm surges. In many locations, climate change will increase the intensity of extreme rainfall in the city or 'upstream'. Extreme weather events will have a negative impact on the assets, health and also the incomes of urban poor people, by both increasing expenditure and reducing their ability to earn; it will also exacerbate non-income dimensions of poverty related to inadequate living conditions.

Poor urban dwellers face environmental hazards, and must struggle for security and recognition. They exercise little

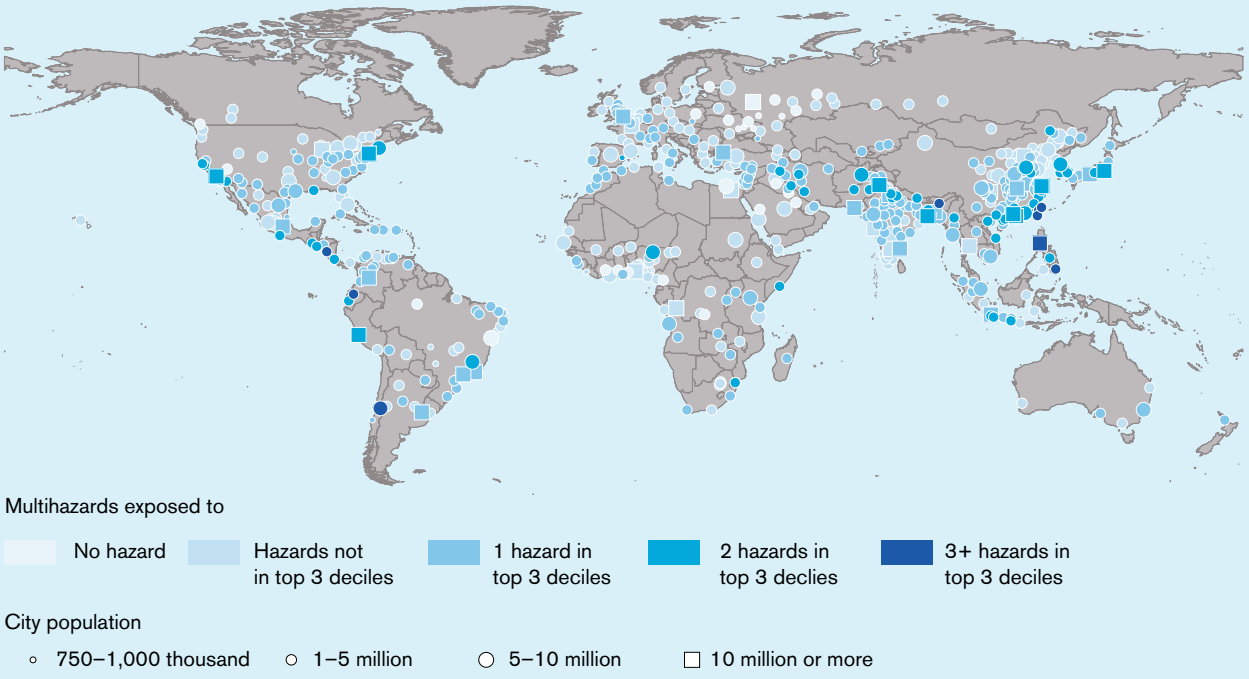


Figure 7. Distribution of cities by population size in 2025 and risk of natural hazards. Source: UN. 2012. *World urbanization prospects: the 2011 revision*

BOX 7. CITIES AS SITES OF EXPERIMENTATION: LEARNING FROM CHINA AND BRAZIL

Improving the way we develop our cities is central to addressing the world's economic and environmental burdens and inequalities. Cities are important hubs for sub-national power, market driven systems, public infrastructure investments, and social and political collaboration. Perhaps more importantly, given sufficient encouragement they can and could be key sites of experimentation, spearheading new approaches to development.

When post-Maoist China shifted towards a more market-driven economy, most of the experimentation was undertaken in emerging or pre-existing cities designated as special economic zones, where capital and labour came together under the auspices of bureaucratic entrepreneurs to become enormously successful economic growth machines.[13,14] This experimentation became the basis for China's real economic leap forward, and involved a significant devolution of responsibilities from central government. It also drove China's explosive urban surge and the biggest ongoing population movement in history. According to the United Nations' projections, China's urban population is expected to be more than 1 billion by 2050. Urbanisation has brought great wealth to the country, but also social inequality and huge environmental burdens that now need a new approach, and new forms of urban experimentation.

By contrast, after the fall of the rightist dictatorship in Brazil, it was in cities that the Workers' Party first gained power democratically, and experimented with new approaches to participation and social redistribution.[15] The city level success became the basis for national success a decade later, though its urban roots were evident when the national government passed exceptionally inclusive urban legislation in the form of a 'City Statute'.[16,17] The inequalities these policies were meant to address also have an urban history. Brazil's leaders strongly resisted urbanisation in the past, and their failure to plan ahead helped to create deep social and environmental problems.

With an appropriate policy framework urban density has the potential to provide many social and environmental benefits, whereas attempts to curb it — for example through subsidising suburban sprawl — can amplify problems. Developing countries that are on the cusp of their ownurban transitions, such as Nepal and Tanzania, need to plan for both the advantages and the challenges of urbanisation. Their own experimentation needs to balance a solid grounding in local innovation with strategic guidance that is informed — but not prescribed — by external examples.

political weight, especially when faced by the power of private interests and developers who want the land on which they have settled. Within cities, this conflict and competition for land is likely to increase. How can urban poor people mobilise and use their political power to negotiate a better deal from city governments?

Urbanisation will provide opportunities for business around the globe, particularly as developing countries move from agri-centred economies to product and service economies. Some estimates suggest that by 2030 US$40 trillion will need to be invested in urban infrastructure worldwide. Midsized cities — not just megacities — will soon play an outsized role in the global economy. This will mean a big scaling up of local finance, giving city and municipal governments the capacity to act.

Urban populations are often ignored when it comes to issues of poverty and development assistance. There are no reliable statistics on the scale of urban poverty globally. Poor inhabitants of urban areas are particularly vulnerable to price volatility, disasters, risk, conflict, disruption to energy, water, food and commodities. Given urban residents' dependence on food purchases, food insecurity will increasingly become an urban issue. And without new policies and approaches, the number of urban dwellers will increase faster than connections to water services, leading to large numbers of people without access to safe water by 2050.

Can urban centres and urban governance play a central role in building a fairer more sustainable world? Urban contexts provide quite distinctive governance issues, given the economic and political power of urban centres, the tensions and synergies with national and global governance systems, the proximity of city politicians and their voters, and the role of civil society and innovation. Municipalities and city governments are set to play a growing role in a range of policy issues, with mayors taking on higher profile roles, 'selling' their cities on the international stage. They will create local alliances of people and organisations and champion innovation in fields including low carbon, cycling, recycling, locally controlled funds and participatory budgeting.

Questions

How can LDCs use the rapid urbanisation ahead to build more inclusive and sustainable cities?

Are urban centres the best focus for delivering sustainable jobs, governance and action on climate change mitigation and resilience?

What local-level social, institutional and governance arrangements in urban areas are needed to defend the public good?

Society, values, livelihoods

Despite significant economic growth in many middle- and low-income countries, employment has grown more slowly. There is dissatisfaction as political parties fail to deliver on fairness and sustainability, which threatens social cohesion and political stability. And as neoliberal pro-market ideology persists, how can we shift the balance from individual to collective good, from 'me' to 'we'?

Despite significant economic growth in many middle- and low-income countries, employment has grown more slowly. Much growth in output has involved few jobs, a consequence of the robotisation of work, outsourcing and few formal jobs for the unskilled. Urban youth are increasingly unemployed or under-employed with few prospects for a decent income and possibility of establishing a family.

Agriculture is shedding a lot of labour, with the exception of sub-Saharan Africa. In Eastern Asia, Southeastern Asia and Latin America, the absolute number of youth aged 15 to 24 living in rural areas started to decline 10–25 years ago. This means that an agricultural transformation is underway in most regions, with many people seeking more rewarding, less back-breaking work.

The agricultural sector is Africa's largest employer, offering crucial employment opportunities for rural youth, who will continue to rise in number until 2030 or 2040. But they do not view it as a business opportunity to build a sustainable and profitable livelihood. Across the world, if young people are to stay in farming, they will need to find a stronger incentive than currently exists.

Dissatisfaction as political parties fail to deliver on fairness and sustainability is increasingly threatening social cohesion and political stability, with the rise of single issue and religious organisations offering alternatives for mobilisation. Protests in China are growing significantly against the damage caused by current patterns of production, and many of the thousands of petitions taking place last year were against factories polluting air and waterways, or local officials who had seized land.

The 'Arab Spring' in 2011 showed the power of mobilisation and self-organisation early on in protests against harsh regimes, but the weakness of political structures and institutions has been made evident in the period following the fall of long-standing dictators.

Key challenges

Attitudes and values today have a strong focus on individual freedom and self-expression. Despite the most damaging global financial and economic crisis since 1929, neoliberal pro-market ideology still persists, strongly supporting private sector models as offering better options than the public sector. As we face greater global challenges, can we shift the balance from individual to collective good; from greed to altruism, dominance to collaboration, 'me' to 'we'?

The question of how to progress women's empowerment remains conspicuous. Attitudes to women remain stubbornly unchanged in many parts of the world, and women have been facing further marginalisation in the current recession. Huge inequalities persist in most parts of South Asia, sub-Saharan Africa and Arab states, where the political, educational and economic development of women and girls has remained very limited, and where women's status is a consequence of strong patriarchal attitudes. The preference for male children is leading to selective abortion, and higher mortality rates amongst girl babies in a number of countries. And in times of conflict, rape has become a systematic tool for domination and oppression.

Accountability is now demanded of corporate and government bodies as well as civil society organisations like IIED, as surveys of public opinion show declining trust in many institutions and professions. What are the costs of abandoning our reliance on trust? Will this rising demand for accountability generate tools to achieve it effectively? We need systems to measure what's been delivered against what's been promised, and to investigate and document behaviour of corporates, governments and individuals. Decisions need to be opened up to public scrutiny so that key leverage points can be identified for achieving change.

BOX 8. WOMEN'S EMPOWERMENT IN BANGLADESH

Bangladesh has taken a multisectoral approach to expanding opportunities for women, focusing on social, economic and political empowerment, hand in hand with substantial improvements in health services. The spread of and access to microcredit have been significant: Grameen Bank alone has disbursed US$8.74 billion to 8 million borrowers, 95 per cent of them women. Employment opportunities in the garment industry, particularly for young women who are migrants from rural areas, have narrowed gender gaps in employment and income. Social and political empowerment of women has occurred through regular meetings of women's groups organised by nongovernmental organisations, experience in which has prepared many women to run for public office.

Postponed marriage and motherhood are direct consequences of women's empowerment, as are the effects on child survival. In 1990 infant mortality in Bangladesh was 97 deaths per 1,000 live births, 16 per cent higher than in India. By 2004, the situation had reversed, with Bangladesh's infant mortality rate 21 per cent lower than India's.

Today, girls' enrolment in schools exceeds that of boys, through the efforts of organisations such as BRAC, as well as government policies to eliminate gender gaps in education. The regular school curriculum includes a range of topics such as reproduction, marriage, contraception and gender issues.[18]

BOX 9. CHINA'S HERDER COMMUNITIES

China has a pro-urban strategy that is quite rare amongst developing countries, and some analysts understand the continued lack of provision of services in rural areas as a deliberate strategy to encourage migration to urban areas where there are better services and people are able to live 'a modern life'.

An example of how this policy-led drive for homogenisation is leading to cultural clashes can be seen in the case of China's pastoral societies and herder communities. There is mounting scientific evidence that the intensifying degradation of China's rangelands is a consequence not only of climate change but also of 30 years of inappropriate policies aimed at replacing traditional livestock mobility, which is perceived by the government as an outmoded 'coping strategy', with modern production methods to overcome the 'constraint' of environmental variability.

The state government has implemented a series of measures, including herder settlement policies, underpinned by the belief that rangeland degradation is inevitable if the pastoral production system is not modernised. This has had a highly negative impact on herder livelihoods and pastoral societies, whose members have been mobile pastoralists over thousands of years, co-adapting to dynamic local climate variability and the heterogeneity of rangeland resources. There is a need for the 're-recognition' of the uniqueness of traditional pastoralism and its institutional arrangements.[19]

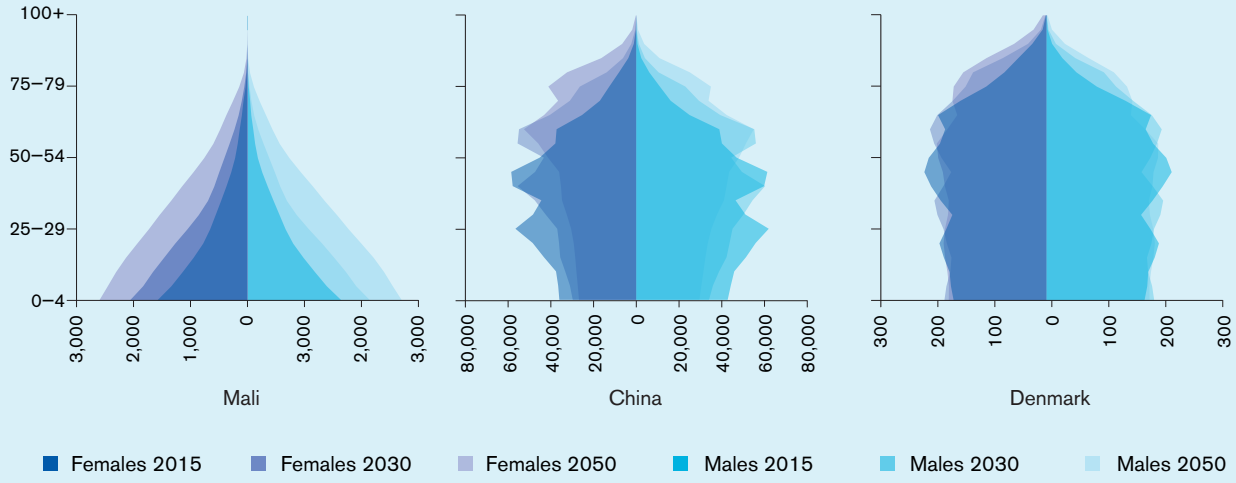


Figure 8. Aging Asia and Europe versus youthful Africa. Population by 5-year age group, 2011–2050 (thousands), medium fertility variant. Source: UN. 2010. *World population prospects: the 2010 revision.*

The 2013 UN Human Development Report shows the importance of investment in education for a country's economic prospects. Getting everyone, especially girls, into school makes the difference between a flexible society and economy that can cope with change, and one of fixed attitudes and beliefs. Poor state delivery in many places has led to a rise in private sector provision — Dhaka in Bangladesh has 70 private universities, for example, with access only for those who can afford to pay — or to religious groups setting up rival and more effective schools, clinics and social welfare schemes. This contributes to the undermining of collective state provision.

Migration is a common strategy for diversifying incomes and coping with changing circumstances. It has played a central role in enabling people to adapt to big shifts in opportunity and constraint, and is likely to be vital to how peoples and societies handle the impacts of climate change. How might the best aspects of migration be brought to the fore, and its irritants reduced? The recession has reignited political opposition to migration in many 'rich' nations, but the debate is usually ill-informed as regards to the real costs and benefits.

Questions

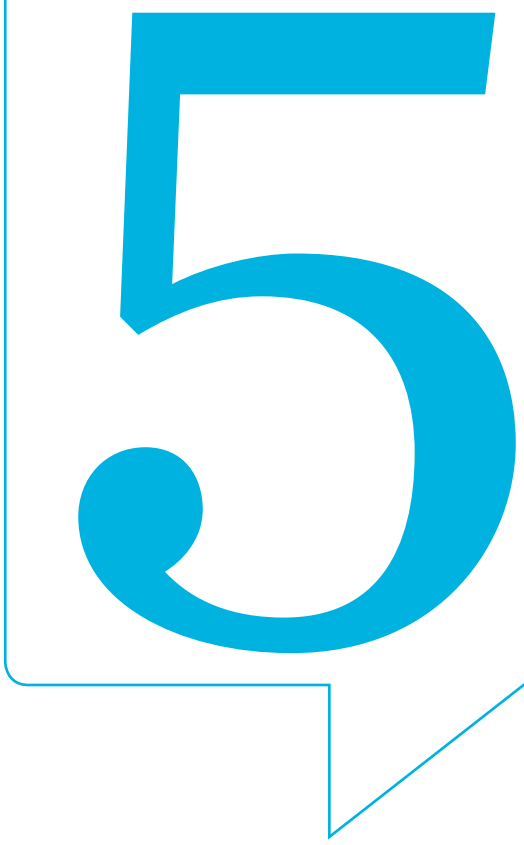
What will be the consequences for our societies, and those of many middle-income countries, from the ageing of the population?

How can political systems better represent the diverse interests more fairly and avoid capture?

How can we re-balance values from 'me' to 'we' – from competitive individualistic behaviour to greater shared collective action?

Economics, markets, financial flows

Where a state provides long-term leadership and infrastructural investment, taps global markets and designs innovative public policies, we have seen growth. But with 'rich' economies in long-term recession, and China's growth slowing, there will be knock-on effects. Corporate power is growing and the informal economy remains significant. Are we measuring the right things and what alternative models for growth might there be?



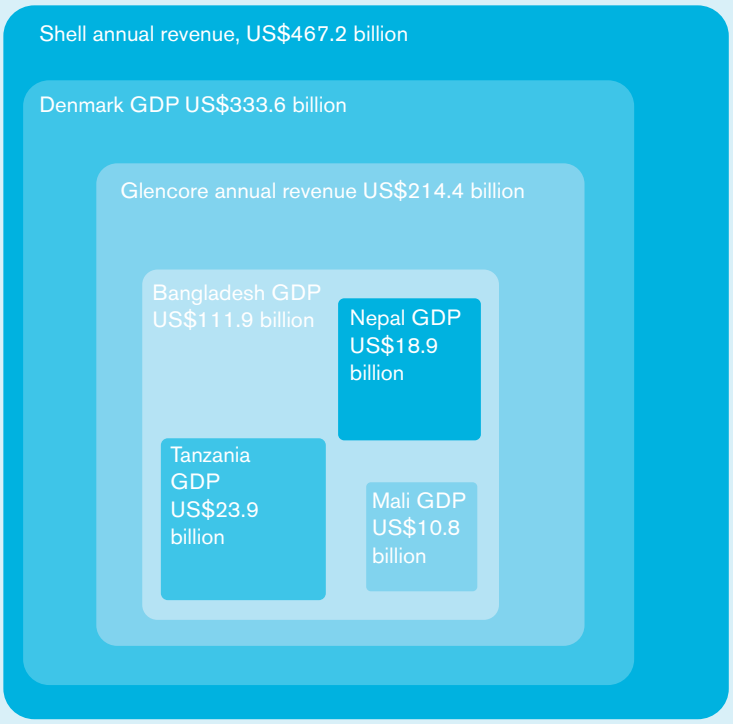


Figure 9. Multinational corporation revenues versus national GDP data. Sources: Royal Dutch Shell plc. 2012. *Annual Report: Building an energy future*; Glencore. 2012. Annual Report; World Bank. 2013. *World Development Indicators* (2011 figures, current US$)

Economic growth over the last 20 years has doubled real global GDP. Most successful country cases have been where a strong, active developmental state provides long-term leadership and infrastructural investment, taps global markets and gives state support, and designs innovative policies to address health, education and social protection. Traded goods and services now make up 60 per cent of world production, illustrating the very high level of interconnectedness between national economies, and the role of trade in balancing locations of demand with sources of supply. With 'rich' economies in long-term recession, and China's growth slowing, there will be knock-on impacts elsewhere. But in the period to 2030, natural resource-rich economies will likely see their fortunes rise, if they can negotiate and manage revenue flows effectively.

Investment flows and private finance already dwarf overseas development assistance (ODA) for many middle- and low-income countries. However, for LDCs, ODA remains a very significant component, at 40–60 per cent of government budget expenditure. While the UK has joined the 0.7 per cent donor club, many other OECD nations have been cutting back on aid, due to fiscal austerity measures, falling GDP and the politics of recession. The 'end of ODA' has been heralded by some observers with the consequent need for governments to build much better systems of tax and revenue in-country.

Corporate power continues to grow and Indian, Chinese and Brazilian companies have an increasing presence internationally. A recent study estimated the environmental and ecological externalities of the top 3,000 stock-exchange-listed companies as close to US$2.15 trillion and estimated that economic activity overall has undisclosed costs to society of US$6.6 trillion. The number of corporations with sales turnover exceeding US$25 billion (inflation-adjusted 2010 dollars) increased from fewer than 20 in 1970 to a staggering 320 in 2010.[20] Taking the top 20 public and private corporations by annual revenue, their combined receipts add up to about US$5.8 trillion, or 10 per cent of global GDP. Of these, 10 of the top 20 are in the oil and gas business, with combined turnover of US$3.4 trillion, followed by motor vehicles (US$662 billion) and commodities (US$483 billion). This illustrates the enormous power of the fossil fuel sector, relative to other corporate interests and helps explain why governments are slow to address our current addiction to oil and gas. If there was to be a significant global carbon price agreed, these oil and gas companies would be worth much less, and their reserves would take a big hit in value, as would the income and bonuses of senior management and returns to shareholders.

There is, on the other hand, a significant number of corporations concerned by the impacts of climate change and growing resource scarcity. Many commodity-dependent firms are reshaping their supply chains as scarcity bites to ensure more secure access to the resources on which their business depends. Firms in the finance business, re-insurance and

BOX 10. REMITTANCES TO NEPAL

Migration from Nepal is a significant issue. On the one hand, a major part of the productive labour force is outside the country, due to a lack of economic stimuli combined with the insecure political situation, leading to the feminisation of agriculture and labour drain. On the other hand, in 2010 remittances brought US$3.5 billion into the country, the equivalent of 22.9 per cent of GDP and one of the highest rates in the world. Remittances provide resources for economic growth that is not sufficiently recognised, although the World Bank warns of over-reliance on such a potentially volatile source of income.[21] The route from Nepal to India is one of the top LDC migration corridors — it is estimated that more than a million Nepalese work in India[22] — and it is Nepal's improved infrastructure that has made travel to India by road easier and cheaper, even for the very poorest.[23]

commodities are worried at the slow progress with climate negotiations and seek greater speed and certainty. However, their collective weight tends to be far less than that of the oil and gas giants who continue to dominate corporate listings.

The informal economy maintains a dominant position in many middle- and low-income countries, where it can account for half or more of economic activity and employment. Although there may be some disadvantages to operating in the informal economy, such as poor access to bank loans, there are also major benefits in a context where the state is more kleptocratic than developmental. There are a range of informal funding mechanisms, such as digital currency, local collective funds, and remittance income, which provide a means to bypass control by government and the big banks, getting money directly to grassroots bodies.

In this period of turbulence and uncertainty, conventional economic theory is being contested, and alternative models for economic growth are being sought. There is increasing recognition that natural resource constraints and scarcity must be built into economic theory and decision making, along with a partial return to Keynesian thinking. A range of alternative economic models are now being discussed including sustainable capitalism (Blood and Gore), prosperity without growth (Tim Jackson), alternatives to capitalism (Latin America), and green economy/growth versus inclusion (GGGI, IIED, GEC). A few economists now recognise that we must put a proper value on time and intergenerational concerns, without which sustainability will never be achieved.

Key challenges

The corporate sector remains unchecked by higher-level governance. The huge revenues and financial power of global corporations give them a disproportionate influence on politics and policymaking. There are a few chinks in their armour that would enable greater demands for accountability to have real bite, and disasters such as BP's Deepwater Horizon oil spill demonstrate the very high cost to the company of getting things badly and visibly wrong.

Tighter, enforceable regulation is key, and recent legislation in the US and UK seeks to enforce higher levels of corporate governance, including payment of tax. But while regulation abounds, effectiveness is often missing, and heavy lobbying by companies threatens to overturn new legal requirements. Mobilising the power of shareholders and investors could force some changes in corporate behaviour. With Western economies in recession, and a rising share of corporations now emerging from the BRIICS, new routes may be needed to address tighter corporate governance. The G8 meeting in 2013 aims to address tax avoidance by companies and individuals, as well as broader transparency. China is already demanding that large global corporate mergers take their national interest into account (such as Xstrata, which dominates the copper market, and Japan's Marubeni Corporation, which controls soy imports into China). Other tried and tested methods — to encourage change in large-company practice and consumer behaviour — include ensuring 'triple bottom line accounting' so that corporations are obliged to report on their social and environmental performance, alongside their financial profitability. Tighter controls on commercial advertising, limits on funding for political parties, control of lobby activities, and the abolition of fossil fuel subsidies would also help rein in company practices that benefit neither people nor planet.

We're not measuring the things that really count. Rethinking the metrics we use to track progress in development is a must. Traditional indicators such as GDP, that form the backbone of national income accounts, do not place any value on the depletion of natural resources or social capital. Alternative accounting methods, such as those used in the internationally agreed System of Environmental-Economic Accounts, are emerging but national accounts based on GDP still reign supreme. Indices that capture broader social progress include the UNDP's Human Development Index, the Gross National Happiness Index in Bhutan, the Sufficiency Economy in Thailand, and the Harmonious Society and Circular Economy in China. Countries need to invest in collecting new data and rolling out alternative metrics if growth in wellbeing is to be taken seriously.

Economists remain a powerful profession, yet their models are seriously faulty. Despite the biggest financial crash in 80 years, market-based solutions remain the standard response to most problems. Further work is needed to find economic models that build in environmental and social variables, address market failure, and which address absolute thresholds, rather than marginal changes in resource availability. The Washington consensus has not brought prosperity to many of the poorest countries, which are finding it difficult to grow. Over the last two decades, LDCs have had much less success than larger BRIICSs. Their often small size, dependence on China's demand for natural resources

and inability to grow a significant manufacturing sector have constrained their options.

Capital markets are powerful engines of growth and transformation but often drive investment in the wrong direction. Investment flows to where returns are most assured, as analysts assess a combination of prices and risks, in an uncertain setting. Environmental and social considerations are not built into decision making as they are unpriced. Thus, for example, analysis of capital markets shows that investors are assuming no significant price for carbon will be agreed in the near future. Coal, oil and gas reserves are being valued at expected market values, despite the fact that all the science demonstrates that burning these fossil fuels will generate levels of global warming that create very heavy, possibly catastrophic costs for human life. Analysts refer to fossil fuel companies as 'stranded assets' with the aim of getting investors to look hard at the long-term risks of putting their money behind them. It shows the vital importance of getting a significant and rising price for carbon to set an unambiguous direction for investment in low carbon development, which will then force a significant revaluation of carbon-intensive energy and other industries.

Capital investment flows are much larger than aid in most countries, whether it be corporate, infrastructure or speculative, and from official development banks, sovereign wealth funds, investment fund managers or state owned enterprises. These flows have the potential to transform many economies, but there is limited national government capacity to negotiate investment treaties, and contracts. Consequently, the asymmetry in power means that countries and corporations tend to set the terms of any deal with resource-rich LDCs. Rebalancing this asymmetry is critical if investment is to bring more sustainable patterns of development.

Questions

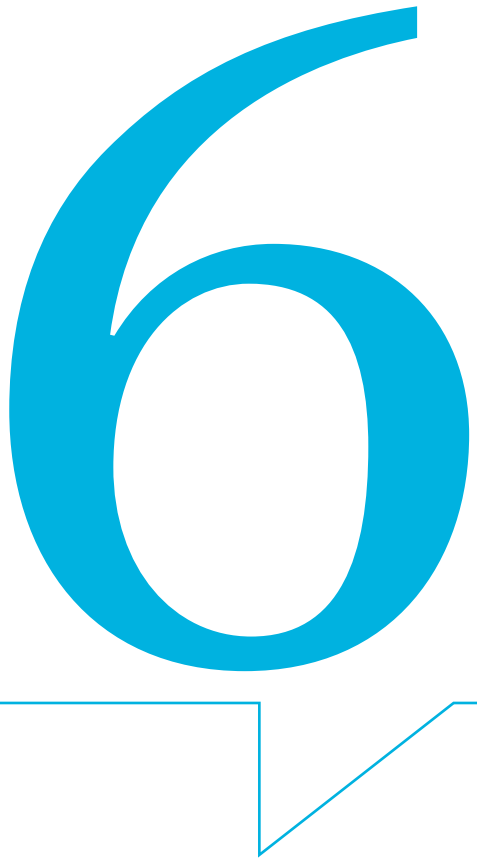
What are the best leverage points to bring corporate behaviour in line with social and environmental goals?

As we shift towards a post-ODA world, can aid budgets help achieve this transition by building the capacity of governments in-country to manage tax and revenue flows more effectively, and develop skills in negotiating investment flows?

What would it take to get a better set of metrics as benchmarks for national progress firmly entrenched and displacing GDP? Who needs to do what to make this happen?

Technology and innovation

Optimists see technology providing solutions to many of our big challenges. And certainly, recent events show how transformational new techniques can be. Equally, some of the major problems we face require a marriage of local knowledge with 'high-tech' science. We ask whose knowledge and priorities count in R&D investment, and who 'owns' research, so that all can benefit from technological advance.



Optimists see technology providing solutions to many of our big challenges. And certainly recent events show how transformational new techniques can be. Rapidly falling prices for solar energy are helping change the game on renewable energy costs, for example. Fracking technology has generated enormous amounts of cheap gas in the US, and will transform world energy markets and the geopolitics that underlie them. Information and communications technologies (ICTs) continue to evolve rapidly in unexpected ways. The number of mobile phones in Africa has grown forty-fold since 2000 from 16 million in 2000 to 650 million in 2012, a faster rate than either the EU or the US. IIED recognises the power of technical change to open up different ways of getting things done, bringing potential benefits for rich and poor alike.

But new technologies also have their drawbacks, as with fracking and the associated risks to groundwater pollution and subsidence, and they do not develop in a vacuum. Public policy helps guide development, by supporting investment in research and innovation platforms, engaging with the private sector to push this, and by setting clear prices to guide the direction of development so that it results in widespread benefits.

There are major areas where technical change would contribute to a fairer and more sustainable pattern of development. Equally, some of the major problems we face, such as in the sustainable intensification of agriculture, require a marriage of local knowledge of place with 'high tech' science. A range of innovations to support sustainable development are needed, which cover a combination of expertise: bio-physical, engineering, human psychology, economic and political, and information technology. The field of digital technologies is expanding rapidly, with much promise associated with social media used to establish global networks, share knowledge and ideas, demand accountability, and mobilise citizens for change. All technologies also have their dark side and digital communication is no exception: such tools can also be used for illicit activity, terrorist purposes and government surveillance. Media companies have obtained information through illegal hacking of phones and email, and modern society's reliance on computer systems makes many states vulnerable to inter-state cyber warfare. So although new digital technologies have the potential to empower citizens, they may also give rise to a serious erosion of privacy.

With technology, it is important to ask whose knowledge and priorities count in deciding where resources will be invested, and who controls research resources. In the field of food and agriculture, for example, there has been a big shift in spending in the North out of public and into private-sector research, so that most of the cutting edge science and its results are held under private ownership. By contrast, China, India and Brazil have invested further in public-sector agricultural research, seeing the value for their own economies in getting higher productivity and incomes from this sector.

Currently, private investment in research is rewarded by the intellectual property and patents system. Some would argue that too great a protection is assured, offering super-profits to investors. Others contest this view, and argue that insufficient investment is now coming forward to ensure a pipeline of new discoveries, especially in fields such as pharmaceuticals. In this case, the private-sector model does not seem to be generating sufficient research, and investment in new drugs has slowed down, making us ever more vulnerable to major diseases and the risk of antibiotic resistance.

BOX 11. BRIDGING THE 'IDENTITY GAP' IN INDIA

In a country of over 1.2 million, which is poised to become the world's most populous country by 2025, India is in the process of creating the largest biometric database in the world. It is at the forefront of a rapidly spreading trend in developing countries for the use of biometric identification in implementing social safety nets — a way to bridge the 'identity gap' that separates poor countries, where many citizens lack reliable official documentation, from rich ones.

Aiming to act as the basis for more efficient welfare services, the Universal Identification project (UID)[24] collects fingerprints, iris and face scans to create an official identity, then trains local operators to use small, cheap, 'point of sale' fingerprint scanners to enable the disbursement of grants. One fifth of Indians have been enrolled since the programme launched in 2010, and the target is 600 million by 2015.

The UID is partly motivated by large leakages in India's social programmes. Of the US$250 million to be spent between 2011 and 2016 by the government, it has been estimated that up to US$110 million would be lost to 'corruption and malpractice' and 'misdirection' . But there are also criticisms about the spread of biometric technology in developing countries, just as in the US and UK around surveillance and the potential for privacy violations, and concerns around the possibility that the technology will further exclude the poor and vulnerable. Error rates for fingerprints, for example, tend to be higher for low-income populations involved in heavy farming and other manual work.[25]

Key challenges

A set of potential 'game-changing' discoveries in fields vital for sustainability could transform accountability, energy, and food systems, examples of which are listed below:

Measurement and reporting

Accountability. The need for widespread tools and metrics to measure what's been promised and what's been delivered, and investigate and document behaviour of corporates, governments and individuals

What matters. Triple bottom line accountability; prices for many of the social and environmental goods and services that are currently under-valued; GDP figures that reflect changes in natural capital, and other assets, including human capital and changes in wellbeing

Opening up decisions to wider scrutiny and holding to account. Establishing people-focused arenas to review the choices made whether by government, corporations or NGOs; a combination of digital techniques and hands-on spaces; a global governance register of commitments made by governments and how they're doing

Identifying key leverage points for achieving change. An example might be the 'investment community' and the role of the Carbon Disclosure Project identifying key pinch-points in the supply chain of information where pressure can be applied.

Energy systems

Energy production. A need for low or zero carbon energy production and use, to replace our current addiction to fossil fuels.

Rapid growth of concentrated solar power (CSP). This is particularly suitable for deployment in tropical and subtropical regions and in deserts. One assessment reveals CSP could meet 13–15 per cent of global electricity demand by 2050.

Nuclear batteries. These could power desalination plants and ships, and provide energy to remote communities, especially in low-income countries that lack energy infrastructure.

In-stream hydrokinetic turbines. Turbines that are anchored to tidal flow or a river bottom, designed to reduce the undesirable environmental effects of conventional hydropower dams and reservoirs.

The food system

Food and agriculture. The need to produce more food and fibre, from the same land with fewer adverse impacts.

Transferring nitrogen-fixing ability to cereals. Genetically engineered crop plants able to absorb atmospheric nitrogen (as done naturally by legumes) could cut the use of synthetic fertilisers.

Agro-ecological methods to address pests and nutrient management. Extending use of natural predators for control of pests and diseases, and better management of soil, water and organic matter flows.

Vegetarian aquaculture feed to cut wasteful use of fishmeal, and replace with such as terrestrial animal by-products, waste matter from biofuels and brewing, and derivatives of bacteria, yeast, and microalgae.

Questions

In a time of pressure on public funds, how can we best ensure a sufficient volume of public investment in R&D is available to complement private flows?

How can public policy shape the direction and distribution of benefits?

What is the appropriate level of protection for intellectual property and have we got it right?

References

1. Rockström, J. *et al.* 2009. A safe operating space for humanity. *Nature* 461(7263) 472–475.

2. Wang, Qiang. 2013. China's citizens must act to save their environment. *Nature* 469(7448), 159

3. Payne, M. 2013. Climate change at the dinner table. *Nature* 497(7449), 320.

4. Marton-Lefèvre, J. 2010. Statement by IUCN Director General to the UN General Assembly. http://iucn.org/?6083

5. Buxton, A. 2012. *MMSD+10: Reflecting on a decade of mining and sustainable development*. IIED, London

6. Dixit, A. 2010. *Scoping Assessment on Climate Change Knowledge Platform in Nepal.* Regional Climate Change Adaptation Knowledge Platform for Asia, AIT-UNEP RRC.AP, Bangkok

7. CLACC and IIED. 2009. Climate *Change and the Urban Poor: Risk and Resilience in 15 of the World's Most Vulnerable Cities.* Capacity Strengthening in the Least Developed Countries for Adaptation to Climate Change (CLACC) and IIED, London

8. NPC/UNDP/UNEP. 2011. *Proceedings of Nepal country workshop on Environments of the Poor in the context of Climate Change and the Green Economy.* NPC/UNDP/UNEP, Kathmandu

9. Chambera, M. *et al.* 2011. *Costing agriculture's adaptation to climate change.* IIED, London

10. IEA. 2012. *Denmark 2011 review.* International Energy Agency, Paris

11. IEA. 2006. *United Kingdom 2006 review.* International Energy Agency, Paris

12. UKACE. 2013. Fact file: the cold man of Europe Association for the Conservation of Energy. UKACE, London

13. McGee, T. G. 2007. *China's urban space: Development under market socialism.* Routledge, London

14. Naughton, B. 2007. *The Chinese economy: Transitions and growth.* MIT Press, Cambridge, Massachussets.

15. Baiocchi, G. (ed). 2003. *Radicals in power: The Workers' Party (PT) and experiments in urban democracy in Brazil.* Zed Books, London

16. Fernandes, E. 2007. Implementing the urban reform agenda in Brazil. *Environment and Urbanization*. 19(1) 177–189

17. Santos Carvalho, C., Rossbach, A. 2010. *The city statute of Brazil: A commentary*. Brazil Ministry of Cities and Cities Alliance, Brazilia and Washington DC

18. UNDP. 2013. *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World.* United Nations Development Program, New York

19. Li, W., Gongbuzeren. 2013. *Pastoralism: the custodian of China's grasslands*. IIED, London

20. Sukhdev P. 2012. *Corporation 2020: Transforming Business For Tomorrow's World.* Island Press, Washington DC.

21. Muzzini, E. 2013. *Urban Growth and Spatial Transition in Nepal : An Initial Assessment.* World Bank, Washington DC

22. The Economist. 18 January 2012. Nepal and its neighbours. www.economist.com/blogs/banyan/2012/01/nepal-and-its-neighbours

23. The Guardian. 2012. Remittances are not the only reason. www.guardian.co.uk/global-development/poverty-matters/2012/jul/05/money-not-only-motivation-nepalese-migrants.

24. UIDAI. About UIDAI. Unique Identification Authority of India. http://uidai.gov.in/about-uidai.html

25. Gelb, A. Decker, C. 2011. *Cash at Your Fingertips: Biometric Technology for Transfers in Developing and Resource-Rich Countries.* Center for Global Development, Washington, DC

Statistics

OECD. 2012. *OECD environmental outlook to 2050.* OECD Publishing.

United Nations. 2011. *World population prospects: The 2010 revision.* UN, New York

United Nations. 2012. *World urbanization prospects: The 2011 revision.* UN, New York

World Bank. 2013. *World development indicators.*

World Bank. 2011. *Migration and remittances factbook 2011.*

Further reading

UNDP. 2013. *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World.* United Nations Development Program, New York

OECD. 2012. *OECD Environmental Outlook to 2050.* OECD Publishing.

Smith School of Enterprise and Environment, University of Oxford. 2012. *ReSource 2050*

US National Intelligence Council. 2012. *Global Trends 2030: Alternative Worlds.* US NIC, Washington DC

Lee, B. *et al*. 2012. *Resources Futures: A Chatham House Report.* Chatham House, London

World Bank. 2012. *China 2030: Building a Modern.* Harmonious, and Creative High-Income Society

World Economic Forum. 2013. *Global Risks 2013*. Eighth Edition. Geneva

World Business Council for Sustainable Development. 2010. *Vision 2050: The new agenda for business.*

International Energy Agency. 2012. *World Energy Outlook 2012.* IEA Publications, Paris

Ibrahim Forum. 2012. *African Youth: Fulfilling the Potential.* Mo Ibrahim Foundation, London.

Atkins, UK Department for International Devlopment, University College London. 2012. *Future Proofing Cities*. Atkins Ltd, Epsom

This paper provides an overview of six global trends and drivers of change to which IIED will need to respond in some way in our next five year strategy. The paper is intended as a background to discussions around formulating this strategy, and highlights the continuing relevance of sustainable development as a framework for addressing some fundamental challenges to 'business as usual'. We draw on a range of global scenarios to illustrate likely trends, with 2030 and 2050 usually taken as milestones by which to measure change. We also look at a selection of countries we know well, to show how these trends play out at national and local levels, and to explore the range of practical responses being pursued on the ground. We invite your responses to the questions at the end of each section and any comments on the paper itself. We look forward to hearing from you. Please write to: strategy@iied.org.

iied

International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org
www.iied.org

Knowledge Products