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Foresight in International Development

Editors **James Sumberg and Gioel Gioacchino**

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Alun Rhydderch is Director of Horizon Scanning Ltd and Co-Founder of the School of International Futures (SOIF), which promotes the use of foresight by international governments, NGOs and businesses through retreats, courses and advisory work. He previously worked at the UK government's Horizon Scanning Centre, leading projects such as International Futures, Future of World Trade, and Technology and Innovation Futures. He edited the report *Dimensions of Uncertainty, Drafted Scenario Planning – A Guidance Note* and commissioned and edited the Sigma Scan, an online horizon scan of future public policy issues. Alun holds an MA in Modern and Medieval Languages from Cambridge University.

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James Sumberg has been a Research Fellow at IDS since 2009 and leads the Rural Futures research cluster. His current research interests include rural young people and employment in Africa, agriculture and rural development policy, and the development implications of ongoing changes to the field of agronomic research. Previously he worked at The New Economics Foundation, the University of East Anglia, WARDA – the Africa Rice Centre, the International Livestock Centre for Africa, CARE International and the Gambian Livestock Department.

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Report for the Standing Committee for Agricultural Research (SCAR) of the EU's Directorate General (DG) Research: *Sustainable Food Consumption and Production in a Resources Constrained World*. Sébastien is Vice-President of the Scientific Council of the Seine Normandy river basin, and chairs the Scientific and Technical Committee of the French facility for the global environment (FFEM).

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Introduction: Foresight in International Development

Gioel Gioacchino and James Sumberg

Abstract This article introduces this special issue of the *IDS Bulletin* on Foresight in International Development. It argues that foresight should be at the centre of development studies, and suggests two reasons why this is not the case. The four-year Institute of Development Studies research stream on foresight in policy-oriented research is introduced, as are the articles that make up this issue of the *IDS Bulletin*.

Keywords: futures, participation, methods.

1 Introduction

Foresight encompasses a wide range of methods and approaches that help individuals and groups to think about and prepare for different possible futures. Systematic approaches to foresight originated in the private sector, where the interest was in developing strategy, understanding implications of present and future trends and events, facilitating better decision-making and improving risk management (Conway 2008). Governments and public sector bodies subsequently embraced foresight with similar objectives.

Looking to the future is – or certainly should be – at the core of development studies. While the benefit of 'looking back to look forward' is well recognised, foresight is more akin to 'looking forward to look forward'. It is striking that foresight approaches and methods do not figure prominently in policy-oriented development research (Bingley 2014). Why might this be so? We suggest two possible explanations. First, most social science disciplines are more comfortable with the analysis of the past and the present than the future. Second, the model of the large, well-funded public sector foresight programme simply does not reflect the realities of much policy-oriented development research.

A principle concern of this *IDS Bulletin* is whether foresight approaches and methods can be usefully integrated into small-scale, exploratory research of relevance to the international development community.

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Source Authors' own.

2 Low-budget foresight

Between 2012 and 2016, with support from the UK Department for International Development (DFID), researchers at the Institute of Development Studies (IDS) and their partners undertook a number of small-scale, policy-oriented projects using foresight approaches and methods. Most of these projects were completed for around £50,000 each – a far cry from the multi-million pound budgets associated with many public sector foresight activities. Topics were identified through a competitive process, and were meant to address new and emergent trends and policy issues that have the potential to impact significantly on development processes and outcomes. The project teams benefited from some limited input by a foresight specialist (Alun Rhydderch), and the expectation was that the projects would be completed within 12 months. Each project resulted in a published report and policy brief.

The topics addressed by these studies included: the rise of non-communicable disease; the meaning of resilience in rapidly urbanising contexts; drivers of investment in alternative energy; urban waste; the potential of insects as food; big data as a development resource; implications of knowledge sharing for development; the future of social protection; and security provision in the cities of tomorrow. Table 1 provides a listing of the published outputs from this stream of work.

In October 2015 a one-day conference on 'Foresight and International Development' was held at IDS (Gioacchino 2016). The conference brought together 30 academics, development practitioners and foresight experts to explore a number of questions including: What is foresight in the context of international development? What kind of foresight is useful? Should the use of foresight be more widely promoted in international development? The presentation and discussion highlighted some challenges associated with small-scale foresight studies.

3 This *IDS Bulletin*

This issue of the *IDS Bulletin* focuses on the role of foresight in policy-oriented international development research. It draws directly on the work and the conference described above and seeks to draw attention to the opportunities and challenges associated with a range of foresight approaches and methods.

Kate Bingley (this *IDS Bulletin*) and Alun Rhydderch (this *IDS Bulletin*) set the stage by introducing the field of foresight, reviewing its use in international development, highlighting some potential limitations of the dominant foresight model in developing country contexts, and identifying key aspects of alternative models. Both authors argue that widening participation and engagement in foresight beyond experts and policymakers is of critical importance.

Marie de Lattre-Gasquet and Sébastien Treyer (this *IDS Bulletin*) compare and contrast the Agrimonde and Agrimonde-Terra foresight studies undertaken by the French Agricultural Research Centre for International

Development (CIRAD) and the National Institute for Agricultural Research (INRA). Focused on food security and land use respectively, these studies were relatively long term and well resourced, and in these respects they reflected some well-established approaches to public sector foresight. Three key lessons emerge from the comparison. First, the design of foresight processes and the selection of methods depend on the objectives and desired changes. Second, foresight exercises take place on a sea of expectations, which can lead to both creativity but also to vulnerability, and which must certainly be managed. Finally, much more attention must be devoted to understanding the strategies of different actors, and the power relations amongst actors.

Robin Bourgeois (this *IDS Bulletin*) also takes a futures perspective on food security, but in this case through an analysis of briefs produced by the authors of 38 recent foresight studies. From this analysis Bourgeois argues that policy, cultural values and individual and collective behaviours have the potential to disrupt patterns of food insecurity observed today. Shifts in framing – food security to food insecurity, and from technology to people, institutions and society – and more attention to local specificities will allow foresight studies to be more relevant to the transformative agenda that is integral to the Sustainable Development Goals.

Three articles draw on the IDS experience with low-budget foresight studies. Ashish Chaturvedi and Jai Kumar Gaurav (this *IDS Bulletin*) describe the use of an analytical framework that combines foresight and political economy methods to explore the future of urban waste management in India. They argue that this process has opened up deliberations beyond the usual expert committees, and has the potential to help open up and democratise the policymaking process of waste management in India, particularly through the inclusion of the informal sector. Stephen Devereux, Keetie Roelen and Martina Ulrichs (this *IDS Bulletin*) use a foresight approach to explore the possible futures for social protection following its rapid ascendency up the development agenda. A 'wind-tunnelling' exercise highlights the importance of a country's political regime as a fundamental determinant of its approach to social protection policy. They conclude that a better understanding of political processes is needed to protect the gains made in social protection systems against possible reversals when the political climate shifts against pro-poor redistributive policies. Jaideep Gupte and Stephen Commins (this *IDS Bulletin*) ask 'How will security in cities be understood in the future'? Working with a number of foresight tools including the social, technological, economic, environmental and political (STEEP) framework their process developed two contrasting scenarios: 'coastal collapse' and 'post-capital commons'. A particularly important conclusion is that misconceived urban planning, policy and design are likely to create insecurity, not reduce it. In this sense there is a critical gap in the understanding of the lessons that the safest cities can provide in terms of systems thinking.

Finally, on a methodological note, Dominic Glover, Kevin Hernandez and Alun Rhydderch (this *IDS Bulletin*) describe how they adapted existing foresight scenario methods to investigate possible trade-offs, tensions and synergies amongst the international development goals of reducing inequalities, accelerating sustainability, and building secure and inclusive societies. They find that the trilemma triangle is particularly successful in forcing participants to confront the possibility of trade-offs and tensions, and as such helps expose some of the difficulties and challenges which might be faced in international development in the coming decades.

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Foresight and International Development*

Kate Bingley

Abstract This article provides an overview of the use of foresight-type approaches and techniques in policy-related work in international development. It draws primarily on published and grey literatures, as well as select interviews with foresight practitioners. It begins with a brief introduction to the approaches and tools used in the field of strategic foresight, and then a broad mapping of the foresight landscape as relevant to international development. It provides reflections on the evidence of use and impact of foresight initiatives, and makes suggestions around future directions for foresight in international development.

Keywords: Development, evaluation, foresight, futures, international, scenarios.

1 Introduction

In general terms, foresight is about understanding the future systematically, usually considering a horizon of at least ten years into the future (Kuosa 2011: 9). Slaughter (1995: 48, in Kuosa 2011) defines foresight as a process that attempts to broaden the boundaries of perception in four ways: by assessing the implications of present actions and decisions; by detecting and avoiding problems before they occur; by considering the present implications of possible future events; and by envisioning aspects of desired futures.

Numerous foresight techniques are available for different, specific purposes (EEA 2011b: 16). One principal distinction is made between quantitative studies that rely heavily on modelling methods, and are commonly used in fields of study such as macroeconomics, energy and climate change; and qualitative approaches, which provide a narrative description of futures issues, paths and uncertainties, and that have been applied in many sectors ranging from technology foresight to environment and politics (EEA 2011a: 9). Each approach has its advantages and limitations, and in practice, quantitative modelling and qualitative methods are increasingly used in combination.

Another principal distinction is made between horizon-scanning (or environment-scanning) approaches, which may involve scanning various

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sources (including non-traditional literature such as newspapers and blogs) for information on emerging trends; model-based projections that can provide an understanding of causal relationships; and broader scenario-planning approaches. In their course on foresight, Loveridge, Keenan and Saritas (2010) foreground methods such as Delphi (a large-scale survey tool) and technology roadmapping, in addition to scenarios and horizon-scanning approaches.

Valuable sources of information on specific foresight techniques and tools include the UK Horizon Scanning Programme Team's Futures Toolkit (Cabinet Office and Government Office for Science 2014), and the Futures Research Methodology compendium produced by the Millennium Project,[1] the latest edition comprising 39 chapters with detailed information on a wide range of foresight methods (Glenn and Gordon n.d.). Both sources detail techniques and tools most commonly associated with the general field of foresight. Loveridge and Cox (2013) produced a guide entitled *Innovation for Development: Knowledge and Research Application to Address International Development Goals: A Toolkit,* intended for use by planners, policymakers, decision-makers and other relevant bodies in government, non-governmental organisations (NGOs) and the private sector. The notion of 'toolkit' is slightly misleading, as the publication does not focus on methods or tools; however, it recognises technology and innovation as a major force on human development and vice versa, and does provide readers with a good introduction to technology foresight more broadly.

Foresight methods are evolving, and being adapted to different contexts. The Millennium Project has developed various tools, including the Real-Time Delphi and the State of the Future Index (SOFI). The SOFI is a quantitative time series that indicates the changing state of the future and shows whether conditions promise to get better or worse. The Millennium Project regularly publishes global and regional studies such as the *2013–14 State of the Future*, a global report based on the SOFI (Glenn, Gordon and Florescu 2014). National-level *State of the Future* reports have also been produced, but the SOFI is currently only applied in a selection of developed countries.

One aspect of foresight which has particular relevance to international development is the nature of stakeholder participation in the foresight process. In their catalogue of environmental scenarios, the European Environment Agency (EEA 2011a) makes a useful distinction between initiatives that are analytic (defined as desk-based research and analysis by an individual or a group) and those that are participative. In the broader literature, the rationale for participatory processes varies widely, and is often implicit rather than explicit. Many government foresight units recognise the importance of involving key policy stakeholders in the foresight initiative from the start, in order to inform the process and findings, and to secure buy-in and enhance the likelihood of the findings ultimately informing decision-making; this mirrors practice in research uptake more broadly. Havas, Schartinger and Weber (2010) describe

some of the process benefits associated with developing context-specific scenarios. However, in describing processes as 'participative', documentation of foresight initiatives often fails to distinguish between expert participation and ordinary citizen participation; which likely reflects implicit assumptions regarding how policy change is achieved, and also regarding whose voices count in the policymaking process. A separate strand of the foresight literature does, however, focus on the opportunities for anticipatory democracy (see, for example, Bezold 2010), and how ways that futures thinking can 'reflect the needs of the vast majority of people, rather than the interests of the few' (Ramos, Mansfield and Priday 2012: 86).

Having outlined some of the main approaches to strategic foresight, the remainder of this article deals with foresight in the context of international development. Section 2 presents a broad mapping of the foresight landscape, as relevant to international development. In Section 3, the author shares examples of scenario processes used in a variety of international development contexts. The author then reflects on the evidence of use and impact of foresight initiatives in Section 4, before concluding and suggesting future directions for foresight in international development in Section 5.

2 Mapping the foresight landscape

2.1 Global overview

Foresight initiatives have been undertaken around the world by a wide range of international development actors including international intergovernmental organisations (multilateral agencies), governments in the global North (or bilateral agencies), philanthropic foundations, as well as academia (universities, research institutes, policy thinktanks) and NGOs/civil society organisations (CSOs) in the North and South. Examples can be found at the national, regional or global level in sectors such as health, agriculture and food, governance, conflict and security, climate change and the environment, technology and innovation. However, documentation of foresight initiatives undertaken in least developed countries is relatively sparse. The level of resources invested in foresight initiatives varies enormously, from a modest local exercise conducted involving a few staff members at minimal cost, to a large-scale international project costing US$24 million (the total cost of the Millennium Ecosystem Assessment in 2005) at the upper end of the scale.

There are varying degrees of foresight activity in different regions. In Latin America and the Caribbean, the United Nations Industrial Development Organization (UNIDO) has played a pivotal role in the development of a foresight culture (Popper and Medina 2008: 259). UNIDO's Technology Foresight Programme for Latin America and the Caribbean (TFLAC) was launched in 1999; this led Argentina, Brazil, Colombia, Mexico, Uruguay and Venezuela to initiate preparatory activities for setting up national programmes, but only some of these countries managed to institutionalise a technology foresight programme (*ibid.*). According to the most recent mapping exercise undertaken by the

European Foresight Monitoring Network (EFMN), foresight initiatives in Latin America tend to be national in scope and feed into national policymaking processes, but they are more often sponsored by non-state actors such as international organisations or NGOs than by their own government (EFMN 2009: 36).

Africa is excluded from the data altogether; the authors acknowledge that Africa remains under-represented in the report, and attribute this in part to the fact that foresight is commonly understood as technology foresight, and 'Africa's roles in technological innovation remain rather limited (and perhaps in some respects invisible)', and that work undertaken by forecasters, modellers or scenario-builders in other topics unrelated to technology are not properly represented (*ibid*.: Foreword). In the same vein, the Global Foresight Outlook 2007 data indicates that only 11 of 846 initiatives mapped globally are African. In comparing foresight 'style' in six world regions, Keenan and Popper (2008: 34) note that 'the data for Oceania and Africa have been deemed inadequate for inclusion in our analyses'.

2.2 International institutional programmes

The OECD[2] Secretariat and the EU European Commission created dedicated futures research units in the late 1980s, and the United Nations Development Programme (UNDP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) followed suit in the early 1990s (Sagasti 2004). The OECD's International Futures Programme promotes forums, projects and networks (OECD 2010). The primary policy focus of recent studies has been on OECD member countries, although one study of the 'bioeconomy to 2030' explicitly states the relevance of its findings to developing countries (OECD 2009). The Sahel and West Africa Club (SWAC), a member of the OECD Development Cluster, is a group of West African regional organisations, countries and international organisations that exchange experiences and perspectives to help build more effective regional policies. The SWAC Secretariat plays a role in foresight by providing independent and forward-looking analysis which aims to enrich the debate and better inform decision-makers about future challenges.

In 1992, UNDP set up the African Futures project to support African countries to undertake forward-looking studies and develop a long-term vision of their development. Between 1992 and 1995, African Futures provided technical support to the planning and implementation of 25 national studies that reflected on visions and alternative strategies for the future; one example of such a process is Burundi Vision 2025. Publications of the African Futures project include a set of four scenarios for Africa in the year 2025 (Sall and Mbeki 2003). In early 2004, UNDP established the African Futures Institute (AFI) in order to harness the gains made under the African Futures project, and to sustain futures analysis in the region. Registered in South Africa, the AFI positions itself as a pan-African organisation, with a vision to facilitate Africa's formulation of its own path to development, developing its own methods and approaches.

UNESCO's Foresight Programme is located in its Bureau of Strategic Planning, and it convenes a futures forum, as well as organising lectures and seminars. The stated purpose of the programme is to sensitise members of the global UNESCO Secretariat as well as member states to future trends in education, the natural sciences, the social and human sciences, culture and information and communication, and to support member states in developing their own capacities and approaches in the field of foresight. In May 2014, a three-day forum was organised by UNESCO's Imagining Africa's Futures project, in collaboration with the University of the Witwatersrand, Johannesburg, and the Southern African Node of the Millennium Project. This symposium, 'All Africa Futures Forum: Transforming Africa's Future', brought together African futures thinkers and practitioners with the aim of exploring 'how the "discipline of anticipation" has been shaped and applied in Africa and how it can be deliberately leveraged towards transforming Africa's future onto more positive trajectories.'[3] One of the stated objectives was to enable the establishment of an African Network of Foresight Practitioners.

Hilbert, Miles and Othmer (2009) describe an initiative supported by the UN that they believe to be the 'most extensive online participatory policy-making foresight exercise in the history of intergovernmental processes in the developing world to date'. The process comprised a five-round Delphi exercise and secured 1,454 contributions, which were then fed into intergovernmental decision-making as part of the Regional Action Plan for the Information Society in Latin America and the Caribbean (eLAC2010). The authors highlight the governments' acknowledgement of the value of *collective intelligence* from civil society, academic and private sector participants of the Delphi and the ensuing appreciation of participative policymaking. On the basis of the eLAC experience, Hilbert *et al.* (*ibid*.) advocate the potential of online foresight tools to facilitate participation in resource-scarce developing countries. UN agencies have sponsored many high-profile foresight exercises to explore concerns and problems that transcend national boundaries. These include the Millennium Ecosystem Assessment (2005), Global Environment Outlook (UNEP 2012), the Global Energy Assessment 2012 (GEA 2012), and the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

2.3 The UK Foresight Programme

The UK Foresight Programme was established in 1994 to embed a futures approach in strategic policymaking in government. It is considered a relatively mature programme in the European context, together with Sweden and the Netherlands (EEA 2011b). Studies are essentially expert-led, reflecting the 'less egalitarian/participative tradition to policy making' observed in the institutional arrangements of the UK compared to Finland, Sweden and the Netherlands (EEA 2011b: 49). There is, however, broader engagement with stakeholders, and especially decision-makers, from an early stage in the process in order to secure their buy-in and to facilitate effective uptake of

Table 1 Projects of the UK Foresight Programme with relevance to international development

Project	Collaboration	Papers commissioned
Reducing Risks of Future Disasters (2010–12)	Expert group involved representatives from NGOs, academia and the private sector	14 papers
Global Food and Farming Futures (2009–11)	Politically co-sponsored by DFID and DEFRA Follow-up actions[4] identified for UN, OECD, Oxfam, Gates Foundation and World Economic Forum	>100 evidence papers
Migration and Global Environmental Change (2009–11)	Partners included UNHCR, UNICEF and DFID Involved 350 experts and stakeholders, across 30 countries. Workshops in Ghana and India	70 papers and other reviews
Detection and Identification of Infectious Diseases in UK and Africa (2004–6)	Collaboration with African Union Process involved >300 leading experts and stakeholders from nearly 30 countries (including 20 African countries), as well as many international organisations	>60 science reviews, papers and case studies

Source Author's own.

the findings. Table 1 outlines the main projects of the UK Foresight Programme that intersect with international development.

Against the backdrop of these large-scale studies, the UK's Foresight Horizon Scanning Centre (HSC) was created in 2005 to tackle narrow policy questions often at the request of a particular department. Horizon scanning occurs in a wide range of UK government departments, including DFID. Horizon scanning, deemed 'the foundation of foresight' by Loveridge *et al.* (2010), has a distinctive role to play in the realm of international development, notably to support identification of key issues and challenges of the future, as in the case of a scanning exercise commissioned by the UK Collaborative on Development Sciences (UKCDS) on behalf of DFID in 2010, based on interviews with leading international development thinkers (see Rhydderch 2010).

2.4 The Rockefeller Foundation

The Rockefeller Foundation has established the Searchlight function, a programme of horizon scanning with a view to informing philanthropic decision-making. The foundation works with 12 partners which conduct regular regionally-focused scans across Asia, Africa and the Americas. According to Juech and Michelson (2012), the development and philanthropic sectors have generally been slow to adopt foresight

practices, lagging behind businesses and government, and the Searchlight function represents the first systematic trend monitoring effort in the philanthropic and broader social sector. The Searchlight function 'demonstrates how the practice of anticipating and tracking trends and envisioning different alternatives for how global issues might evolve can be harnessed to shape the future of human development and to improve the lives of poor and vulnerable populations' (*ibid.*: 439). One of the organisations collaborating with the Rockefeller Foundation is the Institute for Alternative Futures (IAF). In 2009, the IAF convened a workshop of leading foresight experts in Bellagio. The workshop report (Bezold *et al.* 2009) highlights the rationale and practice of *pro-poor foresight* – a term coined to mean foresight as applied for the purposes of human development – in accelerating and enhancing 'smart globalisation' and in gaining a better understanding of foresight in relation to a set of key issues that are relevant to the global South.

The Institute for the Future (IFTF) played a major role in Rockefeller's Catalysts for Change project, which was based on the premise that collaboration on a global scale can yield unique insights into ways to create a more prosperous, equitable future. The project sought to augment the diverse horizon-scanning exercises concerning poverty and social change by integrating bottom-up, crowd-sourced ideas for innovation, using a proper visualisation tool as a common language and framework (Vian *et al.* 2012: 451). To this end, a three-day global collaborative foresight game was convened which engaged with 1,600-plus people in more than 79 countries. In describing this exercise Vian *et al.* (2012: 466) observed, 'Foresight and forecasting practices have their modern roots in elite institutions that often look at the future "from the outside in". But in a world of high connectivity and increasing transparency of information, the capacity for participatory foresight practices "from within" has already changed the landscape of analysis and guidance of our complex global systems.'

3 Scenarios

Scenarios offer examples of possible futures, which are then used to explore how the world would change if certain trends were to strengthen or diminish, or various events were to occur. These scenarios can be used to review or test a range of plans and policy options; to stimulate the development of new policies, or as the basis for a strategic vision; and as a means of identifying 'early warning' indicators that signal a shift towards a certain kind of future. The Foresight HSC (2009) states that scenario planning is for medium- to long-term strategic analysis and planning; it describes scenarios as *narratives* set in the future.

Wright, Cairns and Bradfield (2013: 561) suggest that scenario techniques and methods range from quantitative modelling approaches to qualitative narrative methods, and mixed methods that encapsulate both. For example, the Institute for Security Studies (ISS) uses the International Futures (IFs) forecasting system to generate quantitative scenarios such as those presented in African Futures 2050 (Cilliers,

Hughes and Moyer 2011). A range of quantitative, qualitative and mixed method scenarios can be found among those generated by global foresight exercises and international assessments and those documented in the EEA's catalogue of scenarios in the environmental field (EEA 2011a).

Gordon (2011) classifies scenarios as either adaptive or normative. Adaptive (or future-aligning) scenarios are developed by organisations and institutions in order to ensure they are fit for purpose; this includes the use of scenarios as part of organisational strategic planning exercises, as well as country or regional-level long-term development planning and visioning. By contrast, normative (future-influencing) scenarios, also known as visionary scenarios, are used to influence and shape the future. There are a significant number of scenario sets in the public domain that relate to policy questions relevant to international development; however, their usefulness can be limited because of insufficient background information. The examples discussed below make use of narratives, developed as part of foresight initiatives conducted on a more modest scale, as compared to the large foresight studies associated with intergovernmental organisations.

3.1 Adaptive scenarios

There are examples of adaptive scenario use in bilateral agencies such as DFID as well as international non-governmental organisations (INGOs). According to Foresight HSC's Scenario Planning Guidance Note (2009: 5), 'DFID, the FCO [Foreign & Commonwealth Office] and the cross-departmental Stabilisation Unit have undertaken country and region-focused scenario planning to inform strategy and programmes, and to improve coordination.' Neil MacDonald facilitated scenario processes for DFID in Sudan, Iraq and Kosovo between 2002 and 2007 (interview, 7 April 2014). The Sudan scenario-building exercise was a collaboration between DFID, the FCO and the Ministry of Defence (MoD). It was well resourced, and it comprised a research phase, involving three or four researchers, as well as three days in Khartoum. The Iraq scenarios of 2007 were 'more typical' in resourcing terms; there was a research phase, and a workshop convened with UK government/DFID staff based in London. The Kosovo scenarios were done hurriedly and on a much smaller scale, with very little research input (*ibid.*). Scenarios have also been used by DFID Yemen and DFID Nepal to develop contingency plans (Foresight HSC 2009: 14–18).

DFID's 2008 draft guidance on country and regional planning states that scenario planning should be included as part of the Country Assistance Planning (CAP) process (DFID 2008). There is no evidence available on the extent to which these guidelines have been followed in practice. However, Foresight HSC (2009) provides two case study examples demonstrating ways in which scenario planning has been used for planning by DFID. The first example is DFID Bangladesh, which developed scenarios to 2020 to inform their new CAP. The two-month process was facilitated by external consultants; data were collected and analysed from

internal and external sources, interviews were conducted with external experts on Bangladesh (but no internal experts), and a two-day workshop was held. The second example is DFID Nicaragua, which led a scenario-planning exercise as part of their exit strategy, as a way to help the wider international donor community examine their policy engagement in the country. The three-month exercise involved international donors, representatives of NGOs and civil society, the private sector and academia. Nicaraguan experts were involved in the analysis.

There are other examples of scenario sets that have been commissioned by DFID, presumably to inform thematic priority-setting, such as Ballantyne, Curry and Sumner (2011) on the impacts of the financial crisis, and Pickens, Porteous and Rotman (2009) on scenarios for branchless banking. However, limited information is available on how these were conducted. The Outsights (2004) project presents scenarios for the very poorest from 2030: research papers were commissioned; 30 interviews were conducted with stakeholders from government, multilateral agencies, business, NGOs, the media and academia; and workshops were held.

MacDonald (2004) outlines CARE International's experience using scenarios in Sudan to clarify roles and objectives. With CARE International UK, a three-day workshop was facilitated, which included people from other NGOs, government and the media; journalists were included for their 'ability to grasp the bigger picture'. Scenarios were developed to 2023, against which they then assessed their strategic options. MacDonald notes also that planning has to shift from linear thinking to a creative and flexible response that is able to anticipate change early and respond. He concludes that whereas scenario analysis has been widely used by the private sector since the 1970s, the 'use of scenarios in development NGOs is still in its infancy and there is much still to learn' (2004: 119). Ramalingam (2012) argues that development and humanitarian agencies need to be agile in their response, and that this fits closely with the resilience agenda.

Literature on the application of foresight in the humanitarian sector is surprisingly scarce. *Humanitarian Horizons: A Practitioners' Guide to the Future* (Humanitarian Futures Programme 2009) presents trends and projections based on reports by leading thinkers in the areas of climate change, globalisation, demographics and changes in the humanitarian system. The authors advocate the need for humanitarian agencies to be forward-thinking and to manage risk more proactively, rather than being risk averse.

Many African countries have national planning commissions, and have used scenario building as part of processes to develop long-term strategies; examples include South Africa's Vision 2025, Kenya Vision 2030 and Namibia's Vision 2030. These initiatives reflect the broad consensus in Africa in the early 1990s that African nations needed to set their own agendas and anchor them in long-term visions driven

by African interests and demands (Martin-Breen 2014). According to Professor Alioune Sall, Director of the AFI, they have been keen to ensure that foresight exercises are conducted as much as possible in a participatory manner, in order to facilitate citizen participation in reflecting on and answering core questions such as: 'Where do we want to get to as nations?' (Ibrahim 2013). He goes on to say that 'Where our calls [for support] have been heeded, countries have been able to avoid the pitfalls of foresight exercises turning out to be another closed exercise led by technocrats talking to other technocrats; they have seized these as an opportunity to open and sustain a conversation on the past, the present and the future of the nation.' Arguably, this kind of scenario exercise starts to converge with the normative or visionary type described below.

3.2 Normative scenarios

Andreescu *et al.* (2013) suggest that normative foresight exercises result in scenarios in which there is a greater concern with the basic values, and procedural arrangements governing the future world depicted in the scenario. This is highly relevant in the example of scenario processes in East Africa facilitated by the Society for International Development (SID). SID was instrumental in initiating processes for the development of national scenarios in Kenya, Tanzania and Uganda, and also at the regional level, but the processes were designed to maximise ownership at local and national level. Heinzen (2004a) labels these scenarios as public interest scenarios, concerned with developing skills and opportunities for public dialogue, facing uncertainty through collaborative learning processes, and developing capacity for political agreement. According to Harcourt and Muliro (2004: 2), 'SID's own interest in exploring scenario exercises in Eastern Africa in the mid-1990s was driven largely by the fact that far-reaching structural adjustments were being undertaken in various countries with seemingly scant concern for long-term impacts and the choices that some of these adjustments would inevitably foster. The absence of broad-based dialogue on these key issues was one indicator (…)'. The South African scenarios (such as the renowned Mont Fleur scenarios – see Kahane (1992) and Gillespie (2004)) also provided inspiration (Muliro, interview 7 April 2014). Whilst the special issue of the journal *Development* (Heinzen 2004b) does not provide a detailed overview of the specific tools used as part of the scenario-building exercises, the articles do provide information on aspects of the process, and especially the public engagement dimension. The East Africa scenarios were not the first in the region, but their innovation was the active involvement of a wide cross-section of interests and stakeholders, through an ambitious public dissemination component.

The Kenya scenarios were a conscious attempt at participative policymaking, in an effort to provide an alternative to undemocratic governance. The exercise conducted from 1998–2000 comprised a research component, with a small grant from the British Council; five workshops convened every four to eight weeks; and an extensive

dissemination process. SID partnered with the Kenyan policy thinktank Institute of Economic Affairs (IEA) to support organisation of the events held in Kenya. The United States Agency for International Development (USAID) was the main donor of the process, with a grant of US$200,000 to SID. The one-year dissemination process, which focused on use of the scenarios to catalyse dialogue, comprised two phases (Maina and Sivi 2004): the first targeted opinion leaders in the public sector, private sector and civil society; the second phase targeted the general public. The second phase was carried out through partnering with credible and respected community organisations; core roadshow activities included a series of participatory theatre workshops and presentations, as well as distribution of a research compendium (with the broad facts, data and arguments behind the scenarios, and what was driving the trends) and a 48-page booklet which laid out the four scenarios in story form. The scenarios were met with enthusiasm: 'People wanted to listen, wanted to share their stories. Only in one place they were chased away by agents of the state. In other places they were sent to break up the meeting but ended up staying' (Muliro, interview 7 April 2014).

4 Impact

Until recently there have been remarkably few evaluations of futures and foresight work (Slaughter 2009: 16; EEA 2011a; Havas *et al.* 2010: 97), and there is scant literature on appropriate evaluation frameworks. There is a general reliance on self-evaluation; and government foresight activities have generally been evaluated by the agencies responsible for commissioning the studies, or foresight practitioners (Milojević 2013).

The foresight literature provides plenty of examples of the challenges of embedding foresight studies in policy decision-making. Sagasti (2004: 1) notes the oft-observed challenge of linking 'future-oriented exercises to the messiness and immediacy of political events and decision-making', and in this respect foresight shares many common challenges with research more generally. It is difficult for policymakers to make the time; policymakers may not own the process; foresight studies generally consider the long-term future horizon, and this may be incompatible with short-term political thinking; and the implications of a foresight study may be unclear (Rhydderch 2013). Schultz (2006: 11) notes that horizon scanning's design criteria do not augur well for its quick uptake and widespread dissemination in any evidence-based decision environment; for whilst research is expected to be authoritative, a horizon scan is necessarily associated with uncertainty.

Johnston (2010) notes that members of the International Foresight Professionals' Network are under pressure to demonstrate the value of investments in foresight in consequent policy and planning. His foresight impact schema includes awareness-raising, informing, enabling, influencing and directing policy. Kuosa (2011: 22) considers tangible as well as intangible outcomes of foresight initiatives: given their interdisciplinary and multi-sectoral nature, foresight exercises often

behave as a 'knowledge junction' between different areas of research (EFMN 2009: 14), and impact in the form of improved networking and information flows should not be ignored.

The debates around the impact of scenarios are important because of their focus on transformational processes. The future is fundamentally unknowable, yet everyone holds implicit assumptions about the future, depending on their own mental model, based on experience and knowledge. By bringing together individuals operating within different paradigms, the worldview of any one individual or organisation may be challenged, and thus individuals' mental maps changed or expanded. This highlights the importance of acknowledging and exploring uncertainty through collective process. Wack (1985: 140), a pioneer of scenario planning, describes the transformational process: 'Scenarios deal with two worlds: the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision-makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions. This transformational process is not trivial – more often than not it does not happen. When it works, it is a creative experience that generates a heartfelt "Aha!" from your managers… obliges them to question their assumptions…'. This kind of forward-thinking exercise with explicit consideration as to how the world will change may be compared to the collective design of a theory of change for international development policies and programmes, where a range of worldviews and assumptions may enrich the discussion and help to ensure that any strategy is ultimately more robust.

As in other applications of foresight, the evidence of use, usefulness and impact of foresight initiatives in international development are largely anecdotal. In the organisational decision-making context, MacDonald (interview, 7 April 2014) considers that a key outcome is greater resilience, such that individuals and organisations are better prepared to face uncertainty and 'to manoeuvre skilfully when life takes unforeseen turns', but acknowledges that actually measuring this presents a challenge. In the context of visionary public interest scenarios such as those developed in East Africa by SID, Heinzen (2004a) suggests that the creation of a new shared language can be the marker of successful scenario work; in the case of the Tanzania scenarios, one noteworthy aspect was that subjects previously considered taboo, such as donor dependence and the supposed unity of the country, became open discussion points when the scenarios were shared with the broader public (Eyakuze 2004). Heinzen also considers whether the foresight exercise led on to something else, as a measure of success (Heinzen, interview 31 March 2014); she offers anecdotal evidence of knock-on effects, explaining how individuals who were closely involved in (and transformed by) the process of developing the Kenya scenarios with SID subsequently played a key role in the national government-led visioning process, Kenya Vision 2030.

Given the non-linearity and complexity of policymaking processes, and the challenge of evaluating how any subsequent decisions and policies

actually affect different stakeholders, and especially the poor, perhaps it is better to focus on assessing the extent to which the level of futures literacy has changed among key stakeholders and decision-makers as a result of the foresight process.

5 Conclusions and future directions

Foresight initiatives have been conducted by a range of actors, in different thematic sectors, across different regions, on both a grand and a modest scale. Future-oriented studies are better established (and resourced) in certain sectors of international development, such as food and agriculture, whilst no evidence was found of foresight in relation to education in an international development context. There are interesting examples of *ad hoc* initiatives and processes, such as the East Africa scenarios supported by SID. Yet, for the most part, futures thinking has not entered the mainstream of international development in terms of the discourse and practice, and thus remains marginal to international development endeavour. This is hardly surprising, given that foresight is of itself a field still in its infancy. Whilst there are various repositories and databases of foresight studies and projects, there are none dedicated to international development initiatives *per se*. With the exception of outputs generated by the Humanitarian Futures Programme, literature on foresight in the international humanitarian field is scant.

Foresight certainly has an important role to play in international development, to ensure that policies are robust and forward-looking, and that development organisations and institutions are resilient and agile, able to cope with change and manage increasing uncertainty and complexity in order to tackle the global and local development and humanitarian challenges ahead. Futures thinking could be more effectively integrated into strategy planning cycles of international development institutions across the board and, in general, this would require greater futures literacy among international development actors. National-level policy thinktanks in Africa and elsewhere in the developing world have a particular role to play in supporting foresight studies, and promoting methodological adaptation and innovation in their various contexts. There is a great opportunity to harness rapid advancements in the field of information and communications technology (ICT) for crowd-sourcing and collective intelligence as part of foresight exercises, countering the more traditional top-down, expert-led approaches.

Notes

* This article draws on Bingley, K. (2014) *A Review of Strategic Foresight in International Development*, IDS Evidence Report 94, Brighton: IDS.

1 The Millennium Project, funded by the UN University, UNDP, UNESCO and the US Environment Protection Agency (EPA), describes itself as an independent, non-profit, global participatory futures research thinktank that connects futurists, scholars, business planners and policymakers around the world to explore prospects for humanity as a whole.

2 Organisation for Economic Co-operation and Development.
3 http://en.unesco.org/events/all-africa-futures-forum-transforming-africa%E2%80%99s-future (accessed 1 August 2014).
4 Source: Foresight (2011).

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Models for Foresight Use in International Development

Alun Rhydderch

Abstract This article sets out the components of the foresight approach that has been adopted by many governments in the developed world, and identifies elements of this 'dominant' approach that may hinder its uptake in developing countries. Instead, it suggests that a less rigid, more exploratory and normative approach may be better suited to many developing country contexts. With reference to the writings and practice of the creator of *'la prospective'*, Gaston Berger, it argues for an attitude that combines bold and inclusive thinking about how to create better futures with the pragmatic engagement with political and administrative systems that can help bring these about.

Keywords: prospective, horizon scanning, normative, participative.

1 Introduction: foresight practice and discipline

Foresight has been defined as 'the ability to judge correctly what is going to happen in the future and plan your actions based on this knowledge' (see dictionary definition in Box 1). We recognise this instinctively as a useful life skill. We all have it, to some degree. It helps us survive, avoid trouble, and achieve our goals.

The practice of foresight requires scaling up this ability from the individual to the group level. By engaging more people to judge what might happen, we fill knowledge gaps, and can draw on a wider range of understandings of the factors that will shape the future. Foresight practice often includes oral exchanges in the form of interviews, group discussions and workshops. These enable the surfacing of underlying assumptions and the sharing of tacit knowledge – intuitions as well as facts. Such exchanges provide a rich source of new ideas while expanding the collective knowledge pool.

The discipline of foresight, through its tools and techniques, provides a structured and systematic way to harness a range of knowledge, experience and intuition located in different people and places. This is useful to generate better judgement – through a collective process – on what might happen in the future and how to prepare for it.

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This kind of judgement has an obvious outlet in strategy formation and policymaking. When carried out in a government context, the term 'strategic foresight' is increasingly used to call attention to the role foresight can play in improving strategic planning and policymaking processes.

The dominant foresight method that has evolved during the past 60 years in the government and corporate domains has demonstrated its value and is increasingly accepted (see Section 2). It has done so by integrating existing sources of knowledge and generating new knowledge and insights. By bringing these different sources together, foresight enhances strategic policymaking and planning processes.

Box 1 Definitions of 'foresight' and 'horizon scanning'

Foresight (dictionary definition of common meaning): 'The good judgment to think and plan before an event, so that you are prepared for whatever may happen.'[1]

'*Horizon Scanning* is the systematic outlook to detect early signs of potentially important developments. These can be weak (or early) signals, trends, wild cards or other developments, persistent problems, risks and threats, including matters at the margins of current thinking that challenge past assumptions.' (Cuhls 2015, drawing on 2005 definition by UK Horizon Scanning Centre)

'*Strategic foresight* is the ability to create and sustain a variety of high quality forward views and to apply the emerging insights in organisationally useful ways; for example, to detect adverse conditions, guide policy, shape strategy; to explore new markets, products and services.' (Slaughter 1997)

Scenario: 'an internally consistent view of what the future might turn out to be – not a forecast but one possible future outcome.' (Porter 1985)

Source: Author's own.

This article argues that this dominant model of foresight is also responsible for the limited application of foresight in a number of other fields. Taking examples from the field of international development, it will consider why foresight has had difficulty establishing itself in some fields. By looking at successful projects in international development, the article will then make the case for alternative foresight approaches. It will conclude by suggesting further avenues for the expansion of the use of foresight in international development as well as in other fields that have so far attracted less foresight interest or success.

2 The dominant model of foresight

Although many developed countries include foresight as one of their planning or policy tools, even in these countries the role of foresight is

still often contested, and national foresight units or programmes rarely benefit from stable institutional support or budgets.

2.1 Characteristics of the dominant foresight model

With this important caveat, the foresight model practised most widely at the national government level in developed countries is outlined below. It is beyond the scope of this article to consider why this model has become dominant.[2] The model does, however, present two characteristics that make it a 'good fit' for developed country governments. First, it lends itself to the creation of risk or threat scenarios, the analysis of which can lead to the development of policies for dealing with these risks or threats. One of the reasons for the prevalence of this characteristic is the influence of long-range planning approaches used in the defence sector (for procurement or force development), and the military (scenarios in military strategy), which tend to be threat-focused. Second, it adopts a neutral, detached, 'evidence-based' and 'objective' stance towards the data that form the basis for its analysis. The influence here is 'technology foresight' – a relatively stable strand of foresight practice in some developed country governments since the 1970s – which tends to take a probabilistic and deterministic approach to forecasting, using tools such as Delphi studies and roadmapping.

The first of these characteristics may reflect a sense that developed countries have 'more to lose' than developing countries. Their citizens, and therefore their politicians are likely to have a more risk-averse, protective attitude than those of developing countries. The second characteristic, viewed positively, reflects the penetration of the sciences (social and natural) into the policymaking processes of governments in more developed countries. Foresight, if it wishes to play a role in the policymaking process, is expected to meet these high (scientific) standards.

Viewed negatively though, the requirement to produce evidence, and the mistrust of judgements or opinions construed as value-laden ('biased') can be seen as part of a strategy of risk avoidance on the part of civil servants. In a culture that rewards clear, well-founded advice, the official charged with foresight activities is from the outset on shaky ground. 'Evidence of the future' is hard to come by, while facts and data from authoritative (scientific) sources provide a crutch that can help him or her navigate this terrain more surely.

2.2 Structure of the dominant model

Most foresight exercises contain the following three elements:

- A scoping or horizon-scanning stage
- A stage of analysis and ordering of the data from the first stage, often involving scenarios
- An 'implications' stage: what does this analysis mean for the topic being investigated?

A fourth element, important for ensuring both the impact of foresight projects and the stability of the foresight function, is a stage of 'embedding' or 'integrating' foresight into the organisation once the exercise (or series of exercises) has been completed.

These elements, except for the last one which is often neglected, are common not just to 'developed country foresight'; they can also be found in one form or another in approaches that are more open or 'normative' (see Section 5 for more on the normative approach). The particularity of the dominant model lies rather in (a) the types of data considered valuable to collect at the scoping/horizon-scanning stage; and (b) the way this data is analysed and ordered at the second stage.[3] Specifically, developed countries tend to have a preference for authoritative data sources that can be extrapolated or modelled into the future, and, where such data are not available, for consensus among experts in specialist fields, generally from academia. Also, at the analysis and ordering stage, there is a tendency in developed countries to commission or produce scenarios that present future risks and threats, rather than opportunities.

2.3 Participation in the dominant model

In developed countries, participation in foresight processes is often restricted to experts from academia and policy officials. The private sector may be invited to join (generally through industry bodies such as trade associations), while civil society is less often represented.

3 Foresight in developing countries

It is an attractive idea that foresight should help guide a country's development. As described above, there are enough common elements in the foresight approaches used by developed countries to constitute a 'package' that can be proposed to developing countries.[4] In the past, international organisations have played a role in sharing foresight experience and expertise with the developing world (for example, UNDP and UNIDO[5] supported several developing countries in the 1990s). More recently UNDP, through its Global Centre for Public Service Excellence (GCPSE), has begun to provide support for foresight activities as part of its mission to improve public sector capability.

Singapore's rapid transition to developed country status, as well as its widespread and effective use of foresight, helps explain why UNDP chose the country to host the GCPSE. Foresight exercises supported by GCPSE have recently been conducted in Tonga, Rwanda and Turkey. The activity of this unit is likely to receive a boost from the recent adoption of the Sustainable Development Goals (SDGs): foresight has been identified as an approach that, if adopted more widely, could contribute to achieving SDG 16 (governance).

However, Havas, Schartinger and Weber (2010) point out that 'foresight is costly in terms of time and money in general, and this can be a decisive factor for emerging economies, in particular'. And in a section on 'the political economy of foresight and development', Van de Pol *et al.* define the challenge of implementing foresight in developing countries:

> While most countries apply futures thinking and strategic planning to some extent in their national policies, there is little evidence to suggest any widespread use of foresighting at the national level in most developing countries. Likely reasons for this include limited capacities in resources, skills and knowledge, organisation, politics and power and/or incentives. […] Conditions are even less conducive in fragile states (2014: 16).

One way to increase the use of foresight would therefore be to improve economic management to enable investment in the missing resources, skills and knowledge; reduce reliance on foreign aid; and increase political legitimacy. Such steps might be accompanied by a transfer of know-how from developed countries where 'vigorous regional futures and foresighting activities are ongoing' (*ibid.*: 17).

But this is a challenging list of requirements and begs the question, is there an alternative to the state-led and government-funded foresight approach that might be less costly and more flexible? An alternative *is* raised in the UNDP paper:

> Where less formal or institutionalised regional foresighting is being conducted, research and practice continues to be carried out by independent organisations, academics, practitioners and global communities (*ibid.*: 17).

This introduces the key observation that not all foresight is state-supported. Given the challenge in developing countries of directing state funding towards long-term goals when there is pressure to address current needs,[6] alternative approaches may be required. Specifically, the independent organisations, academics, practitioners and global communities undertaking the less formal or institutionalised foresighting may be of particular value. Such activities are often supported by non-governmental organisations (NGOs) or foundations, and the foresight approach taken tends to be different from that supported by government in ways that, we will argue in the next sections, potentially makes it more suitable for addressing some developing country challenges.

4 Constraints of the dominant foresight model

Here, with a particular focus on its use within international development, some limitations of the dominant model of foresight are identified. Alternatives approached that address these limitations are set out in Section 5.

4.1 Method, evidence and the pull of the sciences

Loveridge, Keenan and Saritas (2010) describe foresight processes as being 'method-bound'. This attachment to method, and an array of tools and techniques, can be understood in part as a response to the need to make foresight 'rigorous' and to produce reliable evidence. The New Public Management (NPM) approach[7] had a strong influence on governments throughout the world during the 1990s; from an NPM perspective, policymaking is (or should be) a rational activity that processes well-defined inputs (i.e. evidence) to reach clear conclusions.

To contribute to these policy processes, the expectation is that foresight should provide such inputs.

Yet the use of any foresight approach, given the irreducible uncertainty of the future and the infinite number of factors that will influence it, must rely to a considerable extent on discernment and judgement. Despite this, it has been hard to resist the pull of standardised methods when justifying and using foresight in policy settings.

A second temptation has been to make the case for foresight in the language of science. Foresight is an integrative discipline that uses information, data and evidence from a number of different disciplines and sources. Many of these can be categorised as belonging to the social sciences, but some – for example, environmental data, demographic forecasts and economic projections – incorporate precise measurement and data-driven modelling, associating them with the 'hard' sciences and giving them particular currency in the policy world.

Not only is this science 'badging' often misleading, it has arguably also constrained the scope of enquiry of some foresight programmes by scaling back exploratory, hypothesis-driven projects in favour of exercises that resemble academic research projects (and that therefore could be funded under regular academic programmes).

4.2 Neutrality and objectivity

In government organisations in particular, and in many other settings in which foresight exercises are carried out, neutrality (or lack of bias) is either expected or mandated. This expectation applies not just to the facilitator of the exercise, but also to participants, whose knowledge, ideas or views on the future are supposed to be detached from opinions, beliefs and ideologies. Experts are generally invited to participate in such exercises on the understanding that they provide this objectivity, but even when lay contributors are invited, it is assumed that they will participate in expert 'mode', i.e. by providing facts rather than opinions. Not only is neutrality in such a setting nearly impossible (even for facilitators and civil servants), striving to achieve it also reduces the space for uncovering interesting and informative elements shaping the future that a foresight process should explore.

4.3 Compatible cultures: selection and self-selection

Finally, even the most experienced practitioners of foresight, implementing the best designed processes, will run up against the issue of who is involved, who is 'in the room'. This is not simply a question of having a diverse and representative group of people at a workshop, or ensuring that experts do not exclude voices that challenge the prevailing view or look at questions from a different perspective. It is more fundamentally about knowledge, capability and power. This is already a major (and under-investigated) issue for well-funded exercises carried out in developed countries. The challenge is in many cases greater and harder to resolve in developing countries, where there may be even more pressure to express a view consistent with that of a particular group, whether social, professional or political.

Linked to this is the question of whether a country or culture will embrace or reject the foresight approach. What to developed country administrations (particularly Western and democratic) is for the most part viewed as a potentially useful complement to the policy and strategy toolkit, may to other governments appear as an unwelcome challenge to their legitimacy and control. Part of the answer can already be found by looking at the way regions such as South East Asia or Latin America have adopted approaches to foresight that differ from the dominant model described above (see EFMN 2009 and Keenan and Popper 2008). But even in other cases, it is worth asking whether any kind of foresight approach is likely to gain purchase outside an elite group. In some cases, a government's sponsorship of a foresight exercise may be perceived as an attempt to influence political debate and policy to the advantage of one party or interest group or another.

5 Alternative approaches

What then are the alternative models that may be more suited to 'non-natural' foresight territory, perhaps because they are better understood outside elite circles, more flexible, or more in tune with the social and political culture of a country or context into which it is desired to introduce foresight? This section will consider two approaches that have already been implemented successfully, and which may also point to ways of conducting foresight in countries less suited to the dominant model.

5.1 *La prospective*

'*La prospective*' is a foresight approach created by Gaston Berger, a French philosopher, industrialist, and senior government official between the 1930s and the end of the 1950s. Berger developed the *prospective* approach – or '*attitude*' as he called it – to free the pursuit of better futures (political, scientific and human) from what he saw as the drag or dead weight of bureaucratic process (Berger 1967).

As a senior official in the French education ministry, who also travelled extensively (particularly to the United States) as a cultural ambassador, Berger had a great deal of respect for the role of the state, but saw its instruments as insufficient to achieve the potential for positive change in the world characterised by rapid technological change and economic growth following the Second World War. Berger observed that when planning the future of a country or sector, too often *means* were decided on before *goals* were set, and that when this happened, the means would often dictate (or overly influence) the goals. As Durance (2010) puts it, 'Man may thus give up a better condition, considered utopian, because the means required have not yet been discovered.' A better approach would be to:

> […] bring together those who can determine what is desirable with those who can determine what is possible. The idea of picturing possible worlds in broad strokes would not only enlighten judgment but also inform it early enough so that a decision would be efficient (*ibid*.).

This idea of 'picturing possible worlds in broad strokes' is recognisable to us as the creation of 'visions' of the future – now a standby of corporate consulting, even if less frequently used by governments. This vision creation was and is an essential part of the *prospective* approach, but was paired with an extremely rigorous, expert-led process to align policy with these possible futures.

Berger commanded respect in the French administration and his ideas were highly influential. The first French five-year plan launched in 1965 was strongly influenced by *prospectiviste* ideas, and by the end of the 1960s *prospective* units were active in all parts of the French government. There were also exchanges in both directions between France and the United States during the 1960s. While the *prospectivistes* and their partners in the similarly-minded *Futuribles* group were impressed with the future thinkers in thinktanks such as the RAND Institute and adopted some of their approaches, the intellectual traffic was two-way. The dominant foresight approach that emerged in the 1970s (particularly thanks to Frenchman Pierre Wack's influence at Shell) is strongly marked with the *prospective* stamp.[8]

This separation of ambitious vision from the means necessary to achieve it offers the chance to develop processes that harness the big ideas of imaginative people from all walks of life. In a second stage, these ideas are handed over to officials to evaluate their ability to implement them, and to identify what resources and instruments would be needed.

The *prospective* approach has been influential in many countries, particularly in Europe and Latin America. Whether drawing or not explicitly on *prospective* thinking, many policymakers in developing countries have been attracted by the idea of developing a vision of the future as a prosperous, stable place. One such example of a vision-based exercise cited by Van de Pol *et al*. (2014) is that of Botswana, now one of Africa's most stable countries, relatively free of corruption and with a good human rights record. The national vision for the year 2016 exercise was followed by implementation of a series of measures identified in a backcasting process.[9] A Long Term Vision for Botswana was published in 1997; the document informed decision and policymaking by identifying major challenges and roadblocks, and the strategies required to deal with them.

5.2 Broad and 'bottom-up' participation

Bingley (2014: 9) (and citing Ramos, Mansfield and Priday 2012) sets out the charge:

> […] in describing processes as 'participative', documentation of foresight initiatives often fails to distinguish between expert participation and ordinary citizen participation; [what is needed is to] make futures thinking a popular process, and to allow futures thinking 'to reflect the needs of the vast majority of people, rather than the interests of the few.'

Foresight shares the challenge of representation and legitimacy with many 'community' processes that aspire to speak on behalf of a group of people. In some ways foresight can be seen to be in a particularly difficult position in this regard, since a common view is that to express a valid opinion on the future, one must belong to an expert community of some kind. There are, however, three reasons why a community process can be – and indeed has already proved itself to be – a particularly good setting for foresight. The first and perhaps most important is that, particularly if the process entails the creation of a desired future, the people who will be part of such a future ought to have the chance to express a view on what that future should be; an additional benefit being that they may also be inspired by that view. Secondly, the division of society into those who create the structures and those who inhabit them – dominant in the time of Berger – is today contested. The information and digital revolutions have, potentially at least, devolved agency from elites into the heart of society. Those who come up with the ideas of better futures will in some cases be in a position to help create them. Thirdly, coming together to discuss and agree common or shared goals, even if agreement is not to be found on all matters, offers a way to bring people together, whether from within one community, or from across different (sometimes opposing) ones.

A powerful example of a bottom-up approach is the series of projects undertaken by the Society for International Development (SID) in the late 1990s and early 2000s in East Africa.[10] Barbara Heinzen, the lead facilitator for this work, described the scenarios developed by these exercises – in Tanzania, Uganda and Kenya, and also for the East Africa region – as 'public interest scenarios, concerned with developing skills and opportunities for public dialogue, facing uncertainty through collaborative learning processes, and developing capacity for political agreement' (Heinzen 2004). They were designed to maximise ownership at the local and national level.

The reasons given for undertaking this series of projects can be seen to be relevant to a number of developing countries today:

> SID's own interest in exploring scenario exercises in Eastern Africa in the mid-1990s was driven largely by the fact that far-reaching structural adjustments were being undertaken in various countries with seemingly scant concern for long-term impacts and the choices that some of these adjustments would inevitably foster (Bingley 2014: 19).

At the same time, Bingley's account of the Kenya scenarios process suggests why, while powerful, this type of community-owned process with extensive public engagement does not take place regularly in developing countries. She suggests that 'the Kenya scenarios were a conscious attempt at participative policymaking, in an effort to provide an alternative to undemocratic governance in Kenya' (*ibid.*: 18). The activities of NGOs, particularly when sponsored by foreign governments or NGOs, are often viewed with suspicion by governments in developing countries. For such

exercises to have an impact beyond the grass-roots level and influence the development of national-level policy, it will generally be helpful, and often necessary, to obtain at least tacit government acceptance of the initiative, and ideally to find active supporters among the political elites.

6 Way forward

The optimal role for governments, international institutions and NGOs who want to encourage and support the use of foresight in developing countries, may therefore be to seek the best combination of (a) support from developing country governments and (b) local NGO and civil society participation in foresight activities. This implies three elements of support:

- Advice to developing country governments on what they should (and should not) expect from foresight, and education of a small team at ministry level that can act as the centre for commissioning foresight studies;
- Identification of existing foresight actors within a country and assessment of their capabilities and the techniques they have adopted or developed; and
- Brokering and supporting the development of links between the foresight actors and government ministry, and helping to identify and design projects and other initiatives that benefit development.

One famous foresight initiative, the Mont Fleur scenarios,[11] was strong on the first and third of these elements (even if the foresight process was led by outside actors and benefited from a very particular context). The SID approach described above was strong on the second element, bringing communities into the process, and made some headway in involving political actors.

There is certainly room for a range of initiatives, and it is unlikely that the optimal combination of these elements will be achievable in a majority of cases. The easiest solution will often be to support the central government to put in place the dominant model described in Section 2, potentially even to provide the team to implement such a model. This article argues that such a solution should be resisted, and efforts made instead to encourage initiatives that involve local foresight actors (and participants) and produce outputs that are relevant to the concerns and aspirations of the citizens of the country.

7 Conclusion

This article suggests that there is a dominant foresight method and approach practised by developed country governments, and gives reasons why this approach emerged. It argues that this approach may not always be suited to a developing country context, and puts forward two alternative approaches, which have been adopted successfully in the past, and which it may be useful to revisit when designing foresight approaches in developing countries.

The article concludes by proposing that the most promising way forward for foresight in developing countries may be to take inspiration from Gaston Berger's *prospective* ideas from the 1950s. The challenge is to harness the energy and ideas of creative minds, found in all parts of society, and link them to a policymaking community at the national government level. To make this work policymakers must be open to receiving such forward-looking ideas and proposals from its citizens, and ready to transform them into implementable forward-looking policies and projects.

Notes

1 Macmillan Online Dictionary, www.macmillandictionary.com/ (accessed March 2016).
2 For more on national models within developed countries, see Kuosa (2011) and Rhydderch in Frank and Matyas (eds) (2013).
3 See for example Foresight Horizon Scanning Centre Toolkit (accessed at http://hsctoolkit.bis.gov.uk/index.htm) and Foresight HSC (2009).
4 The existence of a dominant foresight model does not mean that there is necessarily a straightforward implementation schema for foresight in developed country contexts. For more on the options and trade-offs involved in designing an appropriate national-level foresight programme, see Rhydderch in Frank and Matyas (eds) (2013).
5 UNDP – United Nations Development Programme; UNIDO – United Nations Industrial Development Organization.
6 For example, the conundrum of 'services now versus institutional strengthening' (Brinkerhoff 2007).
7 See Barzelay (2001).
8 What the foresight approach lost on arrival in the United States, probably because of the corporate context in which it took root, was Berger's insistence that the process had to start with a *normative* vision of a future, or set of futures, that were considered desirable. The process of coming up with this vision is central to the idea of *prospective*, and Berger insisted that this should be independent of and not subservient to the instruments, technologies and resources needed to achieve it.
9 See www.vision2016.co.bw.
10 Bingley (2014) provides a good summary of the SID projects in East Africa. See also Harcourt and Muliro (2004).
11 The Mont Fleur process undertaken in 1991 is credited with helping South Africa emerge from its apartheid system without widespread violence or economic upheavals (see Kahane 1992).

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Agrimonde and Agrimonde-Terra: Foresight Approaches Compared

Marie de Lattre-Gasquet and Sébastien Treyer

Abstract Over a ten-year period, two French agricultural research organisations have jointly undertaken two foresight exercises. Agrimonde was about scenarios and challenges for feeding the world in 2050, while Agrimonde-Terra was about land use and food security in 2050. This article compares and contrasts these two exercises, in terms of context and objectives, method, scenarios, and how they grapple with global regions. The comparison illustrates how the context, the objectives and the desired changes influenced the choice of foresight methodology, and the results. While Agrimonde is focused on shifting the forefront of the debate on agricultural models for global food security, decision-makers at various geographical levels can seize the Agrimonde-Terra method and results to have discussions about the future uses of their land.

Keywords: policymaking, scenario, method, global, regional.

1 Introduction

Foresight is 'a systematic, participatory and multi-disciplinary approach to explore mid- to long-term futures and drivers of change' (FTP 2014) that is meant to lead to change. The three philosophical precepts behind foresight are that the future is a realm of freedom, a realm of power, and a realm of will (de Jouvenel 2000). Or, to cite Gaston Berger, father of foresight in France: 'Consider the future not as something already decided, something revealed bit by bit, but rather as something to be created' (Berger 1958). Four attitudes are often found when faced with the uncertainty of the future: passive (submit to change); reactive (await change to react); preactive (preparing for an anticipated change); and proactive (acting to provoke a desired change) (Godet 1994).

It is against this backdrop that two foresight exercises – Agrimonde and Agrimonde-Terra – were undertaken by the French agricultural research institutes, CIRAD (Centre de coopération internationale en recherche agronomique pour le développement) and INRA (Institut national de la recherche agronomique). Agrimonde was launched in 2006 with a focus on the possible futures of agriculture and food security worldwide to 2050. The aim was to pinpoint the fundamental questions agricultural

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research will have to answer, so as to provide CIRAD and INRA with the means to anticipate and prepare for the future. The final report of Agrimonde was published in 2011 (Paillard, Treyer and Dorin 2011). Agrimonde-Terra is a foresight exercise focused on land use and food security to 2050. It was launched in 2012 and finished in mid-2016 (CIRAD and INRA 2016). The two authors of this article were involved – with many other colleagues – in the design and implementation of both foresight exercises. Marie de Lattre-Gasquet was a member of the Agrimonde expert panel and one of the coordinators of Agrimonde-Terra. Sébastien Treyer was a coordinator of Agrimonde and a member of the Agrimonde-Terra Scenario Advisory Committee.

This article compares and contrasts these two foresight exercises, with a particular focus on the methods used. Subsequent sections discuss the contexts, objectives and theories of change of the studies, the methods used for building the scenarios, the resulting scenarios, the geographical approach, and lessons learned.

2 Context, objectives and theories of change

The objective of Agrimonde was to inform research programming (Schoen *et al.* 2011), and focused on a specific international policy debate (what innovation pathways in agriculture and food could assure global food security?). In contrast, Agrimonde-Terra sought to inform policy, to embed participation in policy processes (Da Costa *et al.* 2008) by proposing a process and results that serve to prepare new land use scenarios at various geographical scales. Both exercises aimed at broadening the discussion of methods for thinking about futures scenarios.

2.1 Agrimonde: new research questions and contributing to global debates

The Agrimonde[1] initiative reflected ongoing changes in the early to mid-2000s. It was influenced by the Millennium Ecosystem Assessment (2005), which drew scientific and public attention to the implications of ecosystem change for human wellbeing, and the need to use the earth's ecosystems sustainably. The first plenary meeting of another important global initiative – the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD 2009) – took place in September 2004. Several French researchers were involved in the IAASTD, and the Agrimonde foresight exercise was meant to help them take a more proactive stand in this expert process, possibly contributing to pluralise the visions and the scenarios discussed in this arena. Also, in the mid-2000s, the French government was setting new objectives for INRA and CIRAD, and seeking a closer relationship between these organisations. The competitiveness of agri-food markets; the conservation of natural resources; the high prices of fossil fuel; the quality of human food and nutrition; and climate change were all recognised as key challenges. After a period of neglect, agriculture and investment in international agricultural research were also moving up the development agenda. In this context, what might be the new innovation pathways for agriculture? CIRAD, through its scientific director Michel Griffon, had been associated with the vision of

a 'doubly green revolution' (Conway 1997) in the mid-1990s. Was this vision relevant in the mid-2000s and beyond?

Thus, Agrimonde was launched in 2006 with three objectives. First, to explore different possible futures of food and farming systems to 2050. Second, to guide INRA and CIRAD's research in the field of agronomy and food, broadly speaking. Third, to structure discourse within CIRAD and INRA on global food security, and to build capacity so that French experts could participate more effectively in international debates on the futures of agriculture (Paillard *et al.* 2011; Treyer 2011). To meet these objectives there was an interest in comparing a business-as-usual scenario with an agro-ecological scenario built on hypotheses and calculations done by Michel Griffon in his book *Nourrir la planète* (Griffon 2006). Two questions were at centre stage: how and through what innovation pathways could a population of 9 billion people be adequately fed, while preserving ecosystems integrity? What should be the priority issues for agricultural research?

Agrimonde was also intending to pluralise not only the substance of the scenarios considered, but also the methods to develop and represent them. Its methodological design was intending to question the dominance of economic models of global commodity markets as the basis for assessing global food security. These models, and in particular the IMPACT model developed at IFPRI[2] (Rosegrant *et al.* 2008) were highly influential because they modelled the link between scarcity, prices and technological progress. In order to account for different types of technological progress (e.g. conventional versus agroecology) through more transparent assumptions, Agrimonde developed an alternative quantitative framework, based on physical balances between biomass resources and uses (Dorin and Le Cotty 2011). Four years after launching the Agrimonde foresight exercise, the results were published in the book *Agrimonde. Scenarios and Challenges for Feeding the World in 2050* (Paillard *et al.* 2011).

2.2 Agrimonde-Terra: participation, land use policy and improved food security

Agrimonde-Terra[3] is essentially a continuation of Agrimonde. However, the focus shifted to land use and its implications for food security. Launched six years after Agrimonde, the context for Agrimonde-Terra was already quite different. Demographic and economic growth and growing demand for meat and for renewable energy were resulting in increased competition for land. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2007) drew attention to the need to integrate climate change and sustainable development policy, as well as to the links between mitigation and adaptation. The notion of 'planetary boundaries', first introduced in 2009, was by 2012 increasingly accepted (Rockström *et al.* 2009). The Sustainable Development Goals and COP21 were being prepared. Finally, there was increasing concern about the loss of natural habitat and biodiversity associated with the intensification of agriculture (Millennium Ecosystem Assessment 2005). At the same time, many

regions of the world were continuing to suffer from nutritional deficiencies due to diets based on relatively few species (WHO 2008). Diet-related chronic diseases in developing countries were the subject of increased research and policy attention.

In this context, Agrimonde-Terra set out to address a series of questions including: what impacts will population growth, urbanisation, lifestyle changes, climate change and growing energy and meat demands have on land use to 2050? How can we ensure that land use will provide nutritional and food security for all to 2050? How should land, water and biodiversity be used to meet the demands of the planet's inhabitants in 2050? How can we ensure that the land will provide sustainable incomes for farmers and affordable prices for consumers? Which public policies should be implemented at different scales and in the different sectors?

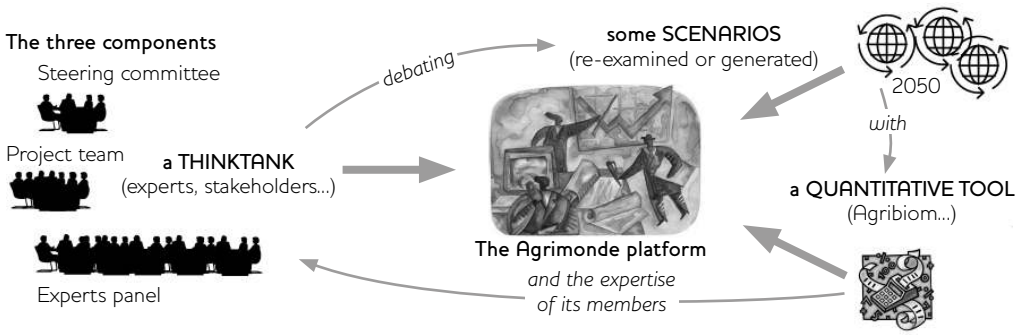
The aim of Agrimonde-Terra is to prepare rigorous and coherent land use scenarios with a stepwise and participatory process that will (a) help develop a shared understanding of the links between the natural and human processes at different levels; (b) contribute to international debates on land use and food and nutrition security; (c) help international, regional and national decision-makers in their discussions on public policies and investments relating to land use with a focus on food and nutrition security; and (d) help identify relevant questions for future research. The scenarios were seen as constituting 'learning machines' (Berkhout, Hertin and Jordan 2002), i.e. tools to raise awareness and encourage debate. The foresight exercise was designed not only to explore a range of possible futures, but also to provide the public and decision-makers with a tool that could be used to facilitate conversations about future land use in particular regions or countries. A workshop was held in Tunisia to see if the Agrimonde-Terra method and results could be easily adapted to a country's situation to build local scenarios. The resulting scenarios are currently used for discussions on research strategy which is a sign of usefulness.

Agrimonde-Terra also had the objective of demonstrating how a step-by-step foresight process, using a pluridisciplinary approach of systemic inspiration, integrating the long-term dimension, past and future, as well as breakdowns (de Jouvenel 2004), and linking qualitative and quantitative approaches could be useful when thinking about the futures of a complex question such as land use.

3 Methods for scenario building

The two programmes used different methods to build scenarios. Agrimonde was designed as a platform for discussion among French researchers, whereas Agrimonde-Terra was conceived as a forum for discussions among French and international researchers, policymakers and representatives of the civil society. Moreover, in Agrimonde the quantitative work came first and was complemented by a qualitative analysis, while in Agrimonde-Terra the focus was on system analysis and causal relationships.

Figure 1 Agrimonde: a three-component platform



Source Reproduced by kind permission of Dorin (2009).

3.1 Agrimonde: a platform for collective analysis

Agrimonde was designed as a platform for the preparation, analysis and discussion of scenarios to facilitate the collective analysis of the challenges facing the world's food and agricultural systems. The platform (Figure 1) consisted of:

- A project team representing six full-time staff for two years from INRA, CIRAD and AgroParisTech;
- An expert panel of 17 French researchers and decision-makers who met once a month over an 18-month period;
- A steering committee consisting of two staff from INRA, two from CIRAD and a representative of the French Initiative for International Agricultural Research (FI4AR).

The platform was designed to respect the basic principles of a foresight approach (Paillard *et al.* 2011). Among these principles are the inclusion of a plurality of worldviews and a diversity of scientific and institutional positions. Other important principles are the recognition and integration of uncertainty; collective learning by actively involving experts and stakeholders; and transparency through reference to the best scientific studies, and being explicit about the simplifications and assumptions made.

Agrimonde started with a review of the world food economy over four decades (1961–2003) including human population, food consumption, land use, food production and productivity, food use and food trade. This proved a very useful exercise and constituted an important output. Subsequent scenario building consisted of three main steps: (1) choosing the scenarios and the principles underlying their construction; (2) building quantitative scenarios and checking the consistency of major assumptions; and (3) building complete scenarios, by integrating quantitative scenarios with qualitative assumptions. This method, not commonly used, puts the emphasis on the quantitative framework for comparison between the scenarios, both at global and regional scales.

Step one – choosing scenarios and principles: One of the specificities of Agrimonde was the strong relationship with the four scenarios of the Millennium Ecosystem Assessment (Carpenter *et al.* 2005). These scenarios are distinguished by their geopolitical framework (regionalisation versus globalisation) and by the proactive or reactive nature of policies and regulations towards ecosystem protection. They are characterised by different societal priorities, especially in terms of poverty alleviation and the protection of ecosystems and natural resources. Their principles were not necessarily the most relevant for discussing the future of food and agricultural systems, but the interplay of ecosystems and human activities was certainly relevant for the questions that Agrimonde sought to explore. The Millennium Ecosystem Assessment (MA) scenarios were therefore used as reference scenarios, to which the alternative scenarios developed in Agrimonde could be compared.

In order to build two quantitatively comparable scenarios, Agrimonde adopted two principles. In both scenarios, each major region of the world had to try to satisfy its own food requirements in 2050. Inter-regional trade would be considered only after the evaluation of the extent to which agricultural production in each region covered local needs. Also, future demographic trends could not be masked by migratory flows. The implications of expected population growth, mainly in sub-Saharan Africa, Asia and Latin America were thus fully examined with regard to each region's capacity to feed its own population.

Step two – building quantitative scenarios: A specific quantitative tool called *Agribiom* was developed and used to produce quantitative scenarios concerning world food production, trade and use of biomass (Dorin and Le Cotty 2011). The data used relate to human population, national production of plant, animal and aquatic products which were transformed into kilo calories and areas of land cultivated for food and non-foodstuffs. Physical balances (past and future) between food biomass resources and their use are at the heart of Agribiom. Such balances were reconstructed from the 1960s and simulated for six regions of the world (the same ones used by the MA – members of the OECD[4] in 1990; the Former Soviet Union; Latin America; sub-Saharan Africa; the Middle East and North Africa; and Asia). To assess biomass uses a number of explicit assumptions had to be made. The two quantitative scenarios were built as the result of the interaction and adjustments between the modellers of Agribiom and the expert panel.

Step three – building complete scenarios: The variables considered in the Agrimonde scenarios were: global context, international regulations, dynamics of agricultural production, actors' strategies, knowledge and technologies, and sustainable development. When the experts formulated assumptions on diet, land use, yields or inter-regional trade, they had to analyse all their implications and ramifications. Through this process, they enhanced the basic quantitative assumptions. More specifically, the quantitative scenarios were analysed for each region in relation to three groups of questions: (a) Is the quantitative scenario

consistent with the scenario-building principles defined at the outset? If not, which qualitative assumptions would make it consistent? (b) What does the comparison of the various scenarios teach us? What qualitative assumptions would be needed to ensure that they represented clearly different pictures of the future? (c) What are the main challenges of this scenario? What are the main drivers of change that should be activated for it to become reality? This analysis enabled the experts to consider qualitative assumptions for each of the Agrimonde variables and then to produce complete scenarios.

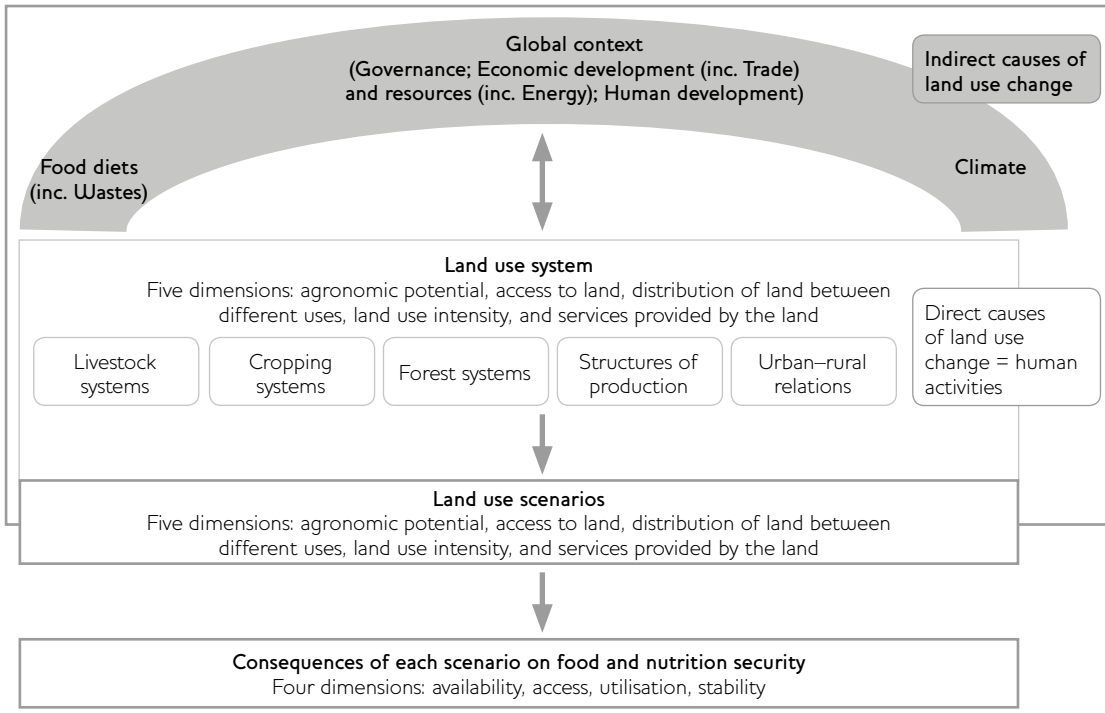
3.2 Agrimonde-Terra: system analysis with an international forum

The Agrimonde-Terra foresight exercise was conceived as a forum for discussion between researchers and decision-makers, and the forum was animated by a project team of staff from CIRAD and INRA, assigned to the project for three years (de Lattre-Gasquet, Le Mouël and Mora 2016). Initially four thematic workshops were organised, on urban–rural relationships, farm structure, cropping systems, and livestock systems. Eighty international experts participated and helped frame the issues and prepare the micro-scenarios on direct causes of land use change. A Scenario Advisory Committee made up of 15 researchers and policymakers met four times to give advice to the project team about the scenarios.

Agrimonde-Terra considered that land use systems, which are characterised by bio-physical and socioeconomic factors (Stomph, Fresco and van Keulen 1994), influence food and nutrition security. The method for scenario building involved four steps: description of the land use system; building micro-scenarios of each cause (or driver) of change; combining micro-scenarios to develop contrasting land use scenarios and building scenarios for global regions; and carrying out a qualitative and quantitative impact analysis of each and all land use scenarios on food security at global and regional levels. The approach was systemic in that it recognised complexity and established causal relationships between the variables.

Step one – describing the land use system: Retrospective analyses of land use and literature reviews were carried out to identify the main direct (5) and indirect (3) causes of land use change. Emerging trends and potential disruptions were identified. In terms of direct causes, the focus was on agriculture and forestry (cropping, livestock and forestry systems); structures of production; and urban–rural relationships. Indirect causes included climate change, diets and the global context (i.e. political governance, economic development including trade, resources including energy, and human development including demography). A brief analysis of civil society actors, policy actors, economic, business, and research and innovation actors who influence changes in land use was also carried out. As shown in Figure 2, land use change (a) may be characterised using five complementary and interlinked dimensions; (b) results from complex interactions between indirect and direct causes; and (c) have an impact on food security at different scales ranging from household to global.

Figure 2 The Agrimonde-Terra land use and food security system



Source de Lattre-Gasquet *et al.* (2016).

Step two – building micro-scenarios using morphological analysis: For the four direct causes, micro-scenarios were built during thematic workshops with international experts. In the case of the indirect causes, micro-scenarios were built on the basis of literature reviews. To build the micro-scenarios, a morphological approach was used based on that developed by Fritz Zwicky in the 1940s as 'a general method for structuring and investigating the total set of relationships contained in multi-dimensional, usually non-quantifiable, problem complexes' (Ritchey 1998; see also Godet 1997; de Jouvenel 2004; Álvarez and Ritchey 2015). The analysis consisted of identifying and analysing a range of variables influencing each cause of land use change. Hypotheses of how each variable might evolve were imagined. A morphological box was constructed, with each line devoted to a variable. Within a line, each cell contained one of the hypotheses. The micro-scenarios were built by combining one or several hypotheses per variable in the most logical fashion, respecting causal relationships. The Scenario Advisory Committee reviewed all of the micro-scenarios.

Step three – building land use scenarios: Contrasting land use scenarios were also built with the help of a morphological box by combining micro-scenarios for each direct and indirect cause in the most logical fashion. The land use scenarios were built in close collaboration with the Scenario Advisory Committee. They were called 'generic

scenarios' because they do not apply to a specific region. The generic scenarios are described through narratives. Scenario building started with a representation of the current situation and an analysis of the long-term dynamics. Some events are seen to create pathways of change. The final picture presents the situation in 2050. The representation of the current or initial situation, as well as the final land use scenarios are described according to the five dimensions of land use change. Land use scenarios for the global regions were also built and these were described through short narratives and the consequences of each scenario were illustrated with the GlobAgri-AgT platform. For the quantitative scenarios it was assumed that all regions followed the same scenario.

Step four – analysis: When examining the impact of each scenario on the four dimensions of nutrition and food security Agrimonde-Terra has been at pains to take scale fully into account. The governance of land use tends to be local or national, although the international scale can be important, while the governance of food security is both national and international. Agrimonde-Terra has also used a quantitative platform called GlobAgri for generating databases and biomass balance models from FAOStat[5] and other data. Biomass balance models provide a balance between resources (domestic production plus imports minus exports) and utilisation (food, feed, other) for each region and each agri-food product. The system of balance equations can simulate land use change and greenhouse gas (GHG) emissions induced by changes in the uses of agri-food products, provided hypotheses on the evolution of a set of variables are available. The GlobAgri platform has been used to generate a database and a biomass balance model which are specifically customised for Agrimonde-Terra. It is named GlobAgri-AgT and it considers 32 aggregates of agri-food products (25 plants and 7 animal aggregates) and covers 14 broad regions. GlobAgri-AgT is used to conduct quantitative analysis of the impact of each scenario on food availability and utilisation on a global and regional level. A qualitative analysis is conducted on the impact of each scenario on food access and stability.

4 The scenarios

Whereas Agrimonde built two contrasted scenarios, one baseline and one normative, Agrimonde-Terra has explored a wider range of possible futures.

4.1 Agrimonde: two contrasted scenarios

In order to contribute to debates on innovation pathways to ensure global food security, the two scenarios chosen for Agrimonde were:

- A business-as-usual scenario, **Agrimonde GO**, for which assumptions were taken from the 'Global Orchestration' (GO) scenario of the Millennium Ecosystem Assessment (2005), assuming green revolution-type innovation and no structural change in food systems;
- An alternative scenario, **Agrimonde 1**, for which assumptions were inspired by the 'doubly green revolution' scenario of Michel Griffon (Griffon 2006), assuming agroecology innovation with the possibility of structural changes in the food system.

For the business-as-usual scenario, the expert panel decided to ensure comparability with the scenarios of the MA and particularly 'Global Orchestration'. This scenario starts from the current situation and is trend-based, i.e. it assumes continued liberalisation of trade and major technological advances. Priority is given to economic development, and management of ecosystems and environmental problems is reactive. It is characterised by a sharp rise in crop yields between 2000 and 2050, both in developed and developing countries, owing to major investments in agricultural research, a vast increase in irrigated areas, more efficient use in water and energy, and investments in support infrastructure. New technology includes genetically modified organisms (GMOs), more intensive crop farming and increased use of fertilisers. Almost all farms, small and large, become highly mechanised. Farmers who do not practise intensive farming – either by choice or because they are on marginal land – have very little weight in their country's agricultural sector. Local knowledge is replaced by standardised methods and practices. Environmental problems are approached with the certainty that they can always be overcome once they become acute, and trade is not regulated (Paillard *et al.* 2011: 124).

The experts chose to construct only one other scenario, 'Agrimonde 1', which applied the principles of sustainable development but also included nutrition. This scenario tested the possibility that the 'doubly green revolution' would constitute a better model to deliver jointly ecological, social and economic performance. Agrimonde 1 is a normative scenario that proposes ecological intensification and a reduction in the current inequalities as regards consumption. As such it entails radical change in food production and in food consumption. This scenario assumed that by 2050 the world would be able to create sustainable food and agricultural systems. The aim was to provide insight into such a development pathway including dilemmas, challenges, changes and discontinuities.

Both Agrimonde scenarios pointed to a future where it would be possible to feed the world. But each scenario highlighted weaknesses: the business-as-usual scenario because it seems over-optimistic in relation to yield increases, the alternative scenario because it relies on a radical change in food consumption patterns. But interestingly, in both scenarios, three regions – sub-Saharan Africa, Asia and North Africa/Middle East – would become net structural food importers by 2050, although the scenarios were first built on the basis of regional self-sufficiency. Both scenarios also pointed out the importance of changes in food consumption patterns, which influence production choices, as well as the organisation of the agro-food industry (Hubert and Caron 2009). The contrast between the two scenarios highlights the fact that the agroecology paradigm should receive as high a priority in agronomic research as the green revolution paradigm (*ibid.*).

4.2 Agrimonde-Terra: exploratory scenarios

The Agrimonde-Terra scenarios are exploratory and are illustrated quantitatively as a means of validation. Five scenarios have been built to demonstrate that there is a vast array of possible futures that we cannot see because of ideologies, mental constructions, etc.

The scenario '**Land use driven by metropolisation**' is an ongoing scenario in many regions of the world. The main driving forces of this scenario are market forces and international trade, agri-food companies proposing ultra-processed foods, large metropolitan regions, and rapid climate change. Four other scenarios have been imagined.

Land use for food quality and healthy nutrition: The main triggers of the scenario are globalisation and cooperation, stabilisation of climate change, and changes in diets due to public policy and consumer awareness about health. In 2050, diets are lower in fats, ultra-processed foods, sugars and sweeteners, and higher in fresh products, coarse grains, and pulses. In developed countries, the proportion of animal products has decreased but it has increased in certain developing countries. Crop systems have diversified, incorporating techniques from agroecology, and livestock systems are re-associated with crop production. This array of measures contributes to both limiting agricultural GHG emissions and increasing carbon storage in soil, increasing per hectare yields. Better organised food systems have also reduced food losses and waste, particularly by improving food storage and preservation capacities in countries in the global South.

Land use for regional food systems: Regional agreements and regional food systems are the main triggers of this scenario. In 2050, each region has broadened the range of foods offered. Food industries, in collaboration with agricultural cooperatives and other actors, have adapted to local food products and habits. Production and consumption of roots and tubers, coarse grains, pulses, fruits and vegetables has increased. Crop and livestock systems are transformed. Animal feed is expressly sourced from regional plant production, and trade in organic fertiliser between livestock and crop farms is organised on small and medium scales. Farmers use varieties adapted to local agro-climatic conditions. These changes have positive impacts on agricultural revenues and for rural development.

Land as commons for rural communities in a fragmented world: The main triggers for this scenario are the fragmented world context which has led to the development of smaller towns and new forms of farm organisation. Due to crises, in 2050 land use has become highly diversified from one region to another. Low yield increases have contributed to deforestation in certain regions. Through self-governing institutions defining rules for managing common property, local communities ensure a certain level of food security by turning to agro-ecological practices. Conversely, regions with subsistence farming face repeated episodes of food insecurity.

Land use for multi-active and mobile household: The main triggers of the scenario are the context (globalised, dynamic but unstable because non-state players gradually supersede the power of sovereign governments) and urban–rural relations (high mobility within households to diversify sources of income). In 2050, households aim at the resilience of farming structures to maintain productive capital for all generations. Farming systems are flexible and farming structures are diverse, ranging from small farms with family labour to large, highly capitalised farms. Production systems are intensive, either due to greater use of cutting-edge technologies, or because of techniques relying on a plentiful supply of labour (e.g. agroecology) in response to public demand.

5 Global and regional views

Whether we will be able to feed the world in 2050 is at the heart of Agrimonde and Agrimonde-Terra. But the answer rests in the situation and practices of territories, countries and regions and their relationships. Therefore, both Agrimonde and Agrimonde-Terra had a regional approach: Agrimonde is focused primarily on quantitative upscaling whereas Agrimonde-Terra is focused on the ongoing trends in each region.

5.1 Agrimonde: quantitative assumptions at regional level

For the Agrimonde scenarios, the quantitative assumptions were first developed at regional level. For example, assumptions for human populations and food consumption per inhabitant were developed at regional level by analysing past trends, existing data and references in the literature, as well as the assumptions of scenarios of the MA. Agrimonde's assumptions for the alternative scenario were then developed (Chaumet, Ghersi and Rastoin 2011). Once a scenario was built and tested for its internal coherence for each region and globally, the qualitative dimensions left undetermined by the quantitative analysis were presented mainly at a global scale (i.e. no regional narratives were written).

5.2 Agrimonde-Terra: regionalised global scenarios

The analysis of past and ongoing trends in different regions for all direct and indirect causes of land use change were the basis for the construction of the five 'generic scenarios', i.e. scenarios that identified the drivers and pathways of change and the interactions between the direct and indirect drivers (of change). The regionalised global scenarios were built by looking at current and emerging trends towards each scenario and potential disruptions in each region. There is a presentation of the dimensions of land use in 2050 for each region. The agronomic potential, access to land and land use intensity depend on the hypotheses of the scenario. Distribution of land is the result of the quantitative simulations, and services provided by the land are also the results of the scenario. The four dimensions of food security in each region in 2050 are also presented. Utilisation depends on the food diets in the region, and availability is the result of the scenario simulation.

6 Lessons learned

Above all, a foresight exercise is a process, and three lessons can be drawn from the comparison of Agrimonde and Agrimonde-Terra.

6.1 The foresight process depends on the objectives and the desired changes

The first lesson is that the foresight method is closely linked to the objectives set by the commissioning body and the desired changes. Future studies are a mosaic of approaches, objectives and methods (FTP 2014), and the two Agrimonde foresight exercises demonstrate that the methods should be chosen in relation to the objectives. This is not always done, nor is it necessarily easy. As far as global food security is concerned, most foresight is done with quantitative models so that at the 2nd Global Conference on Agricultural Research for Development (GCARD2) in 2012, the necessity of a plurality of foresight approaches was acknowledged to feed global debates on innovation pathways.

Agrimonde's objectives were set by a leadership of INRA and CIRAD to help programming and inform research policy at national and global levels. The method led to two contrasting scenarios from the comparison of which it was rather easy to draw lessons. The alternative agroecology scenario appeared sufficiently relevant to inspire research agendas built around agroecology as a priority at both INRA and CIRAD (see also SCAR 2011). Furthermore, the two scenarios drew an explicit link between changing food consumption patterns and challenges to agronomic research in terms of agricultural production, yields, areas cultivated, etc. (Hubert and Caron 2009; Treyer 2011). In recent years, the idea that trends in demand for food need to be open to public debate has become increasingly accepted, which provides an opening for agronomic research and policy debate. Agrimonde-Terra's objectives were also set by the institutions' leaderships, but the Scenario Advisory Committee played an important role in linking the foresight exercise to policy discussions. Therefore, the goal of informing policy and embedding participation in policymaking became more important over time. The range of scenarios facilitates the participation of some members of civil society in the policy process.

6.2 A foresight process occurs on a 'sea' of expectations

The second lesson is that foresight necessarily occurs on a sea of expectations (van Lente 2012) which can lead to creativity but also to vulnerability, i.e. not adding much new because of the necessity to compromise. In both Agrimonde and Agrimonde-Terra, there was a leadership team, a steering committee, a group of participants, and each participant had expectations, i.e. 'images of the futures where technical and social aspects are tightly intertwined' (Borup *et al.* 2006) which were not necessarily shared. The exercises drew on existing 'repertoires' and were able to generate alternative ideas. The participatory approach facilitated 'new combinations' between elements of the repertoires, thus enlarging the range of futures.

Behind the understanding that different visions of innovation pathways in agriculture and food systems need to be explicitly discussed, some of the participants in Agrimonde had strong views about ecological intensification and its potential contribution to global food security. They managed to discuss, share and improve these ideas during the course of Agrimonde but also in other instances such as IAASTD, the European Union's Standing Committee on Agricultural Research (SCAR) and the GCARD, where some of them were simultaneously involved. In Agrimonde-Terra, the international experts and committee members brought a wide diversity of points of view which contributed to the construction of the scenarios. Some had expectations about getting out of a purely agricultural point of view on land use, on regional approaches based on ongoing trends, and on usefulness to policymaking. The scenarios approach not only enables thinking outside the box but in new boxes (de Brabandere and Iny 2010).

6.3 The attention given to actors' strategies has been insufficient in both processes

In the French foresight community, the analysis of the strategies of actors is considered important (Crozier and Friedberg 1980; Hatem 1993; Godet 1997; de Jouvenel 2004). Michel Crozier and Erhard Friedberg, in their book *Actors and Systems* (1980), consider not only the set of factors but also the actors as essential to any futures-thinking exercise. If the future is a 'realm of power', then there is the question of the coexistence of various actors who exercise different powers – some conflictual – simultaneously. The power of various actors is unequal, and the distribution and growth of power influences strategies of alliances and conflicts. Despite the fact that they knew and explicitly stated that the analysis of actors' strategies was important, the Agrimonde and Agrimonde-Terra methodological frameworks insufficiently covered this critical dimension. In Agrimonde, a specific workshop was devoted to past trends and future changes in power relations within global food value chains. However, the resulting chapter of the report, though important for the consistency of the whole scenario exercise, has never been considered a central point of discussion. In Agrimonde-Terra, power relations around local land access and management systems – and more broadly – were also put at the centre of the analysis from the beginning. The Agrimonde-Terra narratives help to illustrate that similar exercises cannot avoid looking at these power relations at different scales. Nevertheless, the Agrimonde-Terra scenarios do not themselves give enough attention to issues around power.

Both exercises have opened space for more diverse visions in global and national debates on food security and land use change. To do so, they were designed to maintain a link and some comparability with widely used global quantitative modelling exercises (Labbouz 2014). A next useful step would be to design foresight exercises incorporating as the central feature the capacity to describe and discuss the critical role of actors' strategies and power relations, thus focusing more on pathways than on the descriptions.

Notes

1 Agrimonde was a CIRAD and INRA project under the responsibility of a steering committee composed of Patrick Caron (CIRAD), Catherine Esnouf (INRA), Hervé Guyomard (INRA), Bernard Hubert (INRA) and Alain Weil (CIRAD). The project leader was Sandrine Paillard (INRA) and the methodological coordinator Sébastien Treyer (AgroParisTech), and the team was composed of Maryse Aoudaï (INRA), Jean-Marc Chaumet (INRA), Bruno Dorin (CIRAD), Tristan Le Cotty (CIRAD) and Tévécia Ronzon (INRA), with the collaboration of Rémi Barré (INRA and Cnam), Isabelle Karcher (INRA) and Laurent Parrot (CIRAD).
2 International Food Policy Research Institute.
3 Agrimonde-Terra is also a joint project of CIRAD and INRA. The concepts presented here have been developed by the project team composed of Marie de Lattre-Gasquet (CIRAD, coordinator), Chantal Le Mouël (INRA, coordinator), Olivier Mora (INRA, organiser for scenario building), Catherine Donnars (INRA), Patrice Dumas (CIRAD) and Olivier Rechauchère (INRA), in collaboration with Marco Barzman (INRA), Thierry Brunelle (CIRAD), Agneta Forslund (INRA), Elodie Marajo-Petitzon (INRA), Stéphane Manceron (INRA), Pauline Marty (INRA) and Clémence Moreau (CIRAD).
4 Organisation for Economic Co-operation and Development.
5 FAOStat offers free and easy access to data for 245 countries and 35 regional areas from 1961 through to the most recent year available. See http://faostat.fao.org/.

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A Foresight Scenario Method for Thinking About Complex Sustainable Development Interactions

Dominic Glover, Kevin Hernandez and Alun Rhydderch

Abstract In this article, we describe an innovative foresight approach, which we used to examine the interactions among three themes that are likely to be significant for international development policy and strategy in the coming decades. We adapted existing foresight scenario methods (drivers of change analysis, scenarios, wind-tunnelling) to investigate possible trade-offs, tensions and synergies that may exist among competing international development goals of *reducing inequalities, accelerating sustainability and building more inclusive and secure societies*. Our method combined foresight methods with programme theory analysis, an approach commonly used in impact evaluation. We describe our approach in detail and discuss its strengths and weaknesses.

Keywords: foresight, scenarios, sustainable development goals, SDGs, trilemma.

1 Introduction

Development studies and policy are necessarily concerned with the future – with trying to anticipate it and trying to influence it. The methods of foresight should therefore be intrinsically interesting to development scholars, policymakers and practitioners. Foresight methods have been applied to development policy questions and problems by national governments and international agencies, philanthropic foundations, intergovernmental organisations and international assessment exercises covering sectors such as energy, the environment and climate change (Bingley 2014; Heinzen 2004).

In this article we describe an innovative adaptation of a commonly used foresight approach, namely scenario building, which we used to examine the interactions among three important themes that may be expected to be significant for international development policy and practice in the coming decades. We wanted to explore possible trade-offs, tensions

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and synergies that might exist among competing goals of human development. The multiple aims and simultaneous goals of development policy – expressed for example in the eight Millennium Development Goals (MDGs) of 2000–15, and the 17 Sustainable Development Goals (SDGs), replete with 169 individual targets, which succeeded them in 2016 – may seem like a utopian list of harmonious and mutually reinforcing wishes. What if, in reality, some of the many individual goals and targets are in tension with one another? Could there be inevitable or likely trade-offs between different desirable outcomes? Might progress towards one goal impede progress towards another? Policymakers and practitioners probably need to think about how their strategies need to be sequenced or balanced in order to achieve the best progress they can towards multiple desirable goals at the same time.

Scenario building is a commonly used foresight method that can enable a group of stakeholders and experts to identify major trends and drivers of change, risks, opportunities, threats, hopes and fears relating to a topic of interest (Wright, Cairns and Bradfield 2013). A typical approach to scenario building involves the construction of a two-dimensional matrix in which two intersecting axes, *x* and *y*, create four spaces in which contrasting scenarios may be developed. Important properties or parameters of each of the four scenario spaces are defined by the intersecting axes, and differences among the scenarios are determined by their contrasting positions in relation to the two axes. The axes might represent binary variables (yes/no, positive/negative, presence/absence) or continuous variables (ranges from high to low or maximum to minimum values, including positive and negative values).

Evidently, much depends on which features are chosen as axes to create the scenario matrix. A common procedure for identifying and selecting the axes begins with a brainstorming exercise to generate a longlist of major trends and 'drivers of change', which participants believe are already having or are likely to have a strong influence over the future. These trends and drivers may be grouped into categories such as *social*, *technological*, *economic*, *environmental*, *political* and sometimes *legal* and *ethical* (STEEP or STEEPLE). Participants are then asked to order these numerous factors against two indices: first according to their perceived relative importance as trends or drivers of change and second according to the degree of uncertainty participants experience with regard to the specific ways in which the trend or driver in question may unfold.

Through expressions of individual opinion and collective discussion, with an eye to the overarching topic of interest – global energy systems, conflict, or whatever it may be – two of the identified trends or drivers may emerge as particularly significant. In practice the facilitator of the exercise often plays a decisive role here, since she or he needs to select two major drivers that can be used to define the scenario matrix. To serve this purpose, the drivers or trends have to be expressed as axes, that is, a *scale* or *dimension* consisting of a binary (or categorical) variable or, occasionally and as appropriate, a continuous variable. For example, the important

and uncertain driver *demographic change* might be transformed to the axis *population growth* with the binary values *high/low* or indeed *positive/negative*.

Participants sometimes object at this stage, out of concern that the great majority of the drivers and trends painstakingly generated up to this point are about to be discarded, including many that have been judged to be very important and highly uncertain. This seems to undermine the participatory process that has carried the group to this stage. However, our experience is that most if not all of the drivers of change discussed in the first phase reappear within individual scenarios and certainly across the set of four scenarios, so in practice none of the creative work or discussion done before this step is wasted.

At this stage, workshop participants are typically divided into four small groups to work on one scenario each. The activity moves into a creative phase where the emphasis is on imaginative storytelling. The purpose of this narrative-building is not to predict the future – because the future is fundamentally unpredictable – but to make explicit and draw attention to all sorts of issues, factors, relationships and interactions that should be helpful to planners and policymakers when thinking about the kind of future they expect or fear, or the one they want to create.

The geometry of the two-dimensional matrix defines key parameters which ensure that the four scenarios will be different from each other in key respects that the scenario-builders have judged to be important, and that the set of four scenarios together will open up and test a broad range of possible outcomes that might plausibly emerge from initial conditions of high uncertainty. So long as the chosen axes are considered important and uncertain they can provide a structure in which insightful and thought-provoking scenarios can be developed. Which particular axes are selected for the exercise is to some degree arbitrary, since many other trends, drivers of change and other components will be incorporated as building blocks for the scenarios. In this way the scenarios do the real work, teasing out and bringing to light the diverse factors and dynamics which participants believe will be salient to the future of the topic under consideration. In this situation, the two-dimensional matrix with four scenario spaces serves its purpose well.

In our recent project, we were faced with the challenge of thinking about the interaction among three themes that had already been identified as important for the next few decades of international development policy and practice. Moreover, they were three themes on which substantial conceptual thinking had already been brought to bear on their past, present and future. Our work focused on the development goals of *reducing inequalities, accelerating sustainability and building more inclusive and secure societies*. This language happens to be taken from the five-year thematic priorities adopted in 2015 by the Institute of Development Studies (IDS 2015), but these three themes have much wider relevance as goals for sustainable and equitable global development. The ambition to create a more equal, sustainable, inclusive and secure world is central to the SDGs, for

example, as well as other development strategies, policies and programmes at national and international levels. Arguably, however, less attention has been given to how these strategic priorities relate to one another and interact. Are they essentially harmonious, as many development planners and campaigners might hope? Or can they sometimes be antagonistic? Our project was designed to explore these questions.

We felt that foresight methods could be useful in exploring the interaction between these three themes, but we needed a way to visualise and explore the intersection of three dimensions rather than two. Adding a third dimension to a classic scenario grid would produce a cube with no fewer than eight scenario spaces. To fill each of these with a unique scenario would require a significant investment of resources and produce a complex picture that would be hard to interpret and analyse. We needed a more practical tool.

We also faced the problem that our three dimensions (axes) were pre-determined by the goals of the project. This contrasts with what happens during a typical scenario exercise, as described above, which generally begins with a brainstorming exercise in which a diverse set of people, chosen for the relevance of their knowledge and experience, generates a longlist of drivers of change through an open-ended and participatory process. This activity is important not only for the list of drivers it generates, but also because it serves to engage and energise the participants, stimulating their thinking around the many trends and drivers of change they will need to draw on during the scenario-building phase of the process. We needed to introduce an alternative activity that could serve a similar function as the STEEPLE exercise, stimulating participants' thinking and bringing them up to speed with some background material, while allowing us as facilitators to keep the exercise focused on axes that had already been selected.

This article describes how we designed and implemented a set of participatory scenario-building exercises to meet these requirements. We convened three separate scenario workshops, each of which focused on one of the main themes of the project while also bearing in mind the interaction with the other two themes. The decision to hold three separate workshops rather than a single one was motivated partly by convenience and partly to ensure that each individual topic would receive close and independent examination. Participants in each workshop were recruited on the basis of their specialised knowledge of and interest in the topic in question. It was our job as convenors and facilitators to collect the discussions from each workshop and consider them as a set.

Each workshop had three main phases, as follows:

1 A modified drivers of change exercise in which we primed the discussion using diagrams to summarise the implicit programme theories we found in three source documents, each of which addressed one of the three pillars under consideration in the project.

2 A scenario-building exercise. The scenarios were given a triangular framework called the trilemma, which we adapted from a previous exercise by the energy company Royal Dutch Shell (2005). The trilemma allowed us to focus on the interaction among three different themes, while giving primary attention to one theme in each workshop.

3 A final phase loosely based on the foresight method of 'wind-tunnelling' (Rhydderch 2009). Wind-tunnelling can be used to evaluate the 'fitness' of a given strategy within the scenarios that have just been generated, but we emphasised its alternative use as a way of thinking about policies and strategies that might be used to steer towards a desired future.

In the following sections we describe in more detail how we designed and implemented each of these stages. Our description takes into account some of the lessons we learned along the way, and we have streamlined some details for the sake of clarity.

2 Priming the drivers of change discussion with programme theory analysis

Our first innovation was to use a participatory discussion around programme theory as a substitute for the brainstorming exercise that might otherwise be used to generate a longlist of trends and drivers of change. This was designed to prime the workshop participants with information about the topic of the workshop, engage them in discussion and stimulate their thinking.

Evaluators of project and programme impacts often develop some kind of programme theory to create a basis for their analysis. The core idea is that evaluators (as well as programme designers and managers) require an explicit theory about how the intervention under examination is supposed to produce its desired outcomes. The programme theory tells programme managers and evaluators what mechanisms and indicators to monitor in order to assess whether the intervention is working as expected. The procedure often involves the generation of a logical framework or outcome map that illustrates precisely how and why the inputs of a programme are expected to lead (through one or more intermediate steps) to the desired outcomes (Funnell and Rogers 2011).

We turned to programme theory with a special purpose in view. We interpreted our three international development goals as programmes of action and selected three documents to exemplify the thinking that informed the programme of action – i.e. the programme theory. As part of the work done within IDS to elaborate the Institute's thematic priorities, three working papers were published in 2015, as follows:

- Justino, P. and Moore, M. (2015), *Inequality: Trends, Harms and New Agendas*, IDS Evidence Report 144, Brighton: IDS
- Luckham, R. (2015) *Whose Security? Building Inclusive and Secure Societies in an Unequal and Insecure World*, IDS Evidence Report 151, Brighton: IDS

- Schmitz, H. and Scoones, I. (2015) *Accelerating Sustainability: Why Political Economy Matters,* IDS Evidence Report 152, Brighton: IDS

We took these three documents as source materials for our programme theory analysis. We were taking liberties here, of course; the authors of the three documents were not in positions of executive power or authority in relation to the global goals of sustainable, equitable and inclusive development. They were not programme designers or managers in a strict sense. However, as experts in their respective fields, who were given a mandate to review the development challenges within the distinct arenas of *reducing inequalities, accelerating sustainability and building more inclusive and secure societies*, their analyses could be seen to share some relevant characteristics with programmes, including features such as problem diagnosis, analysis of mechanisms and relationships, priority-setting and strategy development.

We used the software package NVivo (v.11, QSR International Pty Ltd., 2015) to analyse the contents of each of the three documents. We used an open-ended coding system recursively to identify and refine the major themes, key concepts and relationships mentioned by the authors. We paid particular attention to any statements concerning mechanisms or causal relationships, as well as the key actors/agents or structural conditions identified by the authors as playing key roles.

To supplement the documentary analysis, we also interviewed at least one author from each of the source documents using the foresight interview technique known as Seven Questions. In this method, a set of future-oriented questions, which may be adapted as necessary

Box 1 Seven Questions interview template

1 What would you identify as the critical issue for the future?

2 If things went well, being optimistic but realistic, talk about what you would see as a desirable outcome.

3 If things went wrong, what factors would you worry about?

4 Looking at internal systems, how might these need to be changed to help bring about the desired outcome?

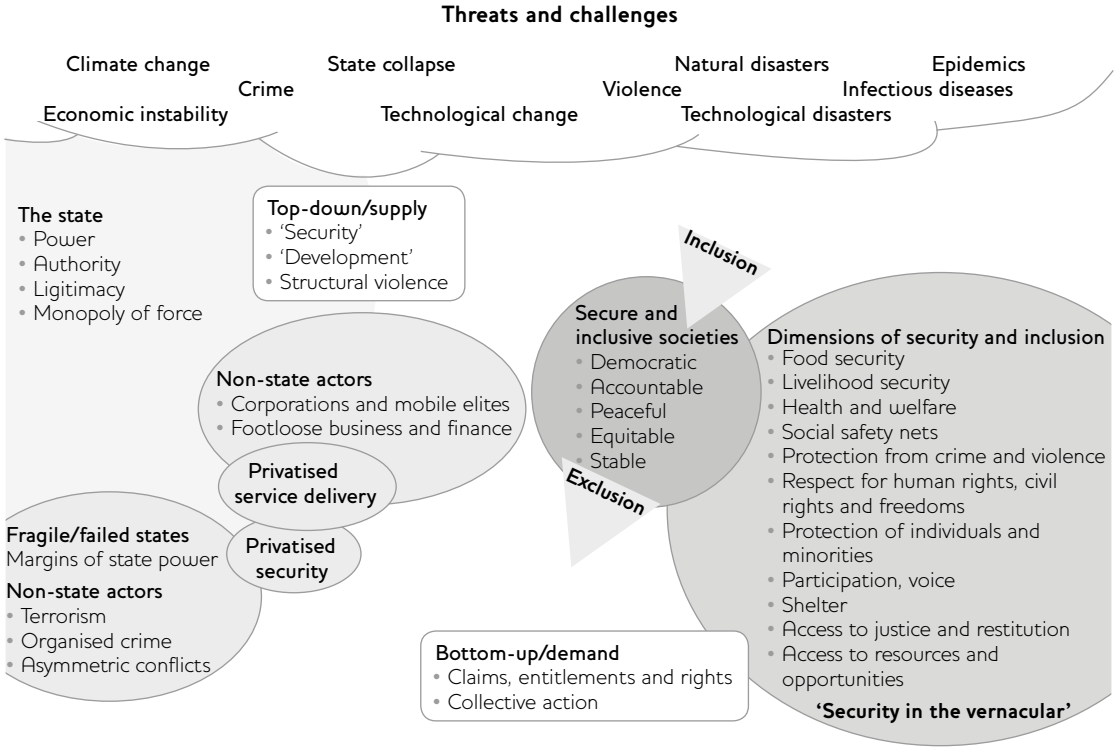
5 Looking back, what would you identify as the significant events which have produced the current situation?

6 Looking forward, what would you see as priority actions which should be carried out soon, if you were responsible?

7 If all constraints were removed and you could direct what is done, what more would you wish to include?

Source: HM Government (2014: 17).

Figure 1 Programme theory diagram



Source Luckham (2015).

to fit the topic in focus, are used as a rapid and effective way to encourage knowledgeable individuals to articulate thoughts, beliefs and expectations about the future, which they may not yet have expressed (HM Government 2014: 17) (Box 1).

We used the insights from our analysis of the source documents and interviews to generate diagrams that would represent the contents of the documents as clearly and faithfully as possible. Our first attempt was to develop outcome chains for each document; however, this effort produced extremely complex diagrams that were very hard to interpret. In our second attempt we distilled the central messages of each document into a simplified visual representation.

Another team of researchers, or indeed the authors of the documents themselves, might well have come up with different summaries of the three documents, but our purpose was not to offer a perfectly objective and complete summary of the contents of each paper. The diagrams were designed to offer participants an accessible summary of the documents' main arguments and key insights, so that they would stimulate reactions, critiques and discussion. In this way, they took the place of the brainstorming exercise that might otherwise be used at the beginning of a scenario workshop to generate a list of trends and drivers of change. An example is shown in Figure 1.

Figure 2 Workshop interaction with the programme theory diagrams

Photo credit Kevin Hernandez.

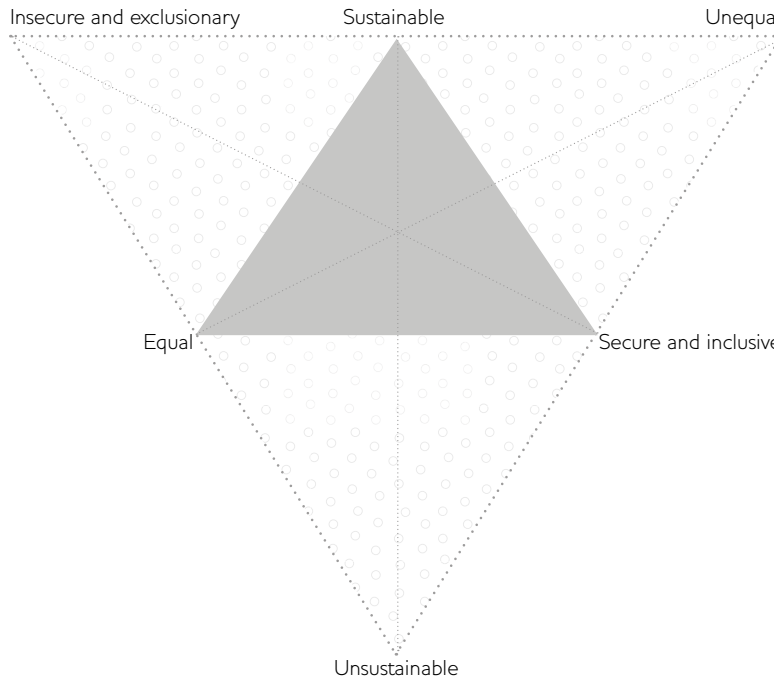
We printed copies of the three diagrams in full colour, including some small poster-sized versions, for use in our workshops. We also displayed the diagrams to the participants as slides prepared in Microsoft PowerPoint, and presented the images orally in detail, explaining them and drawing attention to their key features. This led directly into an open discussion. After a few minutes, participants were invited to reflect individually on their reactions to the diagrams and to add their comments and annotations to the poster versions, using sticky notes (Figure 2). Finally we gathered around the poster versions of the diagrams, which had been heavily annotated with sticky notes, so that individuals could point out and explain their own contributions.

This stepwise process led the participants to engage in detail with the diagrams and there was considerable discussion and sharing of views. The process ensured that we maintained a strong participatory element centrally within the process despite not beginning with an open-ended brainstorming session to generate drivers of change. The discussion and critique of the diagrams brought out many factors and dynamics that later resurfaced within the scenarios that the participants created. The process of deconstructing and critiquing the programme theory diagrams was successful in stimulating thoughtful reflection among the participants and motivating them to improve on the materials we had prepared.

3 Framing the scenarios using the trilemma triangle

Our second move was to use a triangular framework in which scenarios could be created, rather than the typical square matrix. This allowed us to explore the interaction among three major factors or axes, rather than the conventional two, and to do so without entailing a need for as many as eight different scenarios to be elaborated. We based this framework on the 'trilemma triangle,' a concept used previously by

Figure 3 Key features of the trilemma framework



Source Authors' own.

Shell, the Anglo-Dutch energy company (Royal Dutch Shell 2005). In Shell's own foresight study, the trilemma triangle posited a situation in which there were three competing principles or forces: market incentives, regulation and community values. These forces were assumed to be striving towards different objectives – efficiency in the case of the market, security in the case of regulation, and social justice and cohesion in the case of community.

Interestingly, Shell's approach assumed that there were necessary trade-offs among the three principles; society could only maximise two of them at the expense of the third. We did not want to make a prior assumption that such a trade-off must exist among the three development goals of *reducing inequalities, accelerating sustainability and building more inclusive and secure societies*, yet we wanted a structure that would draw out tensions, conflicts and trade-offs between these goals, if they existed. Indeed, a key part of our purpose was to test the complacent assumption that sustainable development strategies must be mutually compatible and harmonious. The Shell experience with the trilemma indicated that the triangular geometry could serve us quite well, although we had to be careful not to preclude the possibility that, after all, the three goals might be mutually supporting or synergetic.

Figure 3 illustrates the trilemma framework we used and highlights some of its key characteristics. The shaded triangle illustrates the basic interaction among the goals of equality, sustainability, and security/

inclusion. Each corner of the triangle is in a direct relationship with the other two corners. A given situation or scenario might be interpreted as being situated somewhere within the shaded zone but, as emphasised by Shell in their treatment of the trilemma triangle, potentially closer to one or two of the poles than the other(s).

As with the conventional scenario exercise, described at the beginning of this article, it is helpful to transform the singular poles of equality, sustainability and security/inclusion into axes extending, respectively, from equal to unequal, sustainable to unsustainable and secure/inclusive to insecure/exclusionary. These axes are depicted in the diagram by the dotted lines that extend from each corner of the shaded triangle and bisect its opposite side. The points where these axes cross the sides of the shaded triangle resemble the intersection point between the two axes in a conventional two-dimensional matrix, except that, in this case, the axis (e.g. equal–unequal) is shown interacting with two other, qualitatively different principles (e.g. sustainable and secure/inclusive) rather than a single axis that has a positive and negative pole.

The extension of the three axes beyond the edge of the shaded triangle allowed us to depict the shaded triangle's opposite case in which the negative poles – *unequal*, *unsustainable* and *insecure/exclusionary* – define a larger, dystopian triangle, shown with a dotted background, where all the dimensions are negative.

A useful feature of our trilemma framework is that it allows us to think systematically about interactions between positive and negative themes. For example, each side of the larger triangle connects two negative poles (e.g. insecure/exclusionary and unsustainable) with one positive pole (e.g. equal). Alternatively, each corner of the large triangle represents a negative pole (e.g. unequal) in a relationship with two positive poles, located at corners of the shaded triangle (e.g. sustainable and secure/inclusive). (Another way of expressing this is to interpret the three small dotted triangles, outside the shaded zone, as spaces where one of the poles is negative while the other two are positive.) This feature of the diagram was beneficial for our scenario deliberations because it forced participants to contemplate potential negative interactions (such as tensions and trade-offs) as well as positive interactions (as defined by the shaded triangle). We will return to this point in a moment.

Helpfully, the diagram in Figure 3 can be read in several different ways. This multiplicity of readings can be illustrated by focusing on the points within the diagram where lines intersect. As discussed above, for example, the axes of equal–unequal, sustainable–unsustainable and secure/inclusive–insecure/exclusionary each cross the sides of the shaded triangle. This property can be used to show how a range of positive or negative outcomes on one scale (e.g. un/equal) might exist, in principle, with a positive outcome in two others (e.g. sustainable and secure/inclusive).

The very centre of the diagram depicts the intersection between all three of the axes in which we are interested. This successfully illustrates the idea that a given situation or scenario might have any of a range of positive and negative values on each of the three axes, so that in principle it might be plotted in a specific location in three-dimensional space. However, the diagram could be read as implying that a perfect balance among the three goals would be found at the centre point of the diagram yet this is also, logically, the point where all three axes are at their zero value. In other words, the geometry of the diagram implies that it is impossible to optimise the three competing goals at any value above zero. This is the drawback we touched on above, namely the structural implication that there must be a trade-off among the three desired goals. To play down this feature, we began to refer to the entire shaded triangle as the favourable zone within which development actors should strive to achieve a positive balance among the three development goals.

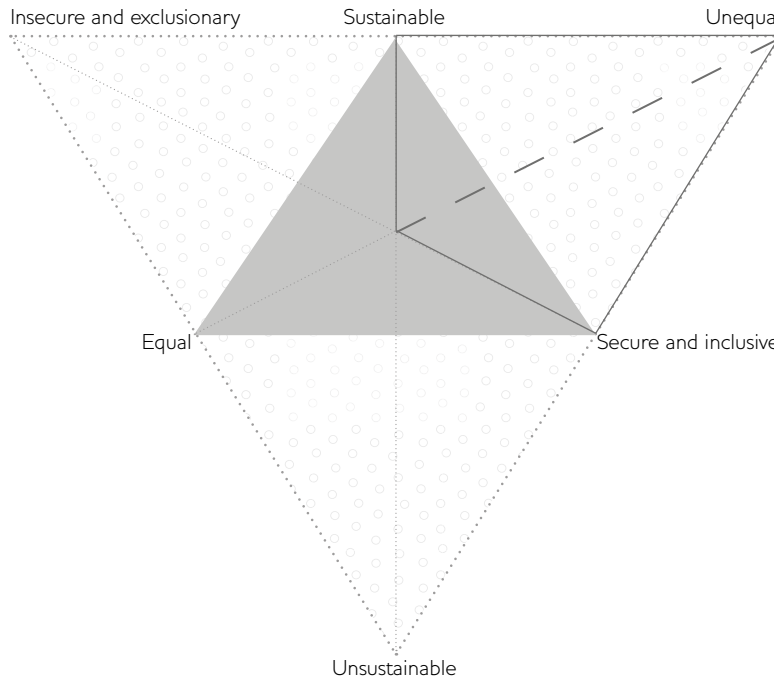
If the three sides of the shaded triangle were imagined as folds in an origami model, the shaded zone would form one plane of a tetrahedron (three-sided pyramid) and the goal for development policy or strategy would be to steer towards a position somewhere on that plane. This model would imply that the three (negative) points of the large dotted triangle in Figure 3 would come together to form a single corner or apex of the tetrahedron, thus seeming to unite inequality, unsustainability and insecurity/exclusivity in one place.

It is immediately obvious that by reversing the polarity of the axes within the trilemma we could have used the tetrahedron to illustrate the bringing together of the positive goals of development instead – equality, sustainability and security/inclusion. Had we done this, any sub-optimal alignment of the three goals would have produced a scenario that could be located geometrically at a point somewhere within the three-dimensional space of the tetrahedron. As well as being situated at some to-be-determined distance away from the triple-positive apex, such a scenario would also be displaced laterally from the central axis of the tetrahedron, as determined by its relationship to each of the three negative apexes at the corners of the opposite plane (i.e. the plane we have referred to as the 'shaded zone' above, but now with negative instead of positive characteristics).

This visualisation might have been helpful to some of our workshop participants, although depicting and discussing three-dimensional space is generally quite difficult. With sophisticated video graphics we might have achieved it, albeit at some expense. A potential drawback of visually modelling the union of three desirable development goals in a single apex of a tetrahedron is that it could have undermined the emphasis we wanted to bring to the potential for trade-offs and tensions to exist among the three competing goals.

We used the trilemma framework in the following way. After the discussion of the programme theory diagrams and drivers of change,

Figure 4 Scenario spaces (example for the (in)equality scenario exercise)



Source Authors' own.

we introduced the trilemma framework and discussed its basic features and characteristics, as outlined above. We then set up the scenario-building exercise. For this part of the process, we wanted participants to focus at first on possible negative scenarios for the goal in which they were particularly interested. For example, we wanted participants in the 'reducing inequality' workshop to explore scenarios of high inequality. Correspondingly, we wanted the participants to address the possibility of scenarios in which negative outcomes for the goal in which they were most interested could be associated with positive outcomes for the other two goals (e.g. sustainable and secure/inclusive). We asked the participants to undergo this discomfiting mental exercise in order to ensure that our process would achieve the objective of teasing out possible negative associations or relationships that might be envisaged.

We illustrated this approach using Figure 4. The bold dark grey lines in this diagram delineate a kite-shaped scenario space, which is divided by the dashed line into two triangles. Both the kite and the triangles contain an area that falls within the shaded zone, but at first we asked participants to concentrate on the dotted portion, where negative interactions would come to the fore.

To ensure that the interaction with each of the secondary themes of the workshop received proper consideration, we divided our workshop participants into two small groups and each group focused on one of the triangles. Each small group generated the outlines of a scenario that was

dystopian to some degree. Some participants found this quite challenging and uncomfortable, although the exercise also created moments of black humour that were helpful to the creative and imaginative atmosphere we wanted to sustain. The exercise also forced participants to confront some unpalatable possibilities in which development progress in some areas might not be accompanied by success in other areas and might even come at their expense. (For example, a world that achieves substantial equality in material wealth might also have levels of consumption that are incompatible with ecological sustainability; or a world that achieves high levels of economic security and inclusion might be highly unequal in the distribution of wealth.)

The two small groups presented their dystopian scenarios to each other, and these were discussed for a short time before we moved to the final phase. In the final phase the two groups came together again and the whole group elaborated a third, unified scenario that integrated the interactions between the axis of principal concern and both of the other axes – in other words, a single scenario occupying the space of the entire kite in Figure 4.

At this stage, our process blended the construction of a vivid and plausible scenario with a discussion of strategies, processes and policies that might help to steer away from dystopian or unsatisfactory scenarios towards the shaded zone. The shaded zone represented the future that development policymakers, practitioners and researchers should strive for: one that is secure and inclusive, sustainable, and more equal than today.

We based this part of the workshop on the foresight method known as 'wind-tunnelling', which often concludes a scenario-building exercise. Wind-tunnelling may be used to assess the likely usefulness or effectiveness of policies or strategies that might be adopted within the future scenarios that have just been created. Put another way, wind-tunnelling can be used to think about ways to steer society towards desirable scenarios and away from undesirable ones (Rhydderch 2009). Thus, simultaneously with the construction of the unified kite scenario the participants considered what it would take to navigate successfully to the shaded zone. As a result, rather than painting a snapshot of a future world, the scenarios emphasised steps, processes and developments that could plausibly lead from today's world to a desired future world that will be more equitable, sustainable, secure and inclusive. Our scenarios were set 30 years into the future, around the year 2046.

One of our three workshops deviated from the process described above because, due to inconvenient scheduling and illness, we had fewer people in the room on the day than we had intended. To handle this situation, instead of dividing the participants into two groups to consider the two triangular scenario zones (depicted in Figure 2) separately, we worked with a single group. Still focusing on the outer, dotted portion of the kite at first, participants were asked to build a scenario for a future that would be insecure/exclusionary yet also sustainable and equal. This proved quite challenging but, nonetheless,

the workshop moved very smoothly and the participants successfully built a scenario that brought to the surface the interactions we wanted them to explore.

4 Discussion

The substantive outcomes of our scenario workshops will be reported in a forthcoming project report. From a methodological point of view, the workshops were very successful in generating a set of vivid and thought-provoking scenarios, but their chief value emerged from the richness of the discussions and debates that took place during three lively and stimulating days. Our process was praised by several participants, who found the experience enjoyable and useful to their own work.

We demanded a lot from our workshop participants. We depended heavily on their willingness to go along with a scenario-building process in which several parameters were fixed in advance, and which required them to perform some challenging mental gymnastics. Our experience was that the participants accepted these constraints and were willing to trust the process we had designed, even when aspects of the exercise seemed contrived or uncomfortable. We believe that part of our success stemmed from our ability to demonstrate that we had prepared carefully and in depth, and we took the time to explain our process in detail, allow time for discussion, and seek consent to move forward with each step. The programme theory diagrams we prepared served not only to inform the participants and prime the discussion, but also to show that we had made careful preparations before the workshop began. Several participants said that they found the diagrams informative and stimulating, and they appreciated the effort invested in creating and explaining the images.

In this regard we were helped by the richness of the source documents and their suitability, as we expected, as a basis for programme theory analysis. It was also helpful that our workshop participants were drawn from among development scholars within IDS and the University of Sussex, most of whom knew one another at least a little even if they came from different schools or units. They shared an institutional as well as a professional interest in exploring the development policy themes discussed during the workshops, which was a source of goodwill towards the process we designed.

Our two key innovations were to use programme theory analysis to prime the drivers of change exercise in each scenario workshop, and to use the trilemma framework as a means of focusing the scenarios. The programme theory analysis worked by feeding existing information into the process in a way that ensured participants focused on the three themes under consideration, while stimulating debate and still allowing plenty of scope for participants to bring their own insights and concerns into the discussion. The trilemma triangle successfully framed the scenarios as spaces in which to explore the interaction among the three themes and avoided multiplying the number of scenarios to an unhelpful degree.

The trilemma triangle was particularly successful in forcing participants to confront the possibility of trade-offs and tensions among the three themes, which helped to expose some of the difficulties and challenges which might be faced in international development in the coming decades. The concept of the 'shaded zone' and the wind-tunnelling aspect of the final scenario helped to crystallise some of the key policy areas, mechanisms and intervention opportunities that might be used by development scholars, policymakers and practitioners to achieve their goals in international development.

During the scenario exercise, some participants expressed a preference to focus on a positive outcome for their topic of personal interest in interaction with negative outcomes for the other two themes, whereas we asked them to take the opposite approach (as illustrated by the shaded/dotted kite in Figure 4, which addressed the interaction of inequality with sustainability and security/inclusion). We could easily have accommodated this preference by reversing the polarity of the three axes within the trilemma. As discussed above, this might have worked particularly well if we had used a tetrahedron, but that would have brought its own problems.

Our use of the trilemma triangle differed from the one adopted by Shell. Whereas their model assumed that there must be a trade-off between three forces that were mutually in tension, it was important for our purposes that we allowed for the possibility of mutual harmony among goals while not neglecting the possibility that they might be antagonistic or in competition with each other.

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Food Insecurity: The Future Challenge*

Robin Bourgeois

Abstract At a time where the amount of food produced worldwide is sufficient to feed all, the number of food-insecure people remains high. This article presents an analysis of a number of futures studies on food and agriculture, at both local and global scale, and using quantitative and qualitative methods, with a specific focus on how they frame and address food security. After identifying future key drivers of change, implications for food security are discussed. The results show that futures studies in agriculture are entering into a third generation where key drivers of change include social and political forces as potential sources of discontinuities. It is proposed to move the field of futures studies from the exploration of food security to the exploration of food insecurity, whose multiple roots are anchored in social, political, economic and institutional dimensions, and to focus these future studies on ruptures and discontinuities rather than trends.

Keywords: Food security, futures studies, agriculture, policies, societal values.

1 Introduction

In 2013, at the Special Joint Meeting of the United Nations Economic and Social Council (ECOSOC) and the Economic and Financial Committee (EFC) of the General Assembly on 'food security and nutrition', 11 recommendations were made to address the challenges of hunger and food security. These emphasised the need for an integrated approach to link food security with the three economic, social and environmental dimensions of sustainable development. It was also acknowledged that the 'global food production is sufficient – the world needs to focus on improving access to food and reducing food loss and waste', and advocated hunger eradication as a priority for the post-2015 development agenda (ECOSOC 2013: 5). It is against this background that this article discusses future perspectives for food security through a review of foresight studies in this field.

Futures studies have been defined as 'a trans-/multidisciplinary field of research with a diversity of schools of thought, qualitative and quantitative methods, approaches and applications' (Patokorpi and

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Ahvenainen 2009: 128). Such studies commonly use one of two perspectives: 'explanatory-predictive' or 'proactive-creative' (*ibid*.: 2009: 129). For the purpose of this article a futures study is considered as 'any study that provides a systematic exploration of possible futures'. This definition encompasses a wide range of forward-looking approaches such as projections, forecast, scenario building, foresight and visioning.

The 2nd Global Conference on Agricultural Research for Development (GCARD2) in Punta del Este, Uruguay in 2012, included a session on foresight (Holderness, Palmier and Strange 2013). The objective was to introduce and share experiences with the use of foresight in relation to issues around food and agriculture. Preparation for the session included a review of available foresight studies. This article presents the main findings of that review. Section 2 presents the methods used for the review, and Section 3 presents the results. Implications and suggestions for further research are discussed in the final section.

2 Methodology

Foresight work around food and agriculture was identified by searching websites, identifying and collecting relevant documentation, and through a worldwide survey. The survey was prepared in seven languages and included questions about activities related to the future of agriculture and rural development over a 20-year time horizon. It was administered through a web-based survey provider and invitations to participate were sent to 5,848 organisations or individuals which included all GFAR and Institutional Learning and Change Initiative of the CGIAR (ILAC) partners.[1] The survey remained accessible online for seven weeks and three reminders were sent during this period. The vast majority (93 per cent) of the email invitations were successfully delivered. In total 1,136 surveys (20 per cent) were submitted, of which 620 were complete and

Figure 1 The process

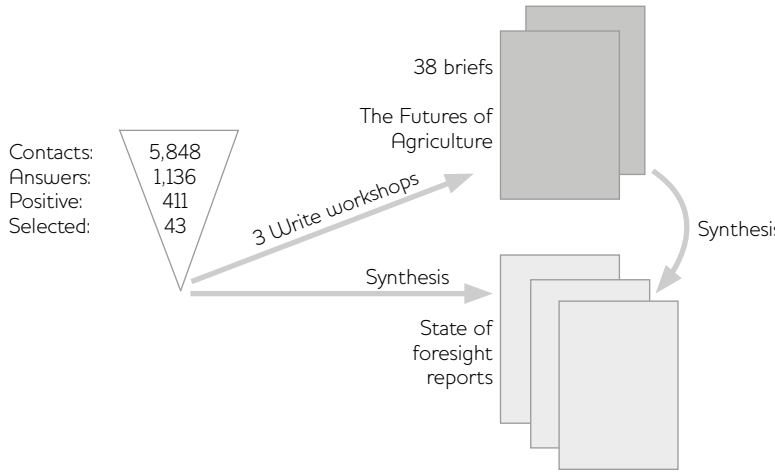

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Table 1 **Titles in the 'The Futures of Agriculture' series**

Global studies

Brief No. 01: Sustainable Food Consumption and Production in a Resource-constrained World (SCAR3)

Brief No. 02: A Table for Seven Billion: Six Billion have Enough to Eat – (Only) One Billion to Go (Oxfam)

Brief No. 09: Biofuels and Agricultural Markets: Implications for Food Security (IFPRI Biofuel)

Brief No. 13: Towards Sustainable World Food Systems: Drivers, Key Issues and Research Needs (Dualine)

Brief No. 15: Does Less Meat for Some Mean Cheaper Food for Others? (IFPRI Changing Diets)

Brief No. 16: Exploring the Limits of Food and Farming Systems: The Agrimonde Scenarios (Agrimonde)

Brief No. 17: World Food Supply in a Context of Environmental Change and Increasingly Competing Claims on Natural Resources (PBL)

Brief No. 21: Debunking the Water Scarcity Myth: Understanding Future Water Use Challenges (BFP/CIAT)

Brief No. 38: What are the Likely Developments in World Agriculture towards 2050? (FAO AT2050)

Brief No. 40: What Challenges is Agriculture Facing? Five Scenarios for 2050 (SUAS2050)

Brief No. 42: The Future of Food and Farming (UKForesight)

Brief No. 43: The Livestock–Climate–Poverty Nexus (ILRI)

Regional studies

Brief No. 03: No Foresight, No Food? Regional Scenarios for Africa and South Asia (CCAFS)

Brief No. 05: Foresight Prompts Researchers in Pest Management to Look Beyond Research (Endure)

Brief No. 07: The Future of Rural Europe: Lessons from a Multi-scale Modeling Approaches (Eururalis)

Brief No. 08: Shaping French Transdisciplinary Research Priorities for the Mediterranean (PARME)

Brief No. 11: Food Security in the Mediterranean in 2030: From Foresight to Research Priorities (SAMAQQ)

Brief No. 14: How Might Agriculture Develop in Southern Africa? Making Sense of Complexity (SASP)

Brief No. 19: Evolving Towards a Low-Carbon Society (APEC-LCS)

Brief No. 25: Tres escenarios y un 'trilema' (FONTAGRO)

Brief No. 28: Posibles escenarios para la investigación, la innovación y el desarrollo en los países de Cono Sur (CONOSUR)

Brief No. 31: I'd Rather be Foresighted than Myopic: Foresight Exercises for Agriculture, Food Security, and R&D in Latin America and the Caribbean (LAC_Foresight)

National/local studies

Brief No. 04: Teagasc 2030: Creating Knowledge for Ireland's Bioeconomy (Teagasc2030)

Brief No. 10: Bureau for Food and Agricultural Policy (BFAP): Your Partner in Decision Making (BFAP)

Brief No. 18: Seeking Harmony: Scenarios for Nature Conservation and Agricultural Development in Kapuas Hulu District, Indonesia (CoLUPSIA1)

Brief No. 20: Shaping the Future for Agriculture in Taiwan (Taiwan2025)

cont./

Table 1 Titles in the 'The Futures of Agriculture' series (cont.)

Brief No. 23: Fallen, Wild or Planted? The Future of Thai Agriculture (Thai2020)
Brief No. 26: Preparing for Emerging Challenges to Animal Health in Canada (Fore-Can)
Brief No. 27: A Quarter Century of Forward-looking Policy Analysis (FAPRI-MU)
Brief No. 30: Can Climate Change Affect the Future of Crop Production in Brazil? (SCAF Brazil)
Brief No. 32: El futuro ambiental de una provincia: Mendoza al año 2030 (Mendoza2030)
Brief No. 33: Can Brazil Feed the World? Not Yet, But it has the Potential! (IPEA)
Brief No. 34: Chile agroalimentario, forestal y rural al 2030 (Chile2030)
Brief No. 35: Securing and Building the Future of Quebec Agriculture and Agrifood (Quebec)
Brief No. 36: Building the 5th Strategic Plan of Embrapa 2008–2023 (EMBRAPA5SP)
Brief No. 37: Innovar para un agro colombiano competitivo (AgroColombiano)
Brief No. 39: Building a Shared Vision: Scenarios for Collaborative Land Use Planning in Seram Island, Central Moluccas Regency, Indonesia (CoLUPSIA2)
Brief No. 41: Agriculture 2030: A future for Morocco (Morocco2030)

Source: Author's own.

included in the analysis. This rate of response was considered acceptable given the very specific nature of the survey and the fact that invitations were sent to a broad list of individuals and organisations.

A total of 411 respondents indicated that they had engaged in foresight activities related to agriculture, rural development or farming systems. They were all subsequently contacted and asked to provide documentation of this work. This documentation was screened by a group of 12 foresight specialists drawn from international research centres (4), universities (3), national research centres and organisations (5), and representing eight different countries.

Only studies that met the following three criteria were included in the analysis: (1) the work was recent (published or completed less than five years before the survey); (2) the time horizon of the study was at least ten years ahead; and (3) the core issues related to agriculture, rural development and/or farming systems.

Survey respondents were also asked to identify any other relevant studies of which they were aware. Simultaneously, a multilingual group of interns conducted a literature and web search for additional studies that met the same three criteria.

Altogether 65 studies were identified that met these criteria. Authors of these studies were invited to attend one of three workshops at which they would be assisted to produce a short four-page summary or brief of their study. All the briefs shared a common format covering: content, process, impact and lessons learned. Some authors who could not

Figure 2 Distribution of the case studies according to scale and methods

Qualitative	SCAR3 Oxfam Dualine Agrimonde	CCAFS Endure SAMAQQ PARME SASP APEC-LCS LAC_Foresight	Teagasc2030 Taiwan2025 Thai2020 Fore-Can FAPRI-MU Chile2030 AgroColombiano Morocco2030	CoLUPSIA1 Quebec CoLUPSIA2
Mixed	PBL BFP/CIAT FAOAT2050 SUAS2050 UKForesight ILRI	FONTAGRO CONOSUR	SCAF Brazil IPEA EMBRAPA5SP	Mendoza2030
Quantitative	IFPRI Biofuel IFPRI ChangingDiets	Eururalis	BFAP	
	Global	**Regional**	**National**	**Sub-national**

Source Author's own.

attend a workshop accepted to work remotely on their brief. In total, 38 briefs were produced and published in an open access series called 'The Futures of Agriculture' (Table 1).[2]

The whole process is outlined in Figure 1. The analysis provided in the remainder of this article is based on the 38 briefs.

3 Findings

The scale of the 38 studies ranged from global (12) or regional (10) to national (12) or sub-national (4). The methods used in the original studies, reflecting the nature of the data used and the knowledge generation process, were grouped as either quantitative, qualitative or mixed. Quantitative studies use exclusively methods such as projections, trend analysis and modelling, while qualitative studies use exclusively methods such as exploratory scenarios, Delphi and horizon scanning. Mixed studies combine quantitative and qualitative methods. In total, four studies used quantitative methods, 12 used mixed methods and 22 used qualitative methods (Figure 2).

Analysis of the distribution of key topics addressed by these studies shows that food security was the most important topic at the global and regional scales, while productivity and sustainability are more important at national scale (Table 2).

Drivers are defined as 'factors causing change, affecting or shaping the future'.[3] Analysing drivers is important because it helps understand what forces have been, and could be at play with a potential to transform the current situation into alternative and plausible futures (Godet 1986; Saritas and Smith 2011). Drivers are related to the analysis of the causal

Table 2 **Distribution of topics according to the scale of the studies**

	Topic		
Scale	Food security	Productivity	Sustainability
Global	12 (100%)	7 (60%)	8 (75%)
Regional	5 (40%)	3 (30%)	3 (30%)
National	4 (25%)	6 (40%)	6 (40%)

Note A study may combine different topics.
Source Author's own.

relations behind an observed phenomenon (hunger in this case) and unveil the worldviews on which futures studies are designed by their authors (Inayatullah 1998). In the 38 studies eight clusters of drivers were identified, which are described in turn below.

Climate change: Twenty-two studies refer to climate change as a global constraint to be taken into consideration through adaptation strategies. Nine of them are global studies; seven are regional studies and five are national studies. However, four global studies (Briefs 21, 40, 42, 43), two regional studies (Briefs 11, 19) and three national/local studies (Briefs 23, 30, 34) directly and explicitly integrate climate change as a key driver. Most integrate climate change into their scenarios and analyse its implications for food and agriculture (Briefs 11, 19, 21, 23, 30, 34). A key challenge is coping with increasing uncertainty due to more frequent and unpredictable weather events. In the worst scenarios, major disruptions from climate change reduce agricultural outputs and threaten the lives of the most vulnerable population. Most studies assume that timely corrective actions can prevent or mitigate negative impacts, but such actions will require significant change in policy and social behaviour. The concept of 'no regret' actions (actions which would be beneficial even in the case of no climate change) is proposed in Brazil (Brief 30); while in Asia, it is assumed that greater accuracy of climate modelling due to increased computer processing power will facilitate movement towards a low carbon society (Brief 19).

Demography: Five global, four regional and three local studies give prominence to demography. The most frequently cited issue is population growth (Briefs 07, 08, 17, 21, 38, 39, 40, 41, 42) followed by variables linked to the distribution of population such as urbanisation, migration and density (Briefs 08, 11, 21, 31, 41) and structure of the population, including ageing (Briefs 08, 11, 21, 31). Five studies explicitly take demographic variables as key drivers of change (Briefs 07, 17, 21, 38, 40). The main challenge seen to arise from population growth and distribution is total food availability. These studies also highlight local conditions and dynamics linking demography and food security (Briefs 07, 38, 40).

Trade and markets: Nineteen studies included trade and markets in their analysis. Seven of them (one global, three regional and three

national studies) used trade and market as drivers of change (Briefs 07, 16, 25, 36, 28, 41). They highlight the role of regulation, such as trade and market barriers, in shaping future food security. These studies converge around scenarios that contrast future trade regimes: a liberal world led by global market forces; a world of global trade regulated by international institutions; and a world of regional or fragmented trade and markets. They all consider that deregulated trade would threaten sustainability and increase food insecurity and inequality. Some studies explore strategies related to the evolution of global trade. For example, the study by FONTAGRO concentrates on a more competitive, efficient and sustainable family agriculture based on links with markets and better knowledge flows, better use of natural resources and adaptation to climate change (Brief 25). In the Morocco study, three scenarios of trade regulation were developed and led to the design of the 'Plan Maroc Vert'. This plan is based on two pillars for agricultural development: the first pillar supports the integration of agricultural and agro-industrial firms in the world economy while the second seeks to modernise a small-scale agriculture based on solidarity, and supported by public intervention linking local entrepreneurship and community development (Brief 41). In the Agrimonde study, an economic growth scenario is opposed to an ecosystem preservation scenario. However, the conclusion is that in both scenarios food trade will remain necessary to secure regional food needs, and that global food security in 2050 will be primarily a matter of food access as opposed to food availability (Brief 16).

Income and growth: Four studies cited income or economic development and growth as key drivers of change (Briefs 07, 13, 31, 40). The key linkage is how economic growth drives change in consumption patterns, with potential ramifications throughout the food system. The Dualine case study states that 'when incomes increase we observe an increase in calorie consumption, then an increase in the share of calories from animal products and then stabilisation' (Brief 13). Economic growth and rising income can be associated with different outcomes. On the one hand, global food security improves, but on the other, nutrition and health problems such as obesity are on the rise. Income distribution is also critical: although production might increase enough to satisfy global needs, there is no guarantee that food insecurity will be abated.

Technology: Five global, four regional and six national studies included technology as a driver of change. They mainly take technology in a broad sense (Briefs 09, 16, 21, 25, 28, 40, 41). For example, in some studies intensification under a productivity paradigm is contrasted with agroecology or ecological intensification (Briefs 16, 25, 28). The Agrimonde study suggests that food security can be achieved through an alternative paradigm of ecological intensification, while the Morocco study suggests that different technological paths are needed to support different farming systems. However, most studies also link shifts in the technology paradigm to a shift in societal values and policies, so that food security and sustainability are not necessarily in tension. This is highlighted in Brief 09 which suggests that new generations

technology may reduce negative impacts of biofuel production on food security. However, the case of the river basins in Brief 21 shows also that technology must be considered in a wider context of potentially conflicting objectives and trade-offs (e.g. a dam for hydro energy threatening fishery and rice production).

Some of the studies address the question of farming systems with the future being characterised by a divide between technology and capital-intensive systems, often at large-scale, and ecologically-oriented systems, often associated with small-scale, family-based agriculture (Brief 17). The first type is associated with trends towards more concentrated commodity production for mass consumption. The second takes different forms according to the location (small-size family farming in regions where people are poor and levels of education are low, where farming can play an important role in the economy and social life – Brief 41), or hobby or part-time farming for a more diversified consumption and/or niche markets. Interactions between different types of farms are also highlighted leading to the question: how can different farms coexist in the same geographic and economic space (Brief 02, 03, 08, 41)? Indeed, many studies consider the possibilities of alternative futures with different ways of farming, providing insights on potential evolution and challenges (Briefs 02, 03, 04, 05, 17, 23, 41) or priorities (Briefs 20, 36, 41) for farmers and future farming patterns.

Consumption patterns: In 13 studies, change in food consumption is explicitly considered as a driver of future production patterns and food security. Of these, eight consider consumer behaviour as a global driver, with most highlighting the trend towards the standardisation of Westernised consumption patterns with more animal proteins and higher calorie intake (Briefs 01, 15, 38, 42). Change in consumption patterns is related to other drivers such as income growth and urbanisation (Briefs 13, 38). Policy is seen as having a crucial role through its potential to influence food consumption patterns (Brief 01). Waste and loss management emerges as an area where policy can influence both production and consumption. Some studies suggest possible ruptures where food demand becomes more regional and diversified, and where dietary patterns could evolve in contrasted ways, including a possible decrease in the consumption of animal protein and healthier more diversified diets (Briefs 01, 15, 16, 42). Two studies suggest that convergence of dietary patterns is not inevitable (Briefs 13, 38).

Policy: Policy is presented as a key driver of change in 30 studies. In the national studies it is presented as one of the two axes of uncertainty used to build scenarios of the future of agriculture in Southern Africa (Brief 14) and in Thailand (Brief 23). It is also one of the six drivers on which scenarios for nature conservation and agricultural development were built in Kapuas Hulu district, Indonesia (Brief 18). Several policy variables were combined to build scenarios for collaborative land use planning on Seram Island, also in Indonesia (Brief 39). National trade policy is the main driver of the three scenarios in the case of agriculture

in Morocco (Brief 41). Policy is also constitutive of the axis on the national environment for research, development and innovation in the scenarios used to build the 5th Action Plan of Embrapa in Brazil (Brief 36). Most studies consider policy as a driver of change towards non-trend scenarios, or as a potential factor of discontinuity. That policy matters is thus not just a general statement; some of the studies go deeper and suggest how policies can shape the future. These include, for example, governance and cooperation styles such as the respective role of state and non-state actors (Brief 03), or power relations (Brief 40).

Societal values: Twelve studies include societal drivers of change, such as values, behaviour (excluding consumer behaviour) and education. Seven studies take a national or local perspective, and highlight the importance of social values in preparing for emerging challenges to animal health (Brief 26), evolving towards more sustainable use of resources (Briefs 19, 32), land use planning (Briefs 18, 39), building scenarios for research or development (Briefs 28, 41). These studies show how important societal drivers are for food security and sustainability, and that food and agriculture cannot be dissociated from their socioeconomic and cultural environment. As stated in Brief 21, food security 'is not about food, it is about peoples' lives'.

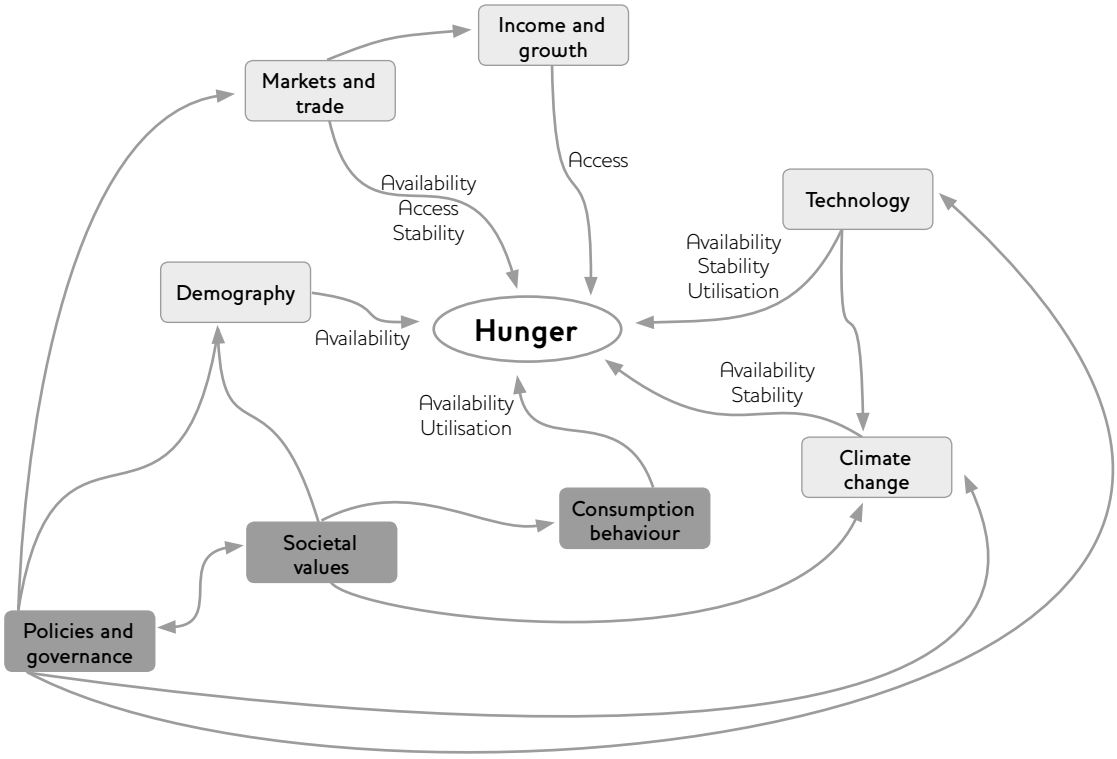
4 Discussion and implications

Figure 3 shows how the drivers highlighted in the studies are linked to hunger. These foresight studies suggest a strong association between food security and climate change (i.e. changes in temperature, rainfall and frequency of climatic hazards compared to the past) and demography (i.e. changes in the number and distribution of people on earth) (Khan *et al.* 2014; Reilly and Willenbockel 2010; Beddington *et al.* 2012; Vervoort *et al.* 2014). The studies also show a strong tendency to highlight policy and governance as key drivers; indeed policy and governance are increasingly considered not just as part of the solution but also as part of the problem. Consumption patterns and societal values are emerging from this inventory as new drivers of change (de Haen and Réquillart 2014).

These observations resonate with other work which suggests an evolution in the focus on futures studies through three stages (Georghiou and Keenan 2006; Georghiou 2003): technological forecasting; integration of technology and markets; and integration of technology, markets and social dimensions.

Although food security is widely recognised as encompassing four dimensions – availability, access, utilisation and stability (FAO 2009) – availability continues to dominate debate (Khan *et al.* 2014; van Dijk and Meijerink 2014). Yet, several global studies and most of the regional and national studies reviewed here emphasise the importance of access to food. In this sense they are in line with other foresight work on food security (de Haen and Réquillart 2014; Hubert *et al.* 2010). Indeed, others acknowledge that 'global food security is not only about producing enough food for the world's population. Questions of access

Figure 3 Drivers of hunger highlighted in the briefs



Note Drivers indicative of 1st and 2nd generation studies are in light grey boxes, while those associated with emerging drivers indicative of 3rd generation studies are in dark grey boxes. Connecting arrows represent influences as highlighted in the case studies. Arrows linking drivers with hunger are labelled with regards to the four dimensions of food security each driver is directly affecting (food availability, food utilisation, food access and food stability).
Source Author's own.

need to run alongside those of availability' (The Royal Society 2009). The most recent version of FAO's Outlook 2050 indicates:

> Based on our assessment of world agricultural resources, it seems that at the global level there should be no major constraints to increasing agricultural produce by the amounts required to satisfy the additional demand generated by population and income growth to 2050 (Alexandratos and Bruinsma 2012).

The core issue is that, while there is enough food currently produced to feed the world's population, around 1 billion people today remain food-insecure (Ingram 2011). What might happen to them in the future has not yet been explored.

I argue that foresight studies should now systematically address the question of accessibility. To do this the focus must evolve from global food security, with its implicit emphasis on quantities, production, productivity and technology, to the question of food insecurity and its implicit focus on poverty, redistribution and social inequity.

The emergence of policy, social and behavioural drivers in foresight studies is to be welcomed. Indeed, many previous foresight studies, especially those focused on technology, concluded with policy recommendations but they saw policy as an external factor. As a result, these recommendations were of limited relevance to policy processes. In most recent foresight work, policymakers and a greater number of stakeholders more generally are now no longer seen as simply end users. Foresight on food security, agriculture and rural development is entering what foresight scholars have coined the third generation of foresight (Georghiou and Keenan 2006). Third generation foresight adds a social perspective to the traditional technology and market perspectives; social factors and behaviour are becoming major drivers of change (Cachia, Compañó and Da Costa 2007). This resonates with earlier findings on the futures of the food system, highlighting the inclusion of changes in political, social and economic processes (Erb *et al.* 2009).

The recognition of the importance of societal values, social behaviour and policies also highlights the need for foresight approaches that integrate local perspectives. These questions were not ignored in foresight studies reviewed here, but as a majority of these studies used modelling approaches they were constrained in their ability to grapple with issues such as rights, power and institutions. Clearly there is an important role for mixed methods approaches which will allow the exploration of disruptive scenarios.

5 Conclusion

The 38 futures studies reviewed in this article were selected through an open process and met three simple criteria. Their scale ranged from sub-national studies to global studies and they are based on a diversity of approaches and methods.

The analysis of these studies casts some light on possible new orientations for foresight studies in relation to the challenge of hunger. Specifically, the future of the populations who are food-insecure today is not just bound to the total amount of food that will be available in the future. Policy, cultural values and individual and collective behaviours have the potential to disrupt today's undesirable paths, which are driven by demographic, climatic and economic trends.

This is a call for foresight studies that can help support a fundamental re-thinking of the global food system. It is a call for reflection on societal choices related to how and by whom food will be produced and consumed. A shift from focusing on food security to food insecurity, and from technology to people, institutions and society, and a more systematic inclusion of the local dimension will allow foresight studies to be more relevant to the transformative agenda that is integral to the Sustainable Development Goals.

Notes

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1 For more on the survey and respondents, see www.egfar.org/sites/default/files/files/Report_Inventory.pdf. GFAR = Global Forum on Agricultural Research. CGIAR = Consultative Group on International Agricultural Research.

2 www.gfar.net/information-gateway/. Search 'The Futures of Agriculture' in the search engine to access the briefs.

3 Source: http://bit.ly/FTPglossary.

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Managing Waste in India with Foresight*

Ashish Chaturvedi and Jai Kumar Gaurav

Abstract With rising prosperity and urbanisation in emerging and developing economies there has been a rapid expansion of waste generation. India, with an urban population of 377 million that is expected to reach 590 million by 2030, is also facing an unprecedented challenge of waste management. Significant uncertainties about the future trajectories of waste management exist, including the concept of waste as a resource and the role of the informal sector. This article describes an analytical framework that combines foresight and political economy methods used in a multi-stakeholder workshop setting to develop future scenarios for the sector. The process provides insights to increase participation in waste management policymaking in India by opening up the process beyond expert committees. The use of foresight tools with political economy analysis has the potential to democratise the policymaking process of waste management in India for the inclusion of all stakeholders and particularly the informal sector.

Keywords: Foresight, political economy, waste management, urbanisation, informal sector, stakeholder engagement, policymaking.

1 Introduction

The rising prosperity of emerging and developing economies is accompanied by rapid, and in most cases unplanned, urbanisation. Urban centres are concentrated areas of population, economic growth and material prosperity. However, such concentration of material prosperity and population has an undesirable consequence – it leads to the rapid expansion of waste generation. In many cases the challenge of managing the rising quantity of waste is further exacerbated by the limited capacities of the local authorities.

We focus on the challenge of waste management in urban India. With the possible exception of China, India is urbanising at an unprecedented pace and scale. The current urban population of 377 million (Ministry of Home Affairs 2011) is projected to reach more than 590 million by 2030 (McKinsey Global Institute 2010). However, the rate of growth of waste generation is more than twice the rate of growth of urban

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population.[1] The health and environmental impacts of rapidly rising waste are largely due to the lack of infrastructure to collect and treat it. Only 65 per cent of the waste generated gets collected from households while the remainder gets dumped in solid waste disposal sites (CPCB 2014). The collection rate of 65 per cent in India is lower than the average of 68 per cent for other lower middle-income countries and waste generation per capita is likely to increase by more than 50 per cent in the next ten years (Hoornweg and Bhada-Tata 2012: 86).[2]

In India, the responsibility of municipal solid waste management (MSWM) lies with the local government, referred to as 'urban local bodies' (ULBs). While various policies for MSWM exist, none of them have been able to significantly improve waste treatment thus far. The very detailed MSW Rules (2000) have been effectively implemented only in a few municipalities. Although the MSW Rules require ULBs to report on the status of MSWM, in 2013–14, out of a total 3,839 ULBs, only one third provided such a report to the Central Pollution Control Board (CPCB 2014). This suggests widespread non-compliance even after 15 years of the notification of the MSW Rules. Such non-compliance could be ascribed to limited access to funding, and technical and management capacities at the municipal level (MoUD and CPHEEO 2014).

The widespread failure to effectively manage waste by the ULBs has created the space for the private sector as a solution provider. Traditionally, private sector actors in the waste sector consisted of the large numbers of informal micro, small and medium enterprises (collectively known as the informal sector) engaged in collecting, segregating and recycling municipal solid waste. Medina (2007) estimates that around 2 per cent of the population in developing countries depend on waste picking or the informal waste management sector for their livelihood. Although the exact numbers are not available for India, there is a widespread informal sector in large Indian cities that significantly reduces the burden of the municipalities by managing certain fractions of waste. Such private sector participation is not mediated by the ULBs and largely operates without any state support.

However, over the last decade, there has been a concerted effort to privatise waste management and transfer the responsibilities of waste management to companies contracted by the ULBs. The decision to privatise waste management is driven by the belief that due to better access to funding, technology and more cost-effective solutions, the participation of the private sector can reduce the burden on ULBs and modernise waste management (Dukhan, Bourbon-Seclet and Yannic 2012: 9). Such privatisation has relied on the participation of large, and formal, waste management companies. The entry of these large companies was facilitated significantly by the launch of a large urban reform project initiated by the Government of India, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2006. Under the JNNURM, 46 cities with a million-plus population embarked on modernising their solid waste management sector in partnership with the

private sector. Most of the additional central assistance (ACA) from the Government of India, amounting to nearly INR 11.2 billion, was given to the large waste management companies (Government of India 2014).

Despite the presence of a large informal sector, private sector participation in the municipal solid waste context has predominantly focused on formal waste management companies that have been able to access government support and expand their operations. The role of the informal sector as private actors has not been acknowledged by the government to the same degree, leading to an underestimation of their contribution, and has also caused conflicts at different levels that undermine the potential of both (Chaturvedi, Arora and Saluja 2015: 8).

The discussion above suggests two defining characteristics of waste management in India. First, there are significant uncertainties about its future trajectories. We focus on the critical uncertainty related to the very conception of waste. Given the current scenario in India, it is not certain whether in the near future waste will continue to be dumped in landfills or whether it will be considered as a resource. Additional uncertainty is regarding the role of the informal sector. It is not clear whether the focus on privatisation of waste management will yield the desired results and lead to the further marginalisation of the informal sector, resulting in widespread loss of economic opportunities for the urban poor. The second defining characteristic of waste management in India is the presence of multiple actors who have several, and often conflicting, objectives. Understanding the complex interplay between the actors and their objectives and how they play out under different approaches (and technologies) is critical for designing and implementing effective interventions. The implication of such a diversity of actors and objectives is that the solid waste management sector is embedded in, and mediated by, a political framework with uneven power geometries, local political contexts and relations between stakeholders (Yates and Gutberlet 2011: 639). Consequently, these actors with their own conceptions of the future would like to influence developments in the sector such that they help meet their objectives.

In this article, we describe the experience of using foresight methods to deal with the complex and uncertain challenge of waste management in large cities of India. An analytical framework is developed to address the critical issues of whether waste is conceived of as a burden or as a resource and what the role of the informal sector in future waste management will be. We also describe how combining foresight methods with political economy analysis allows us to identify the alliances that can drive progress within scenarios and also identify pathways between scenarios.

In what follows, Section 2 describes the analytical framework that combines foresight and political economy methods. In Section 3, we describe the results from applying the analytical framework to the context of waste management in India. Section 4 describes the lessons from the process of using foresight methods, while Section 5 concludes.

2 Analytical framework

In order to put some order into the uncertain and complex world of waste management in urban India, we use two different methods. To deal with uncertainty about the future we structure the research along four steps of foresight (horizon scanning) methods (Foresight HSC 2009) as follows.

Scoping: As a first step, we developed a scoping note that specified the key research question and identified the target group. The overall research question was: *Who will drive the transformation from a waste management perspective to an inclusive resource management perspective in urban areas of developing economies?* The key target group for the research was city-level policymakers. The other key target group was the stakeholders who work with the policymakers and advise or influence their thinking on waste management. This group included those working with and for the informal sector, including non-governmental organisations (NGOs) and other civil society groups, waste management consultants and the media.

Ordering: As a next step, based on secondary research, we identified the drivers for waste management in developing countries. This allowed us to identify the two critical dimensions in relation to the research question. The first is the continuum between waste and resource management. The two ends of the waste–resource management continuum can be described thus: when all waste is dumped into a landfill and nothing is recovered, the value of waste is close to zero. On the other hand, if all the embedded resources (materials and energy) are recovered from the waste, the value of waste is enhanced and it is described as a resource in the proposed framework. The second dimension is the continuum between working with the informal sector and working against the informal sector. These combinations of the two dimensions were used to create the four scenarios.

Implications: During a workshop in Delhi, participants characterised the actors, infrastructure and governance elements of the four scenarios. The participants developed the four scenarios in a pre-specified structure.

Integrating futures: The insights from the steps outlined were used to develop recommendations that would provide strategic direction to decision-makers currently working on waste/resource management.

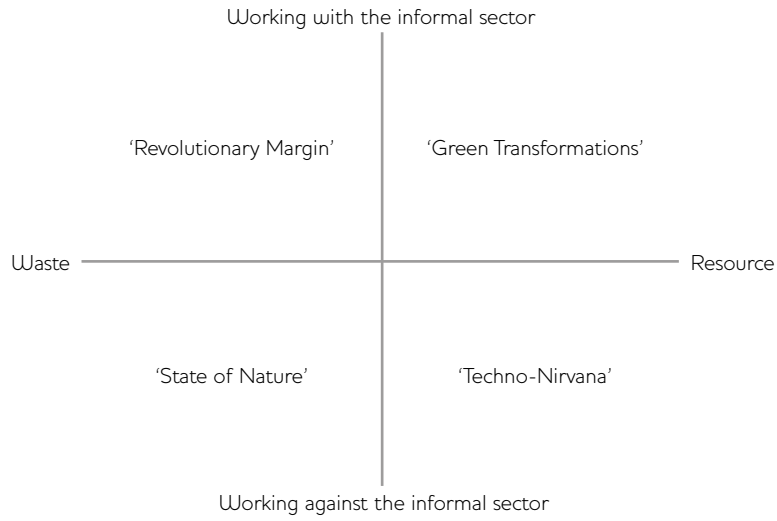
Our focus on the two critical uncertainties allows us to identify a range of future scenarios and reflects the current focus of waste management policy in India as well as globally. The first uncertainty relates to whether waste would continue to be treated as a problem to be managed or would be considered as a resource that can be utilised. There is a growing realisation that the linear economic model of 'take, make and dispose' is reaching its final limits. Therefore, concepts like that of a circular economy that is restorative and regenerative by design, and aims to keep products, components, and materials at their highest

utility and value at all times are gaining traction (Ellen MacArthur Foundation 2016). The '3R' principle – reduction, reuse, and recycling – is considered a measure for developing the circular economy (Zengwei, Jun and Yuichi 2006: 5). The 3R principle has direct relevance for the waste management sector in developing countries as they have to spend around US$46 billion annually on MSW management with an unmet need of another US$40 billion to cover the service delivery gap. There is increasing focus on using waste as a valuable resource to help ease the financial and resource constraints arising due to the increasing quantity of waste originating in developing countries (Le Courtois 2012: 3–4). However, moving from waste management to resource management requires significant investment and even the private sector is unable to access adequate finance for such projects (Aulakh and Thorpe 2011: 60). Furthermore, it has been argued that if a local government is not able to manage waste using its own resources, it will be challenging to engage a private enterprise to successfully provide the services (Coad 2005: 3). Therefore, the challenge of moving from waste management to resource management is much more pronounced in developing countries.

The second critical uncertainty in our framework is about the extent of involvement of the informal sector in managing urban waste. It is widely known that the informal sector plays a crucial role in management of MSW presently but government policies, particularly in India, favour formal 'end of pipe' solutions like waste to energy plants that are likely to limit access to waste for the informal sector (Schindler, Demaria and Pandit 2012: 18–19). Existing literature also suggests that informal sector operations have a net benefit in terms of economic, social and environmental impacts while formal waste management operations have a net cost (Ezeah, Fazakerley and Roberts 2013: 2514). The criticism of informal sector operations includes the health risks arising due to limited awareness or consideration for occupational health and safety by the informal sector (Ezeah *et al.* 2009). Informal sector workers and their families living near open dumps and landfills are highly susceptible to diseases and occupational health risks (Gutberlet and Baeder 2008: 1–5).

It has been highlighted by several studies that the informal sector operates in a very hostile social, physical environment and suffers discrimination, prejudice, repression, neglect and exploitation (Wilson, Velis and Cheeseman 2006; Sembiring and Nitivattananon 2010). Therefore, it has been suggested to legalise safe informal waste management activities by preparing educational toolkits, creating social support programmes, as well as providing strategic planning and technical and managerial guidance to the informal sector (Gunsilius 2012: 2–4). In addition, to provide new service roles and niches to the informal sector, Wilson *et al.* (2009: 63) recommended that cooperatives should be formed and informal actors should be part of waste management planning processes. There is a need for change in attitude and perception of the public towards the informal sector enabling the integration of the informal sector with the formal sector (Masood and Barlow 2013: 96).

Figure 1 The four potential scenarios



Source Authors' own.

Using the 'two axes method' (Foresight HSC 2009), two critical uncertainties define the boundaries of four scenarios. Figure 1 presents the two axes and the four resulting scenarios described in detail in the subsequent sections.

Based on the scenario descriptions developed by the workshop participants, the objectives of the key actors were distilled. Identification of actors whose objectives align allows us to detect relationships that are critical to make the scenario stable. If these relationships unravel, then it is likely that the scenario might transform into one of the other scenarios or might lead to a completely new scenario. To organise the actors and objectives and the identification of alliances, we use the methodology developed under the Political Economy Analysis of Climate Change Policies (PEACH) project for rapid political economy diagnosis (Schmitz 2012). In the scenario descriptions, Table 1 was used to summarise the actors and their objectives.

It is clear from Table 1 that the actors involved in waste management could have several, and different, objectives. Even if some actors have the same objectives, their priorities (rankings of the objectives) might differ. However, the critical task is to identify where and when actors whose priorities might be markedly different would come together and form alliances. For instance, the local government's highest priority is often a clean city. It could, however, ally with actors whose priorities might be different from its own as long as there is alignment over other objectives. The informal sector's highest priority may be protection of their jobs and livelihoods. The local government would form an alliance with the informal sector if, in addition to a clean city, it is also concerned about jobs in the local economy. However, if it is not concerned about jobs,

Table 1 **Actor objective matrix**

	Actor				
Objective	**Local government**	**Waste management company**	**Informal sector**	**Product manufacturers**	**Environmental NGOs**
Clean city					
Health					
Resource value of waste					
Jobs					
Competitiveness					

Source Authors' own based on method used in PEACH project (Schmitz 2012).

but only about the resource value of waste, it might ally with the private formal sector whose top priority is likely to value recovery from waste.

The illustration above suggests that in political economy analysis it is essential to pin down the core objectives because they help identify and group together actors whose objectives align, although the reasons for the alignment of objectives might vary. In what follows, we use this notion of alignment of objectives to understand the stability properties of the scenarios as well as characterise the intra- and inter-scenario dynamics.

3 Scenarios

Based on the analytical framework developed in Section 2, as a first step in developing the scenarios, we organised a workshop in Delhi in October 2014 in partnership with a local NGO and a bilateral technical cooperation agency. All the relevant stakeholder groups – city-level policymakers, informal sector, NGOs, civil society groups, waste management consultants, formal sector, donors and media representatives – were invited. Before the workshop, a scoping note was shared with all participants, along with the research question and some background information describing the foresight methods.

The workshop began with a brief introduction to the waste management challenge and the overall research question. A foresight expert then provided an overview of the methodology. As a next step, the 'two axes method' used to generate the four scenarios was explained. After a brief discussion on the key drivers for waste management in the Indian context, a brief rationale was provided for the choice of the two critical uncertainties that were the basis for generating the four scenarios. To facilitate comparison across the different scenarios, the participants were provided a common structure along which the four scenarios had to be developed. Each scenario was given a distinct memorable name capturing its key characteristics. The participants

were requested to respect the boundaries of each scenario to ensure their distinctiveness. The participants were then randomly assigned to the four scenarios to ensure that different stakeholder groups were represented in each group.

The main characteristics of the four scenarios as discussed during the workshop are summarised next.

3.1 Scenario 1: State of Nature

Business-as-usual in many urban agglomerations around the developing world.

Attitudes to waste: Typical linear models of make-use-throw; waste is a problem that needs to be 'managed'; informal sector is 'part of the problem' (despite reducing burden on local government); limited engagement by manufacturers whose products (or packaging) generates waste.

Waste management process: Where there is a market, some household waste is collected, segregated and recycled by informal sector; outside legal framework; unsorted waste collected by private companies contracted by city governments (financed by taxes on property and subsidised by central government); waste is then either deposited at secondary collection points or sent directly to transfer stations; eventually transported to landfills – essentially open dumping grounds with limited energy recovery; informal sector further segregates waste at secondary waste dumps or landfills, 'cherry-picking' the valuable material.

Consequences: Lack of scientific disposal mechanisms and capacity constraints leads to widespread open dumping of waste, resulting in 'mini' landfills around the city. Waste is openly burnt due to the odour from dumps; policy instruments such as extended producer responsibility (EPR)[3] neither understood nor applied.

Key issues: Limited incentives for private sector to develop innovative technologies; grass-roots innovation driven by informal sector; however, little attention to environment health and safety norms; conflict between formal and informal sector – resulting in lobby groups and alliances.

3.2 Scenario 2: The Revolutionary Margin

Attitudes to waste: Waste management is a service provided by informal sector, focus is on collective rights and safety; informal sector seen as a local government 'ally' (works within legal ambit); limited focus on resource recovery.

Waste management process: Local government works in partnership with informal sector, predicated on its ability to get organised as a collective body; informal sector provides door-to-door collection, segregation of household waste (likely to be based on occupational health and safety considerations, e.g. 'hazardous' and 'non-hazardous' with limited focus on resource recovery); formal waste management companies manage non-recyclable waste as well as recovering energy at the landfill.

Consequences: Organised informal sector accesses majority of recyclable waste so can bargain for better prices with recyclers in the formal sector; economies of scale and better linkages mean the collective can invest in material sorting and recovery facilities.

Key issues: Initially low levels of material resources and energy embedded in waste because of improved ability of informal sector to remove recyclable material; incinerators (for remaining waste) may need further subsidies; however, fraction of waste *not being recycled* could increase where informal sector does not have market or technology to process new materials (from new, complex products); potential for conflict reappears as formal technology-driven companies exploit gap in the market.

3.3 Scenario 3: Techno-Nirvana

Attitudes to waste: Focus is on recovering the maximum value from the waste through innovative and capital-intensive technology.

Waste management process: Local government collaborates with formal private sector to recover value out of waste and introduces technology-based interventions for resource management; contractual agreements (through public–private partnerships) are for whole waste value chain; households segregate waste at source into multiple categories; door-to-door collection organised by formal private sector through motorised pick-up vehicles; large centralised material recovery facilities segregate recyclables and compost organic fractions of waste; non-recyclable and inorganic fractions sent for energy recovery in large capital-intensive incinerators.

Consequences: Informal sector provides services to households trading recyclables but is restricted and actively discouraged by local government. This waste goes either to material recovery or to recycling facilities where it is crushed for recovery of material or burnt in incinerators; waste management companies lobby against informal sector role since monopolistic access to all waste contractually agreed; manufacturers whose products can be turned to useful waste engage with local government and waste management companies to develop innovative solutions; regulations governing partnership between local government and private sector create entry barrier for small informal sector companies – leading it to become disenfranchised.

Key issues: Informal reuse and repair industry suffers because EPR is interpreted to extend producer property rights to entire product life cycle; waste management infrastructure highly capital intensive, large-scale, mechanised, as well as carbon and energy intensive; cost passed on by local government to waste generators – households, commercial establishments, and non-commercial organisations; additional increased costs for pollution control and monitoring the infrastructure; financial intermediaries support innovative entrepreneurs or large waste management companies to set up waste management infrastructure; potential conflict between environmental groups and local government, inexperienced in the consequences of large infrastructure.

3.4 Scenario 4: Green Transformations

Attitudes to waste: Focus on inclusive resource management; local government values resource-saving potential of skills, networks and decentralised infrastructure as well as potential for job creation which results from this partnership with informal sector collective.

Waste management process: Waste segregated at source by generators (households, commerce, etc.) with door-to-door collection managed by an informal sector collective; collections monitored and material is transferred to decentralised material sorting facilities, also managed by the collective in partnership with NGOs and technology start-ups; local government pays waste pickers, operates state-of-the-art landfills, and actively encourages repair and refurbishment markets through incentives such as providing space for weekly markets selling second-hand and repaired goods; financial and regulatory instruments make landfilling of recyclables and energy-rich materials prohibitively expensive for the waste disposer; repair and reuse industry actively promoted and works in close partnership with product manufacturers.

Consequences: Manufacturers work with informal collectives setting up take-back programmes for end-of-life products, making them a crucial link in their value chains; local government can enforce environmentally sound and occupational health and safety compliant processes. Process is facilitated by simplified regimes of taxation to informal sector enterprises who are members of the collective.

Key issues: Incinerators not considered viable for developing country context (due to absence of adequate monitoring capacities and infrastructure for pollution control); minimal conflict between formal and informal sectors since the former benefits from the latter's participation in the value chain; however, such participation needs active intervention from local government and other policy enablers to ensure materials do not leak back into unregulated markets.

4 Combining foresight with political economy analysis

While foresight methods enable the characterisation of future scenarios, they do not allow for the evaluation of these different scenarios from the perspective of the different actors involved. By combining actor objective analysis with the foresight method, we were able to identify the actors and the objectives that are influential in driving each scenario. The identification of the actors and their objectives in the four scenarios indicated the alliances that would drive the particular scenario. The objectives of the actors distilled from the discussions during the workshop and the scenario description by the working groups are summarised in Table 2.

The political economy analysis using the actor objective matrix also allows us to analyse the intra- and inter-scenario dynamics. It is well known that the informal sector has the knowledge and networks that will enable proper collection and segregation of the waste (Cointreau, Gopalan and Coad 2012). However, the informal sector can play this

Table 2 **Objectives of the actors in each scenario**

	Actor				
Scenario	Local government	Waste management company	Informal sector	Product manufacturers	Environmental NGOs
State of Nature	Clean city	Resource value of waste Competitiveness	Jobs Resource value of waste Competitiveness	Competitiveness	Jobs
Revolutionary Margin	Clean city Jobs	Resource value of waste Competitiveness	Health Jobs Resource value of waste Competitiveness	Competitiveness	Jobs
Techno-Nirvana	Clean city Resource value of waste Health	Resource value of waste Competitiveness	Jobs Resource value of waste Competitiveness	Resource value of waste Competitiveness	Clean city Health Jobs
Green Transformations	Clean city Jobs Resource value of waste Health	Resource value of waste Competitiveness	Health Jobs Resource value of waste Competitiveness	Resource value of waste Jobs Competitiveness	Clean city Health Jobs

Source Authors' own.

role at scale and with maximum efficiency only if it has the mandate from the local government as in the Green Transformations and Revolutionary Margin scenarios. A comparison of the objective of the different actors under the Green Transformations and Revolutionary Margin scenarios also suggests that the inclusion of the informal sector will not automatically enable the transition from waste management to resource management. The alignment of interests of the different stakeholders in a particular direction is critical to enable this transition. The Green Transformations scenario achieves this objective through the alignment of objectives between local government and the informal sector collective, as well as the product manufacturers.

The informal sector has limitations in recycling certain parts of the waste, especially because of the changing composition of the waste stream and a rising proportion of complicated materials in the waste chain. In these cases, the informal sector can be a partner of formal

waste management companies that have the finance and expertise to develop technologies. The informal sector can source the material to the formal waste management companies for some of these waste parts (Chaturvedi, Arora and Kilguss 2011).

The role of the local government is extremely critical in fostering and shaping these partnerships as seen in the Green Transformations scenario. In other cases, the local government's inaction or the support of the formal sector creates conflict between the informal and formal private sector much like the Techno-Nirvana and State of Nature scenarios. Our analysis of the scenarios also suggests that the inclusion of the informal sector is important because the results are not only inclusive in process but also because they are inclusive in outcomes. For instance, this is brought out through a comparison of the Green Transformations and Techno-Nirvana scenarios where the latter achieves the transition from waste management to resource management at a lower cost because of the participation of the informal sector. Also, the employment generated because of the decentralised infrastructure in the Green Transformations scenario would be much larger compared to the Techno-Nirvana case. The observations made indicate that the inclusion of the informal sector would facilitate, and in certain cases, accelerate the transition from a waste management to a resource management perspective.

To characterise inter-scenario dynamics, it is critical to understand what makes a scenario stable. In our framework, the stability of a scenario depends on the alignment of objectives of the involved stakeholders. Table 2 clearly shows that the two scenarios on the waste management part of the x-axis – Revolutionary Margin and State of Nature – are relatively fragile because they are based on limited alignment of objectives across different actors. This limited alignment does not allow for the development of alliances that can stabilise the scenario. For instance, the actor objective matrix of the Revolutionary Margin scenario suggests that it is a relatively tenuous scenario because it is contingent on the alignment of a single objective – jobs in the informal sector – between the informal sector and local government. In the case of the State of Nature scenario, because there is hardly any alignment of interests, it is relatively straightforward to infer that external influences (a crisis, an international or national policy) that change the objectives of the actors could also transform the scenario. Table 2 clearly shows that the two scenarios on the resource management part of the x-axis – Techno-Nirvana and Green Transformations – however, are relatively stable because they are based on alignment of multiple objectives across different actors.

5 Learning from the process of using foresight

The four scenarios developed by the participants of the workshop, although highly stylised, are based on alternative (shared) visions of the future. They also represent the different political choices that could be made by the stakeholders involved in waste management. By clearly defining the possible futures of waste management through the horizon-scanning methods, a discussion on a comparative analysis of these

scenarios could be initiated. The first implication of such comparative analysis shows the value of mainstreaming the informal sector in waste management in Indian cities. By working together with the informal sector, the local government (and the waste management sector in a city) is likely to benefit from the existing capacities in the private sector, beyond formal waste management companies. Also, working closely with the informal sector will allow for broadening the discourse on waste management and initiate discussion on alternative pathways from waste to resource management that are not focused exclusively on formal private sector participation and large-scale technological solutions.

Our analysis also establishes that the transformation of the waste management sector in urban India cannot be achieved by initiatives of individual actors from the private or the public sector. The scenarios described make it explicit that local government-led initiatives that do not involve the informal sector would face stiff resistance from several actors. At the same time, the informal sector by itself would not be able to achieve the transformation of the waste management sector due to limitations or absence of certain capacities. The transformation from waste to resource management is likely to be achieved through alliances of several actors with divergent priorities. The forging of such alliances depends crucially on the capacities and intentions of the local government due to their centrality in waste management governance in the Indian context and their power to convene the different actors.

Forecasting could be expert-led or involve most stakeholders, including the general public. The type of stakeholder involvement influences the futures techniques used: more participative exercises are more likely to use qualitative and deliberative techniques while expert-led exercises are quantitative or modelling based. The effectiveness of the techniques depends on the issue and different stakeholders' influence on the agenda (EEA 2011: 16). It is also argued that participatory foresight is more suitable for complex issues as expert knowledge often fails to provide answers to many important questions and the perspective of all stakeholders is a necessary step towards rationalisation of the deep social and cultural consequences (Nikolova 2014: 2). For this reason, the workshop involved participation from different stakeholder groups using predominantly qualitative and deliberative techniques. During discussion of possible future scenarios, the groups were formed randomly so that no stakeholder group was able to dominate and influence the discussion. However, as 'participative' foresight initiatives often fail to distinguish between expert participation and stakeholder or citizen participation leading to the dominance of certain voices and opinion in particular policymaking processes (Bingley 2014: 9), the possibility of some stakeholder groups dominating the workshop cannot be ruled out completely.

Our findings have several implications for waste management policymaking in India. Most waste management policies are drawn up by expert committees in India and then shared with local stakeholders

to obtain feedback. However, there is limited scope for making large-scale changes in the very conception of the policy. The initial framing of the issues by selected experts therefore dominates policy outcomes. In spite of the several failures of policies on waste management, such an expert-led policymaking process continues to be followed. Our analysis suggests that for uncertain and complex policymaking challenges, it is critical to open up the discussion on multiple conceptions of the challenges, incorporate the views of the different stakeholders and how these multiple conceptions could have a bearing on the initial framing of the issues to be tackled by policy. This opening up of the process of framing the challenge beyond expert committees would be critical for democratising the policymaking process. However, it is critical that such opening up of the policymaking process is safeguarded against capture by the elite and powerful. Waste management is particularly susceptible to such capture because the marginalised informal sector works in a regulatory vacuum with little support from the state. As a result, it is likely that the voice of the informal sector actors is either not heard or is captured by mediators and interlocutors.

The use of foresight methods, in combination with tools of political economy analysis, also show that policies for waste management in India should involve not only an environmental focus but should also include actors who are interested in the economic and social aspects of waste management. This would ensure that waste management is not closeted within the confines of the Environment Ministry but is incorporated into broader economic and social policy discussions. The experience of countries that have made significant inroads towards the transition from waste to resource management like Germany and Japan (and more recently, China), suggests that policymaking on waste management has to be much more joined up, involving actors from different ministries as well as local actors from several government departments beyond those concerned with the environment.

6 Conclusion

Managing rapidly rising quantities of waste is a global challenge. We have focused on the complex and uncertain waste management challenge in India. By using a combination of foresight methods and tools from political economy analysis, we develop an analytical framework that has the potential to put order into this complex and uncertain challenge. Using foresight methods, we characterise four alternative conceptions of the future of waste management. Our results, although drawn from a workshop in India, have relevance for most developing and emerging countries that have a significant informal sector presence in waste management. We also believe that our analytical framework has enough explanatory power to be used for other complex and uncertain challenges beyond waste management.

Our results indicate that the use of foresight methods to develop scenarios for the future through multi-stakeholder participation, could inform waste management policies in India and open up the process of

policymaking beyond expert committees. An understanding of potential futures developed in partnership with local stakeholders would also empower the officials of local government to make informed choices. At the same time, the opening up of the policymaking process is critical for the inclusion of a key actor in waste management in India, the informal sector, in policy processes.

Given the failure of waste management policies that have relied exclusively on expert committees for the initial framing, it is critical that the policy process is further democratised. This is especially topical in the present context when the Government of India is involved in redrafting all the waste management rules, and concerns have been raised about the process of stakeholder consultations on the rules (ESG 2015). The use of political economy methods shows that alliances of actors with different priorities are critical for the transformation of the waste management sector in India. However, the role of local government, with unmatched convening power, is crucial in developing these alliances. Local government is also critical in mainstreaming the informal sector.

Our analysis suggests that in the absence of such support the resourceful informal sector would have to confront the economically powerful and better organised formal waste management companies that are bidding for waste management contracts. However, such confrontation between the informal and the formal sector is neither economically, socially or environmentally desirable. On the contrary, it has the potential for undermining and delaying the transition from waste management to inclusive resource management. Such delays inevitably come at a cost to society. We show that developing alternative scenarios for the future together with political economy analysis allows us to identify actors and alliances that could delay the transition, but also identify those alliances that have the potential to accelerate the transition to inclusive resource management.

Notes

* This article draws on Chaturvedi, A.; Vijayalakshmi, K. and Nijhawan, S. (2015) *Scenarios of Waste and Resource Management: For Cities in India and Elsewhere*, IDS Evidence Report 114, Brighton: IDS.

1 According to the Ministry of Finance (2009), the rate of growth of waste generation is 5 per cent while the World Bank estimates that the rate of growth of urban population is 2.38 per cent.

2 The comparable number for collection rates in high-income countries is 98 per cent.

3 EPR is as an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. An EPR policy is characterised by: the shifting of responsibility (physically and/or economically; fully or partially) upstream towards the producer and away from municipalities; and the provision of incentives to producers to take into account environmental considerations when designing their products.

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Where Next for Social Protection?*

Stephen Devereux, Keetie Roelen and Martina Ulrichs

Abstract The rapid ascendancy of social protection up the development policy agenda raises questions about whether its current prominence will be sustained, or whether it will turn out to be just another development fad. What trajectory will social protection follow, which actors will drive it forward and what will be the main issues and challenges? This article reports on a small foresight study designed to address the question: 'Where next for social protection?' A scenario-building exercise revealed that there is no single linear pathway for social protection, but multiple highly context-specific trajectories subject to change as political ideologies and institutional capacities shift. A 'wind-tunnelling' exercise highlighted the importance of a country's political regime as a fundamental determinant of which social protection policies will be adopted. Better understanding of political processes is needed to protect gains made in social protection against possible reversals when the political climate shifts against pro-poor redistributive policies.

Keywords: drivers of change, foresight, rights-based approaches, scenario-building, social protection, wind-tunnelling.

1 Introduction

Social protection is incontrovertibly one of the success stories of development policy in the early twenty-first century. Every year new social protection programmes are launched, more countries adopt a National Social Protection Policy (NSPP) or Strategy (NSPS), and evaluations generate further empirical evidence of positive impacts. Current trends in social protection thinking and practice are taking two potentially contradictory directions – crudely, 'rights-based' versus 'growth-oriented' – which have different implications for who should receive what types of support, under what conditions and for how long.

1 **Rights-based:** institutionalising social protection in national policy frameworks, underpinned by legislation that endows justiciable claims to social protection entitlements to all citizens or residents, including refugees;

2 **Growth-oriented:** using social protection instrumentally, as a toolkit for achieving poverty reduction and economic growth; for example, by 'exiting' participants out of programmes when they reach a 'graduation' threshold.

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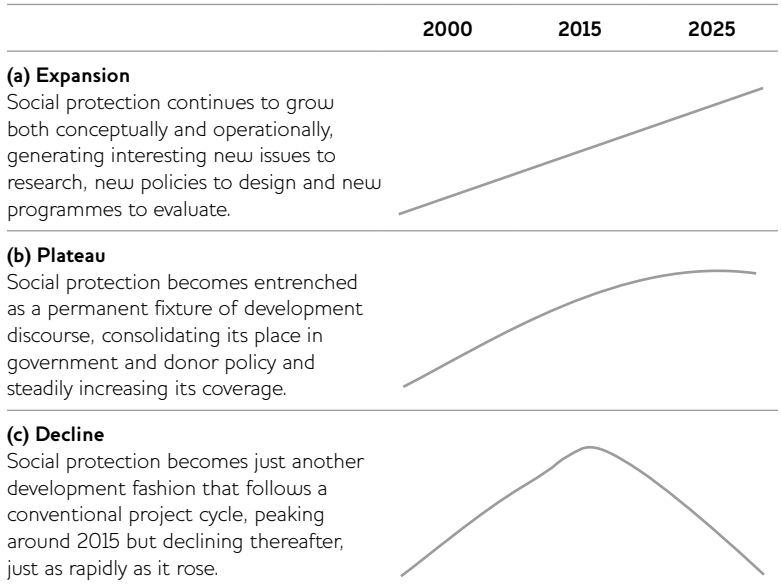
Figure 1 Potential trajectories of social protection



Source Authors' own.

The trajectory of social protection as a policy discourse deserves scrutiny. Although 'social safety nets' were introduced as a response to economic crises in the 1980s or earlier, the broader concept of social protection originated in the late 1990s. It was encapsulated first in the World Bank's growth-oriented 'Social Risk Management' framework (World Bank 2001), and later advanced by rights-based frameworks such as the Institute of Development Studies' (IDS) 'Transformative Social Protection' (Devereux and Sabates-Wheeler 2004) and the International Labour Organization's 'Social Protection Floor' (ILO 2011). In the mid-2000s the analysis shifted to specific design issues (e.g. targeting, dependency syndrome) and efforts to build the evidence base on impacts of specific instruments (e.g. conditional cash transfers, school feeding). In the 2010s the focus has moved on to establishing social protection as a policy sector within government ministries and to challenges of coordination and systematisation (e.g. building a 'single registry').

Since the introduction of social safety nets in the 1980s, social protection has expanded greatly as a component of social policy. Common indicators used to measure this growth include the number of social protection policies in place, the percentage of the population covered by such policies and the proportion of public expenditures allocated to social protection (ILO 2014). The 'Social Protection Index' (ADB 2013) captures both the 'breadth' and 'depth' of social protection coverage, measured by the number of beneficiaries and the level of benefits provided by social protection programmes.

This crude trajectory raises an obvious question: where next for social protection? We identify three broad potential scenarios: (a) expansion; (b) plateau; (c) decline.

Against this backdrop, we undertook a small-scale foresight project that aimed to:

1 critically review the policy discourse on social protection **since its origins** in the late 1990s and how it has been shaped by the main influencing actors;

2 identify and explore themes that are likely to be high on the social protection agenda in the **short to medium term**;

3 identify drivers of change that are likely to shape the social protection landscape in the **medium to long term** and to develop and test future scenarios for social protection;

4 identify entry points for responding to **future** themes, challenges and opportunities that will shape the future of social protection and determine appropriate forms of ongoing engagement.

This article is structured as follows. Section 2 describes the methodologies used for each component of the research. Section 3 explores the 'drivers of change' likely to affect social protection in the coming period, under the five 'STEEP' categories: social, technological, economic, environmental and political. Section 4 unpacks expected trajectories of social protection by considering the main issues and debates that might affect which trajectory is actually followed. Section 5 looks forward by describing potential future scenarios and policy options for social protection in the next 10 to 15 years, drawing on the foresight methodology. Section 6 concludes.

2 Methods

An eclectic mix of methods was designed and implemented, which included a background literature review; structured one-on-one interviews with key informants active in social protection policymaking, conceptualisation or research; a moderated online discussion event that engaged a wider audience working on social protection across the world; and two face-to-face foresight workshops.

The Centre for Social Protection (CSP), with the support of Knowledge Services at IDS and Elliptics Ltd, facilitated an online discussion event on the topic 'Where Next for Social Protection?', which ran for four days in September 2014. The discussion was structured around four questions, one for each day.

- **Day 1 – Predicting the future:** Do you think that social protection will become more or less prominent in the development policy agenda in the next five to ten years? Why?

- **Day 2 – Issues and debates:** What will be the most important issues and debates in social protection in the next five to ten years?

- **Day 3 – Drivers of change:** What will be the most important drivers of change affecting social protection in the next five to ten years?

- **Day 4 – The way forward:** What needs to be done, and by which actors, to ensure that social protection remains high on the development policy agenda in the coming five to ten years? What can we do?

More than 200 participants registered for the online discussion from all over the world. Just over half of the participants came from or were based in Africa, Asia or Latin America, while just under half came from Europe (including the UK) or North America. Altogether 138 postings were made at an average of 34 postings each day.

Two foresight workshops were hosted by the Centre for Social Protection at IDS, in September and November 2014. The workshops brought together 18 people who work intensively on social protection, from research institutes, donors and non-governmental organisations (NGOs). Three forecasting methods were used in the workshops: drivers of change analysis, scenario building and wind-tunnelling.

Drivers of change analysis: Workshop participants brainstormed around the driving forces in the broader contextual environment that are likely to influence the direction of social protection programming over the next 10 to 15 years, under five 'STEEP' categories – *social* (demographics, lifestyles, social trends, etc.); *technology* (ICTs, media, etc.); *economy* (economic policies, growth rates); *environment* (climate change, natural resource management), and *politics* (welfare regimes, development policies and international aid flows).

Scenario building: Workshop participants selected two of the most powerful drivers identified in the 'drivers of change' exercise, and constructed four scenario 'spaces', using one driver as an x-axis and the other driver as a y-axis to create four quadrants. These scenarios were developed into narratives by reflecting on what kind of world each quadrant would represent, and the implications of that possible future world for social protection programming.

Wind-tunnelling: Next, the participants proposed several possible social protection policies to be introduced into the scenarios, and discussed how effectively each policy would perform given the contextual situation described for each scenario. The purpose was to identify what is possible in terms of robust social protection measures under different possible future conditions in specific country contexts.

3 Drivers of change

Drivers of change were considered in five categories: social, technological, economic, environmental and political (STEEP). These drivers were identified and assessed using all methods in this project. Findings from the literature review point towards historical drivers of the current state of social protection, while findings from the key informant interviews, online discussion and foresight workshops consider drivers that are deemed likely to play important roles in shaping the future world in which social protection will operate.

A number of social factors emerged across all different methods of investigation in this project, including increasing inequality, demographic shifts and urbanisation.

Rising inequality has incentivised governments, particularly in middle-income countries, to introduce social protection as a redistributive mechanism. Various key informants pointed towards the potentially dangerous social impacts of inequality and the role for social protection as a palliative mechanism that can enhance social cohesion. In contexts with high levels of income inequality, social protection is more affordable since there is usually a larger tax-base to finance it with domestic resources (Hickey 2008), while in contexts with high levels of social inequality the associated political volatility has triggered increased investment in social protection. So income and social inequalities have consequences on both the supply- and demand-side.

Demographic shifts will transform the composition of societies. Some countries will be confronted with a 'population dividend' provided by a large percentage of young people, while others are already foreseeing an increasing need for pensions due to a growing proportion of older people. Will a higher demand for social protection for particular groups of society translate into more and better-quality supply? During the online discussion, some thought that the key question is *whether population ageing stimulates the expansion of social protection – and especially pensions – or will ultimately lead to its unaffordability (or both)*.

Higher levels of **urbanisation** also increase the need for social protection since rural–urban migration often disrupts traditional (rural) safety nets. Social protection has traditionally focused on the rural poor and has developed instruments which address particular vulnerability profiles. However, the types of vulnerabilities change when people move from rural to urban areas, as increasing numbers of poor people are doing, and lose their community-based safety nets and social capital in the transition from rural livelihoods to mostly informal paid work.

Urbanisation not only increases the need for formal social protection to reduce vulnerability among the labour force, but also increases the demand for social protection by 'urban citizens' who are more likely to mobilise and lobby for their rights. Niño-Zarazúa *et al*. (2012) argue that the higher levels of urbanisation in middle-income countries have played a role in determining the socialisation of formal social protection, in comparison to low-income countries. Labour market structures in urban areas are still characterised by high levels of informality, mobile workers and gaps in the provision of social security for the poorest. This does not only affect migrants from rural areas but also international migrants, particularly as eligibility for social protection is often tied to citizenship status. This raises the question of how social protection will have to change to fill these gaps and address the new sets of emerging vulnerabilities.

Technological factors were not considered to be greatly important in shaping the future landscape for social protection, other than in the delivery of social transfers (World Bank 2012). However, two additional technological factors were considered in the workshops. Firstly, the role of technology in changing skills requirements in labour markets, shifting demand for labour even further towards high-skilled labour, may have implications for the demand for social protection, particularly for low-skilled workers. Secondly, the rapid increase in the use of social media may allow for greater civil society mobilisation and organisation, thereby generating greater demand for social protection.

In terms of economic factors, issues regarding economic growth and economic volatility were discussed in the online discussion and key informant interviews. High levels of economic growth in many developing countries and the reclassification of low-income as middle-income countries, gave rise to the question as to whether the demand for social protection will expand among the growing middle classes. A strong focus on economic growth as a development objective is also increasing the pressure on social protection to demonstrate positive impacts on inequality, productivity and growth (World Bank 2012). This could increase political support for social protection, but could also divert attention from its main objective – to protect people against risks and reduce vulnerability (de Haan 2014). Several key informants emphasised the importance of reconciling the objectives of economic growth and reducing inequality and the role of social protection in such inclusive pro-poor growth.

Recent financial crises and economic volatility were referred to many times as suggesting a greater need for social protection. The financial crisis in 1997–8 in Southeast Asia acted as a wake-up call regarding the inadequacy of existing social safety nets and proved an important milestone in the region's development of social protection (Cook 2009). Nonetheless, it was pointed out that recent crises have not yet raised enough awareness about the need for social protection. Further economic factors identified in the workshops include the changing levels and characteristics of poverty, increasing flexibilisation of labour markets and shifts in private versus public service provision, including a potential for more public–private partnerships in the delivery of social protection.

Environmental drivers of change were identified in relation to climate change and revenue from natural resources. Poor people in rural areas whose livelihoods depend on natural resources are likely to be impacted negatively by changes in the natural environment. The consequences of climate change, including recurring disasters, as well as the unpredictability of the weather and consequently agricultural productivity, are increasing the need for social protection to mitigate livelihood risks (ESCAP 2011). Many online discussants and key informants pointed towards the role of social protection in making people more resilient to climate shocks by supporting them to adapt their livelihoods. Notwithstanding the importance that climate change

will play in shaping the world in 10 to 15 years' time, this is an area where opinion is sharply divided, with one view being that climate change will continue to rise up the agenda and that social protection offers an appropriate response, and an opposing view being that social protection has only a marginal role in addressing the fundamental challenges to livelihoods that climate change poses.

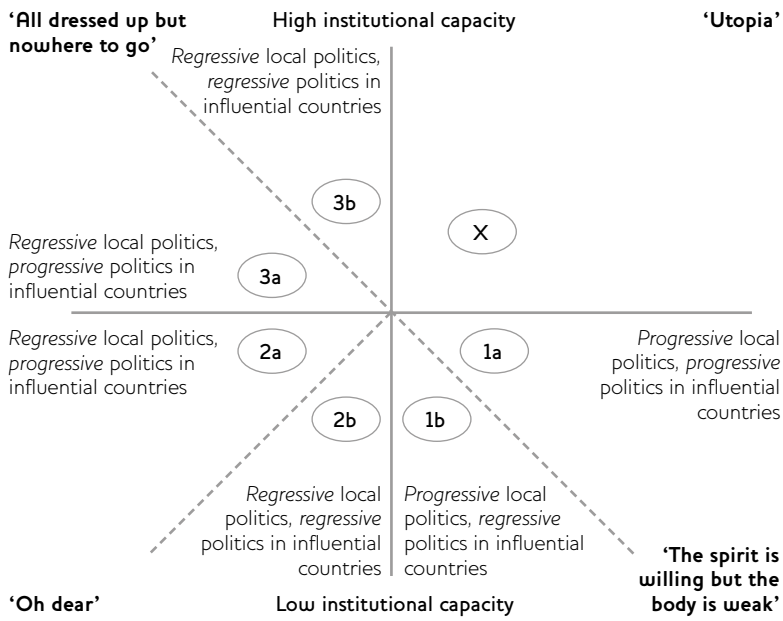
Political drivers were considered crucial in shaping the future world that social protection will be part of and to which it will need to respond. These drivers were identified as operating at different levels and include global development paradigms, political realities in donor countries and political commitment at national level. Inequality is widely seen as a major force that could drive a rationale for social protection and create a political incentive within the global development paradigm. Reducing inequality – encompassing income inequality and inequalities along socio-demographic characteristics – is also a 'hot topic' in current development debates, and social protection is often mentioned as one of the main policy instruments to achieve this.

How this will happen is still unclear and it could go in different directions: will growing inequalities cause greater social schisms and the development of parallel systems (comfortable social security for the better off, and meagre poor relief for the poor), or will they fuel demands for more universal and redistributive social protection systems? At the regional level in Africa, for example, the African Progress Panel and the African Development Bank are emphasising the need for governments to step up their investments in health, education and social protection, with a view to moving towards universal access to these basic social services. Consolidating regional integration and harmonising social security will help to address challenges posed to social security systems, for example by migrant workers.

This leads into a second political driver, namely the political reality in donor countries, or influential countries that have a strong impact on policy in developing countries. 'Chindia' was coined as a term during the workshops to denote the expanding and increasingly important role of China and India in developing countries. Whether the political climate in countries that are driving social protection as a global development policy agenda is 'progressive' (rights-based) or 'regressive' (austerity-driven), has profound implications for levels of financing and the nature of technical support offered. While progressive agendas may be supportive of more universal and redistributive systems that are embedded in legal frameworks, regressive policies are more likely to focus on maintaining the status quo and providing only discretionary support to those in absolute need.

While international agreements, UN conventions and donor agendas can put social protection into the limelight and provide the tools for establishing social protection systems, whether this translates into action will ultimately depend on political commitment at the national level.

Figure 2 Scenarios



Source Authors' own.

What determines such political commitment will be context-specific. Democratic processes and the ability of society to organise itself and influence welfare policies are thought to be essential. At the same time, countries such as Ethiopia, Rwanda, China and Vietnam may not fit such a characterisation of their political contexts but have seen strong commitment to and expansion of social protection. National ownership of social protection programmes is emerging unanimously as a necessary pre-condition for the sustainability of programmes, and forms a strong pillar of social protection strategies.

Yet, how and why governments decide on committing to social protection is highly context-specific. Frequently, the popularity of social protection is explained along social-democratic (or Polanyian) lines – growing inequalities and vulnerabilities trigger expansions of public policies. There is, however, no direct causality between increasing needs (demand) and increasing delivery of social protection (supply), since it leaves the political drivers of social policies out of the equation (de Haan 2014). Public and political opinions on social provisioning and the role of the state are deeply ideologically motivated.

In some regions, political commitment will derive from a determination to uphold the rights of citizens. Nevertheless, it may also be strongly influenced by immediate political pressures, particularly in electoral democracies, or by longer-term considerations if social stability is seen as critical to political legitimacy (ESCAP 2011; Cecchini and Martínez 2012). In other contexts where social protection is externally financed, policy processes and sources of financing are still detached. Evidence is

built around 'what works' rather than on what kind of evidence will be credible and useful to influence national policy processes (Devereux and White 2010; Gentilini and Omamo 2011).

This ties into a final driver that was discussed extensively during the workshops, namely that of institutional capacity. What levels of financial, human and technical resources do countries have (or are willing to dedicate) for social protection programmes, and do they have institutions strong enough to deliver them effectively?

4 Future scenarios

4.1 Scenario building

Following the identification of drivers of change likely to shape the world in which social protection operates, two drivers were selected to underpin the 'scenario-building' exercise: 'progressive/regressive politics' and 'high/low national institutional capacity'. These were subsequently placed on a continuum on an x-axis and y-axis respectively, such that four potential scenarios emerged (corresponding to the quadrants in Figure 2):

- 'Utopia' (top right): progressive politics, high capacity
- 'The spirit is willing but the body is weak' (bottom right): progressive politics, low capacity
- 'All dressed up but nowhere to go' (top left) regressive politics, high capacity
- 'Oh dear' (bottom left): regressive politics, low capacity.

It was decided that the 'ideal' scenario (top right – 'Utopia') would not be discussed as it was considered to be the least interesting scenario for further exploration, and least likely to occur in low-income countries where social protection is currently being introduced or expanded.

In the process of scenario building, however, it became evident that the driver on 'politics' was not specific enough and conflated political processes at two different levels: (1) national or local level and (2) global or 'influential countries' level, where influential countries are those dominating the design and financing of social protection programmes in low-income countries. Sub-dividing the politics driver to account for this bifurcation resulted in the emergence of six scenarios for further exploration.

To keep the analysis manageable, it was decided to choose one slice – (a) or (b) – of each quadrant, and in order to maximise diversity, the following scenarios were chosen for further elaboration: Scenario 1a: 'The spirit is willing…'; Scenario 2a: 'Oh dear'; and Scenario 3b: 'All dressed up…'.

Scenario 1a: 'The spirit is willing…' (progressive local politics, progressive international politics, low institutional capacity). In this scenario there exists goodwill and good intentions, both domestically

and internationally, but limited capacity to deliver social protection and other services effectively. Factors that might hold back progress in this scenario include: high or rising civil insecurity, food price and climate-related shocks, a youthful population with low skills, the dominance of the private sector over societal interests, and rising social frustrations about government failures leading to service delivery protests.

Positive features of this scenario include: an alignment of national governments and donors and development partners around what needs to be done, high aid flows with a particular emphasis on strengthening institutional capacity and technical expertise, an active civil society which could be strengthened and rights-based policies – at least on paper. There is potential for technology to help tackle or bypass delivery challenges. There is a risk of donor dependence or that social experiments will be trialled as pilot projects. Social protection initiatives that are launched in this context might be unsustainable because they rely heavily on expatriate financial and technical inputs, and government lacks the capacity to take over their management and scale them up.

Scenario 2a: 'Oh dear' (regressive local politics, progressive international politics, low institutional capacity). This scenario is characterised by high levels of poverty and inequality. Citizens have no voice and civil society is weak or repressed, so government is effectively unaccountable. Civil society exists mainly as implementing partners for development projects of international donors, rather than as activists campaigning for change. Government has no interest in rights-based approaches, clientelism is rife, public provision of services is weak, the middle classes depend on private social services, and there is low commitment by public officials to help the poor.

Apart from the dire political situation, the economic situation is equally challenging. Labour markets are insecure with a large informal sector and unregulated markets; there is little social protection against livelihood shocks such as extreme weather events, price shocks and financial crises; people face multiple vulnerabilities, such as high health risks and low health outcomes. Because of these political and economic challenges, there is extensive 'economic' migration within and between countries, including unplanned and poorly serviced urban informal settlement, as well as 'political' migration inside and beyond national boundaries (population displacement, refugees). International actors have a limited role, which is often restricted to humanitarian relief.

Scenario 3b: 'All dressed up…' (regressive local politics, regressive international politics, high institutional capacity). Because politics in this scenario are regressive both locally and internationally, external relations are dominated by 'trade, not aid' – international trade agreements rather than aid flows. The labour market is stagnant and unemployment is high. There is inadequate state regulation of private sector employers. This is a low-wage economy dominated by informalisation. Societal

expectations and ambitions are low. Those who can, migrate to more vibrant economies in more progressive countries elsewhere.

Because local capacity is relatively high, financing for social protection is generated by economic growth and a mix of public and private provision. However, only a minimal safety net is installed, to quell social unrest. Public expenditure is rolled back and public sector budgets are cut for ideological reasons. Social insurance is based on private contributions while social assistance comes with conditionalities attached. This leads to rising inequality and polarisation, with limited redistribution of public resources and few groups being adequately covered by government-run social protection programmes.

5 Wind-tunnelling

The wind-tunnelling exercise aimed to formulate policy options for social protection within these three scenarios. The focus was on identifying viable and feasible options in the three different 'future worlds'. Policy options formulated for one scenario were subsequently 'tested' against the other scenarios to assess their feasibility and opportunities for application in radically different contexts. Discussions on the basis of this exercise are summarised here.

Scenario 1a: 'The spirit is willing…' Proposed policy options included: building consensus on a single national vision and platform for social protection; using technical assistance in innovative ways to strengthen local capacity; signing up to the Social Protection Floor and adopting a 'progressive realisation' approach to achieving it, increasing public demand for social services, including accountability mechanisms such as grievance procedures, and introducing right-to-work schemes (employment guarantees rather than public works projects). All of these proposals were agreed to be appropriate in a context of progressive local and international political regimes but low institutional capacity.

These proposals received mixed reactions from Scenarios 2a and 3b. There was little enthusiasm for a national vision and no interest at all in signing up to the Social Protection Floor, which was dismissed as 'too progressive'. Public services would be delivered alongside private providers and there would definitely be no accountability mechanisms. The 'right-to-work' proposal was rejected in favour of old-style public works: 'No right to work, but a duty to work'.

Scenario 2a: 'Oh dear' Proposed policy options were very limited and unambitious, reflecting the limited commitment and accountability of this regressive regime and its low capacity to deliver public services. Social protection would effectively take its most basic 'safety net' forms: humanitarian response during crises (probably delivered by international agencies rather than the government), public works projects (also externally funded and run by donors or NGOs), mother and child feeding schemes, and contributory pensions for civil servants as part of the government's clientelist orientation.

The regressive government of Scenario 3b endorsed these suggestions, as both regimes share a common ideology. But since Scenario 3b has higher capacity to deliver services, the government would be the main implementing agency for all interventions. The progressive government of Scenario 1a did not oppose these ideas in principle, but would implement them as part of a coordinated national vision for social protection rather than as isolated projects. Contributory pensions for civil servants would only be acceptable as one component of a universal pension scheme.

Scenario 3b: 'All dressed up…' Policy options in this scenario were highly regressive. The regime is assumed to be pro-business so deregulation of business is favoured, implying low social security coverage and contributions, and no minimum wage to protect low-paid workers against exploitation. Social protection will be dominated by conditionalities and a focus on graduating people off programmes and into the labour market as quickly as possible. Minimal social assistance will take the form of food banks that will be run by the non-profit third sector plus private partnerships.

The equally regressive government of Scenario 2a supported these proposals in principle, but noted that international donor partners might not endorse excessive deregulation of the private sector and restricted social security protections for workers. They might also lack the capacity to implement graduation programmes, even while agreeing with the intention behind them. The government of Scenario 1a disapproved of this entire set of proposals on ideological grounds. Favouring business, conditionalities, graduation and soup kitchens are all antithetical to the more pro-poor and rights-based orientation of this progressive regime and its progressive international partners.

This exercise revealed that the fundamental determinant of a country's social protection trajectory is likely to be the nature of that country's political regime. A progressive government will be open to rights-based approaches such as the Social Protection Floor and employment guarantee schemes, civil society mobilisation and accountability mechanisms. Low institutional capacity can be partly rectified with the support of development partners, especially if the international political climate is also progressive. Conversely, regressive governments will reject rights-based approaches in favour of minimalist safety net approaches such as food banks, public works projects and limited conditional cash transfers. The economic and political contexts will be conducive to business and the private sector, and contributory social security for formal employees is preferred to large-scale social assistance programmes such as social grants.

The exercise further revealed that the role of the international political regime is likely to be limited. While it may be important in creating an enabling environment for progressive and innovative policy design (through the launch of global initiatives such as the Social Protection

Floor and provision of technical assistance, for example) or acting as a brake on regressive interventions, it is unlikely to form a decisive factor in shaping national social protection landscapes.

6 Conclusion

As noted earlier, this is not a conventional study that investigated a research question or hypothesis in order to draw out recommendations for improved practice from the empirical findings. Instead we used a variety of methods and tools to draw out a range of views on possible future trajectories for social protection as a policy domain in low- and middle-income countries, and we have presented these views without imposing our own prejudices or a false consensus where none exists.

At the start of the online discussion event for this project, registered participants were asked to vote on whether they believe that social protection will grow, stabilise or decline in the next five to ten years. Responses were overwhelmingly optimistic. No less than 87 per cent (63 of 72 who answered) predicted that social protection will continue to grow, 10 per cent thought it will stabilise at its current level, and only 3 per cent believed that it will start to decline from its present position on the development policy agenda.

Key informants interviewed for this project expressed a diversity of views on this question. Many shared the dominant view that social protection will continue to rise on national policy agendas, while others predicted that social protection will reach a natural plateau fairly soon. A few key informants reflected the minority view that social protection will decline, especially at the level of the global development policy discourse.

Reinforcing the pre-discussion vote, the dominant view among the online participants, as well as key informants, was that social protection will continue to become more prominent on the development agenda in the next five to ten years, for both 'demand-side' and 'supply-side' reasons.

On the demand side, social protection will grow because there will be a continual increasing need for it. Social protection can help in bridging inequality and reducing vulnerability. It can function as a stabilising force post-crisis (economic and political) and address social exclusion of the poorest. However, the increasing need for social protection should not be taken as a sign of its success, if it is used instrumentally as a 'band-aid' for failed economic strategies and systemic failure.

On the supply side, social protection is increasingly gaining political support. The demand will be met because there is increasing political interest in supplying social protection. The last decade has seen an exponential growth in the number of developing countries that are introducing social protection programmes. Countries like Brazil and Mexico in Latin America, or Rwanda and Ethiopia in Africa, have pioneered national social protection programmes that have served as models for their regions. Some countries, such as South Africa and India, have even integrated legal provisions for social protection into their

constitutions. This trend will not only continue, but it will likely move towards a more holistic agenda linked to the provision of basic services, such as health and education, as well as to economic sectors such as agriculture and job creation. Political will and national ownership remain decisive in the evolution of national social protection systems.

It is never easy to predict the future, but a few projections can be made with some degree of confidence. Social protection will continue to consolidate, especially in middle-income countries, where projects and programmes will increasingly become components of integrated systems with linkages to other social and economic sectors and (where appropriate) harmonised financial and technical support from development partners. Challenges of affordability and extending coverage will persist in low-income countries – there might even be reversals in unfavourable economic and political contexts.

Economic shocks and political crises, whether at national, regional or global level, will continue to either undermine the deepening of social protection systems or will motivate increasing investments in building systems to protect people against the consequences of these shocks – this could go either way. Social protection will increasingly become a response to income inequality and social inequities rather than being driven only by poverty and demographic vulnerabilities. It is not yet clear whether rights-based approaches towards universal provision underpinned by justiciable legislation, such as the Social Protection Floor, will gain traction globally or only in certain countries.

The governance of social protection will gain increasing attention, particularly with respect to such issues as decentralised programming, the role of civil society, and bottom-up social accountability mechanisms. Development partners will need to redefine their role, probably moving away from financing social protection projects directly and building the evidence base on impacts, towards innovative approaches to technical support and building national capacities.

Ultimately, the direction that social protection takes will vary from country to country and will shift over time, as capacities to deliver fluctuate and as governments and political ideologies change. Better understanding of political processes around social protection, and innovative approaches to building institutional capacity, are essential to consolidate progress and to exploit both 'progressive' periods and times of austerity as windows of opportunity for reshaping social protection, as it moves forward into its next phase.

Notes

* This article draws on Devereux, S.; Roelen, K. and Ulrichs, M. (2015) *Where Next for Social Protection?*, IDS Evidence Report 124, Brighton: IDS.

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Cities, Violence and Order: The Challenges and Complex Taxonomy of Security Provision in Cities of Tomorrow*

Jaideep Gupte with Stephen Commins

Abstract How will security in cities be understood in the future? For whom will it be provided? What are the ways by which urban security provision will be governed? And, what impact will violence and order in cities have on the processes of state-building in fragile contexts in the future? This article reports on a foresight study that addresses these questions. A key finding is that there are multiple and overlapping forms of urban violence, and the ways these interact have important consequences for understanding order in future cities.

Keywords: cities, urban, violence, foresight.

1 Introduction

Cities are not only critical nodes of governance in the global North and South, but also play a 'critical role in the processes of state consolidation, transformation and erosion' (Beall, Goodfellow and Rodgers 2013: 1). Indeed, as Tilly (2010) argued, the changing relationships between cities and states can help us understand the centrality of cities in such processes.

At the same time, the state is no longer regarded as the sole or uncontested provider of security in cities. This is due to two key advances in knowledge around, firstly, how cities as a unit of government grew to be distinct from the nation state that is weakened in an ever-globalised world (see for example Schiller and Fouron 2003). As Friedman argues: '[T]he focality of the state in identity formation is giving way to competing identities from indigenous, regional, and migratory populations. The latter has also entailed a decentralisation of resources within the state… and an increasing division of powers, between the state as the representative of the nation and the subgroups that tend to displace it' (Friedman 2003: 8).

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Secondly, the state is viewed as one of several actors centrally involved in the processes and actions that produce and mitigate violence (see for example Punch 2012), alongside local, non-state and other sovereign groups (Muggah 2014, 2015b). In parsing out the nature of state violence, the focus has therefore shifted away from a singular understanding of the role of the nation state, and moved towards processes of governance (Nugent 2004) and multiple sovereignties (Rodgers 2006) that come together to produce outcomes of security and insecurity. In turn, the diverse types of violent encounters so produced only bear a superficial connection with the structures of the nation state, but instead, play out in the everyday (even intimate) spaces in the city (Datta 2012).

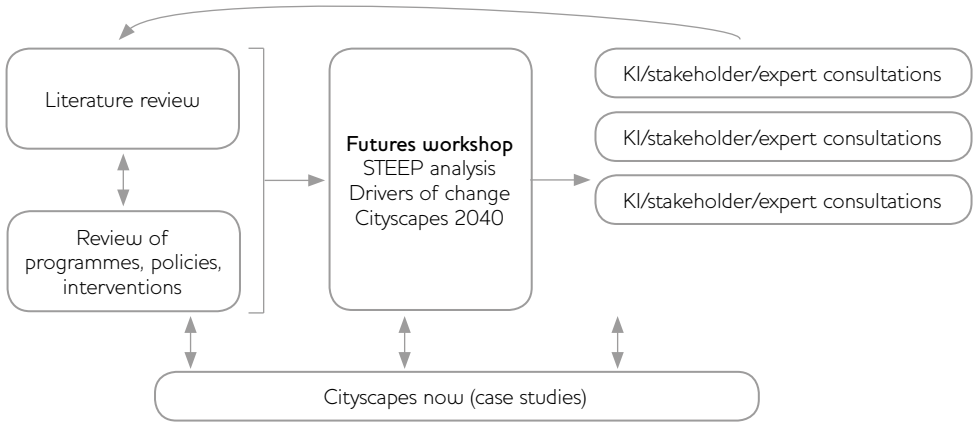
The most complex of these relationships are invariably playing out in the cities of low- and middle-income countries (Muggah 2015a), where most of the urban population growth in the coming three decades is set to take place (United Nations 2014). It is in these contexts that everyday lived experiences of violence undermine the confidence of citizens in government systems, directly and indirectly have a negative impact on livelihoods, and frequently reduce the quality and quantity of service provision. Though these impacts are varied and often characterised as hyper-local, they do collectively shape wider discussions on governance and state fragility at the national scale (Commins 2010).

When it comes to the subtleties of addressing the concerns of how security will be provided in cities in the future, however, there has been a lack of thinking beyond simplistic doomsday scenarios or utopian projections. This is reflected in what are arguably simplistic understandings of order, governance and control in cities of the developing world.

At one end of this continuum are 'feral cities' (Norton 2010), characterised by a complete failure of the state to maintain the rule of law, thereby being overrun by all-subsuming slums (Davis 2006). As a result of their collective failures, state apparatuses at both the city and national levels are viewed in a non-distinguishable manner. They are contrasted only with a paradoxical balance between on the one hand informal institutions that control the city, and on the other, the greater international systems, such as trade and communications, that continue unabated to connect with the city (Bunker and Sullivan 2011). At the other end of this spectrum are 'charter cities' (Romer 2014). Romer describes these as monolithic entities, newly created to be free of the vested interests and inefficient rules and bureaucracies that hinder security, growth and development.

Aside from the two extreme characterisations, pertinent questions around how security in cities will be understood in the future, how and for whom it will be provided, and how it will be governed, remain largely unanswered. A growing body of evidence showcases the heterogeneity of security processes and outcomes, both within and

Figure 1 Design of cities, violence and order study



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between cities (Gupte, Justino and Tranchant 2014). Notwithstanding these recent advances, contemporary paradigms of urban development do not substantively account for the ways in which the social, political, economic and physical aspects of urban form interact and shape the mechanics of security provision in cities. Part of this gap is due to the separation between development theory or urban planning on the one hand, and issues of security, conflict and violence on the other. These have usually been different intellectual and programmatic domains, to the detriment of a coherent approach to either analysis of insecurity or effective approaches to security provision.

This has left a perceptible gap in development policy, compromising the manner in which we respond to urban challenges today.

2 Research questions and study design

This study was driven by three main research questions:

1 What might the challenges of security provision in cities look like in the future?

2 How can development policy and practice pre-emptively respond today?

3 What types of programmes should be given greater priority and support in the future?

The study design is illustrated in Figure 1, and included review of the relevant literature and of relevant programmes, policies and interventions in a selection of cities. These reviews were conducted iteratively, fed off one another and informed the futures workshop. Following the futures workshop, a series of consultations with key informants (KI), stakeholders and experts were conducted, in order to help ground the workshop findings in current stakeholder and donor priorities.

For the foresight workshop, a group of urban experts and leading thinkers representing a broad range of disciplinary perspectives gathered to identify what the drivers of violence and order in cities might be in the near future. The discussion was systematised through the 'STEEP' – social, technological, economic, environmental and political (see Figure 4) – framework so as not to reduce the drivers to a simplistic value judgement, i.e. 'good' versus 'bad' or 'positive' versus 'negative'. Instead, the drivers of change are represented as slider-scales that can be adjusted to postulate how the processes of change might function in cities in the future. The list of drivers can be fine-tuned depending on local contexts.

These foresight techniques are not meant to predict the future. Rather, they produce potential characterisations of future cities that can be used as heuristic tools to help consider the nature of challenges in the future, and the types of policy response, both today and in the future, that these might necessitate. This material is then supplemented with expert consultations across a wide range of donors, practitioners and academic experts to identify key biases and blind spots in research, policy and practice.

3 Dimensions of urban form relevant for futures thinking on cities, violence and order

The workshop adapted a scenario-planning process with the twin aims of 'characterising what the challenges of security provision in cities might look like in 2040' and 'formulating ideas on how development policy and practice can pre-emptively respond today'. The process was designed to generate a set of narrative scenarios of the city in the future, referred to throughout the process as 'cityscapes'. Shocks and stresses could be laid over these cityscapes to 'test' their resilience. The resilience testing process would reveal weaknesses in the social, political and economic structure of the cityscape. Near-term development policy and practice interventions could then be designed to address these weaknesses and mitigate future impact.

For the purposes of this study, we conceptualised 'violence' and 'order' in cities as being functions of three interconnected dimensions (D) of the urban form:

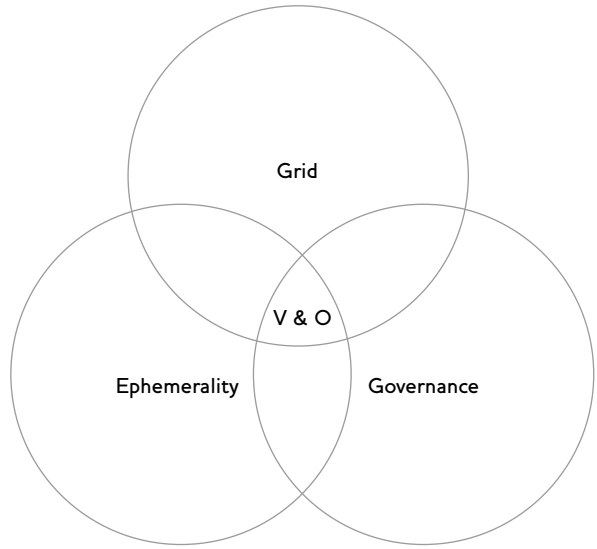
D1 Grid – focusing on city spaces, their layout and planning, as shaped by economic, political, technological, social and gendered factors.

D2 Governance – focusing on the processes and structures that form the institutions through which people are excluded and included; sociopolitical voice and participation versus marginality and exclusion; willingness and capacity of state actors.

D3 Ephemerality – focusing on the shifting dynamics and identities of violence that are often related to the grid and governance of the city, but not reducible to them.

These dimensions were conceptualised such that cities may display different configurations, with one or two of the dimensions dominating

Figure 2 Three dimensions of urban form – violence and order (V & O) in cities are a function of D1 (Grid), D2 (Governance) and D3 (Ephemerality)



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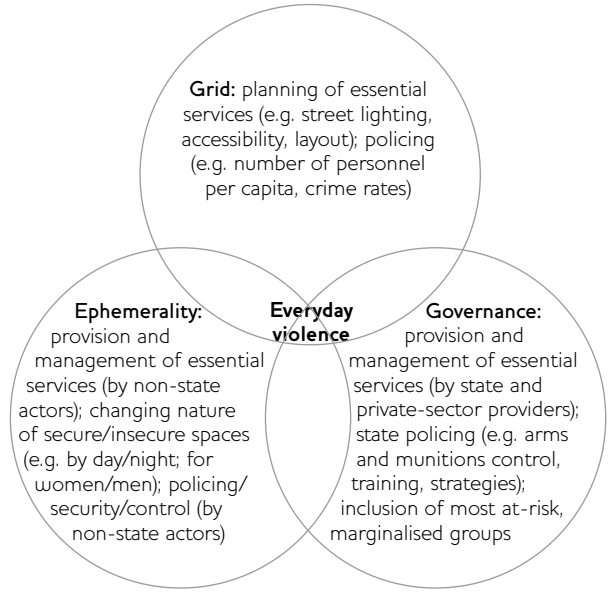
depending on local, temporal or spatial contexts. In the illustration above, the three dimensions of urban form are shown to have elements that are unique to each dimension, as well as elements that fall within the overlap of two, or all three, dimensions. It is important, however, to acknowledge upfront that this three-way articulation was not envisioned to be an exhaustive description of the urban form, and was used more as a heuristic tool to widen the group's thinking, rather than as a framework to limit the scope of discussions.

Indeed, several alternate castings are plausible, including one that is interpreted through the dimensions of *Infrastructure–Governance–Contingency*, or around *Planning–Policing–Possibilities*, for example, or castings that use fewer or more dimensions. The point of such a heuristic tool is not only to systematise thinking about cities into the various dimensions, but importantly to push us to focus on the *overlaps* of two, or more, dimensions. For example, the organisational set-up of municipalities would pertain to the governance dimension (D2), while the role of non-state actors in the provision of essential services such as water or neighbourhood policing would be placed in the overlap of the governance and ephemerality dimensions (D2 ∩ D3). As another example, elements of the city master plan, such as zoning demarcations (hawker zones, for instance) would be placed in the grid dimension (D1), but multiple or shifting uses of public spaces (street markets during the day, places of congregation or prayer in the evening, for instance) would be placed at the intersection of the grid and ephemerality dimensions (D1 ∩ D3).

Based on this typology, 'violence' and 'order' in the city are placed at the intersection of all three dimensions (D1 ∩ D2 ∩ D3). Doing so

Figure 3 Theorising the interactions between urban forms and everyday violence



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recognises that both 'violent' and 'ordered' outcomes in cities result from varying combinations of elements in each of the three dimensions. We will therefore use this typology to identify the elements pertaining to each dimension for the issues we focus on. For example, 'everyday violence' in cities could be broken into the elements shown in Figure 3.

4 Key trends

There is good reason for cities to be described as the 'new frontier' for international development (DFID 2010). Nearly two thirds of the global population of 9.1 billion in 2050 is projected to be urban. This implies a doubling of the global urban population from 3.3 billion currently, to 6 billion in 2050 (United Nations 2014). While approximately half the world's urban population live in smaller towns, our focus in this study is maintained on the larger urban agglomerations, as well as the smaller towns that are projected to grow to host more than 500,000 residents. These growing towns and cities are key as markers for policy and programming interventions on violence mitigation.

We find that while some of these growing agglomerations, such as Juba (South Sudan) or Buenaventura (Colombia), are already beginning to feature in the research agendas on violence and order, others such as Lubango (Angola), Herat (Afghanistan), Pokhara (Nepal) or Muzaffarpur (India), however, continue to be relatively hidden from international view. Nevertheless, these are all locations where there are growing concerns over violence and order, ranging from the increasing presence of gang and criminal activity in Pokhara, violent evictions in Lubango, to social unrest and mob violence in Muzaffarpur.

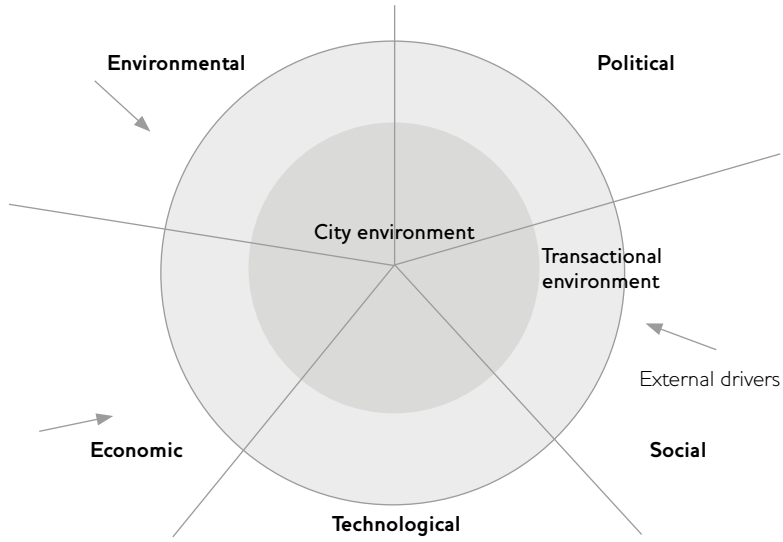
Violence in both urban and rural contexts is a serious threat to human security (UN-Habitat 2007), and disproportionately impacts those who are already poor and marginalised (Justino 2007). Recent research points to the increasingly urban geography of violence (Buhaug and Urdal 2013; Raleigh 2015). This moves us beyond thinking of urban violence only as a periodic segment of war that is otherwise a rural phenomenon. When the violence of war does spill into urban areas, it is invariably indicative of changing strength ratios between rebels and government (see for example Holtermann 2014). We also know that violence against civilians during civil wars now occurs predominantly in urban areas (Raleigh 2012).

However, the types of violence associated with war or armed conflict are not the only significant modalities of urban violence. The destructive impacts of criminal and everyday violence can be more acute than traditional war – the United Nations Office on Drugs and Crime (UNODC) finds that 'by far the largest aspect of the global burden of armed violence is the deaths and injuries that occur in non-conflict or non-war settings' (Geneva Declaration Secretariat 2008: 67). Of the 31 most fragile and conflict-affected countries today, 23 are projected to be significantly urban in the near future. At the same time, fatalities due to armed violence in non-war settings far outweigh war-related deaths. Much of this violence is centred in cities. Violence, therefore, is increasingly a defining characteristic of urban living in both conflict and non-conflict settings.

An often-cited metric for death and victimisation in the city is homicide. According to the most recent data available, the 20 cities with the highest non-war-related homicide rates were predominantly in Latin America and the Caribbean, with a few from sub-Saharan Africa, North America and Central Asia also making the list. It is also the case that homicide rates tend to be higher in cities.

Not highlighted by these global trends are cities where the inconsistencies of national crime records prevent global comparisons. One glaring omission in this regard is Karachi, Pakistan, where 'killings' (not specifically defined as homicides) have dramatically increased over the past decade, and at the same time have come to be concentrated in a handful of neighbourhoods. In absolute numbers of killings, Karachi rates among the most dangerous cities in the world (Hashim 2012). Another aspect not captured in the global comparisons of the highest homicide rates, are emerging situations like that of India, where 43,355 intentional homicides were recorded in 2012 at a rate of 4.5 per 100,000 people (Gupte and Muggah 2015). Criminal violence generates at least ten times more deaths and injuries in India than terrorism and conflict. In this, a comparatively small number of intermediate and large cities register a disproportionate amount of gun violence: four of the top five most violent cities in terms of murder by firearms are located in Uttar Pradesh.[1] The most violent cities are not mega-cities, but rather mid-sized cities of between 1 million and

Figure 4 The STEEP framework overlaid onto the city and its wider environment



Source Diagram developed for the workshop by Fran Seballos (IDS) and Alun Rhydderch (School of International Futures).

3 million people. These mid-sized cities continue to grow rapidly and feature disproportionately large populations of unemployed and under-educated youth. They are also exhibiting severely under-resourced services, including public police forces.

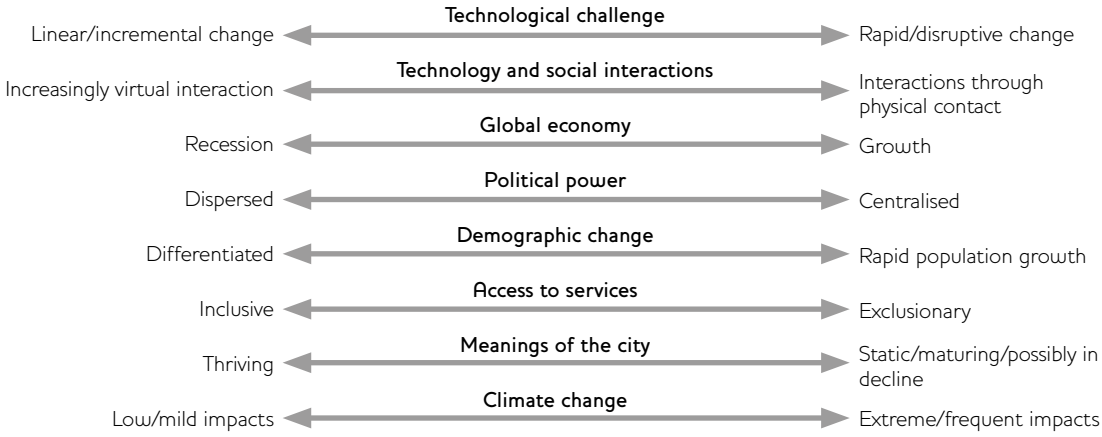
5 Foresighting cityscapes 2040

The cityscapes developed for this study were set in the 2040s, giving a 25-year time horizon. This time period was chosen to reflect commonly used high-level planning horizons (in the United Kingdom) and to go sufficiently beyond the Sustainable Development Goals and Agenda 2030[2] timeline so as to complement but not get completely diverted by the current debate. In addition, a 25-year time horizon is tangible enough for the participants to grapple with and relate to, yet far enough into the future for change to be quite dramatic.

Using the STEEP – social, technological, economic, environmental and political – framework, the opening session generated input on the key global trends and external forces driving change and impacting our societies, environments and cities. Five participants were invited to share short presentations identifying between three and five key trends or external forces that, from their perspective, are driving changes in violence and order now, or are emerging as drivers of future change. The workshop facilitators recorded and mapped the drivers onto a wallchart depicting the city, its transactional environment and the external forces affecting the core (see Figure 4).

Drivers of change identified by the group of experts at the futures workshop were mapped according to the STEEP framework and

Figure 5 Potential drivers of change characterising future cities



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according to the environment from which the driver emerged – external, transactional or from the city itself. Due to the specialist nature of the experts' interventions, a plenary session was facilitated to explore drivers beyond the city context, which may affect how individuals, organisations, institutions and cities function and interact in the future.

The list was by no means meant to be exhaustive, but served as a platform on which the following futures thinking could be based. Populating the wall chart as described allowed the rapid clustering of drivers under broader headings. The process generated nine broad clusters of 'drivers of change':

1 Population dynamics

2 Authoritative control of urban space

3 Changing meaning of cities and urban living

4 Environment and resource scarcity

5 Changing economies

6 Movement (flows) of people

7 Technological innovation

8 Complexity of governance structures

9 Political economy of land, (illegal) commodities and services.

The nine clusters were then visualised as 'slider-scales'. In conceptualising these slider-scales, care was taken so as to not reduce any one to a simplistic value judgement – i.e. 'good' versus 'bad' or 'positive' versus 'negative'. Instead, the ends of each scale signified

a nuanced calibration (to maximum or zero effect) of the drivers of change within that cluster of drivers of change.

Two scales for the Technological Innovations cluster were conceptualised: (1) ranging from being predominantly linear and incremental in nature, to being rapid and disruptive; and (2) as being reliant on increasingly virtual interactions to being reliant on interactions through physical contact. Figure 5 shows a visual representation.

From these eight slider-scales, each of four groups was allowed to select between two and four spectrums to provide a framework for their future cityscape. This was a departure from the usual process of scenario development that is premised on the selection of two 'high impact: high uncertainty' scales which are overlaid to create a quadrant giving four potential scenarios.

In building the cityscape frameworks, the groups had to identify which end of the scale would be shaping the city, and in order to avoid group bias, they had to select one driver and use the opposite end of the spectrum to that which they intuitively felt would be more likely. This rule was instigated to stop the groups building cityscapes that were overly influenced by their preconceptions of what a future city may look like, and to ensure that a range of future possibilities was fully explored.

Groups were then referred to the 'three dimensions of urban form' – grid, ephemerality and governance – as a point of reference for describing and articulating the interactions and dynamics between the STEEP drivers, as framed by each group's chosen spectrum extremes. To help visualise the cityscapes, each group was encouraged to either select a known city, or name and locate their city – for example, a coastal city in southern Asia. For this workshop, this provided important context for considering issues such as the availability of land for expansion, or the types of climate impacts that may be experienced – for example, sea-level rise.

Once the cityscape narratives were fleshed out, the groups were also asked to consider the impact of three kinds of unmitigated and exogenous shocks and stresses on the interactions and dynamics between the actors, spaces and institutions, i.e. the worst case within the context of their cityscape. The shocks and stresses were:

- S1 Everyday insecurities – this includes those insecurities and vulnerabilities which do not threaten the state *per se* but nevertheless form the everyday lived experiences of city-dwellers.
- S2 Violence, uprisings and armed conflict – this includes protracted conflicts that are increasingly located in and around cities, or even if they are not, often have the control of cities as their objective.
- S3 Climate change and disasters – this includes the many small disasters, i.e. fires, landslides, local floods, waste flows, not just the headline ones.

Thinking through the unmitigated impact of such shocks and stresses led to the identification of weaknesses in the cityscapes' systems, institutions and interactions – or conversely to their strengths. Considering both the weaknesses and strengths, each cityscape group then took up the challenge of designing interventions – policy or programmatic – that would mitigate (in the case of weaknesses) or ensure management of (in the case of strengths) the shocks and stresses identified.

To show how the slider-scales might be operationalised, the following sub-sections present excerpts from two cityscapes as examples (see Gupta with Cummins 2016 for complete versions). The cityscapes are developed using various calibrations of drivers of change as markers. Potential policy responses, and how these might interact with the future city, are then identified.

Cityscape 2040: 'Coastal collapse'[3]

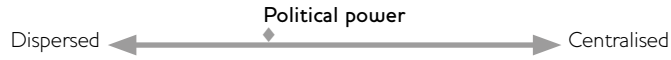
A coastal Chinese city with a population of 10 million and a broader urban region of 20 million making a poly-centric, export-dominated, special economic zone. In 2015, it was still a successful exporter of 'white goods' – for example, fridges, washing machines, microwaves and other manufactured goods to the European and North American markets. It had developed very fast from 1995 to 2015, but by 2040 there are serious signs of strain on the economic and social model on which the city's development and prosperity had depended. The city is located on the coast where there is a container port (which was modern in 2015, but will fall on harder times due to a decline in export demand), and there is a river. Expansion to the megalopolis of 30 million people will be rapid and not constrained by any geographic features (like mountain ranges). The main constraints will therefore be the 'workableness' of the urban region – distance, traffic, commuting times and so on. Given that the city is located on the flood plain with a low-lying river delta, flooding and sea-level rise have been greater challenges.

Three drivers of change were used to create this cityscape.

Impact of slider-scale calibration: By 2040, there was a general and local recession caused by a shift in large-scale manufacturing out of China. There was still limited demand for the type of goods produced in the Chinese market as the middle class had developed (2015–35) but for the last five years (2035–40) even here demand slowed. Much of the basic manufacture and assembly for these goods was now done in other Asian and African countries.

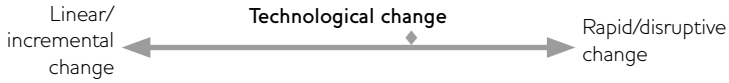
Some of the entrepreneurial and managerial staff were able to emigrate and work in Africa in supervisory, planning, IT and managerial posts for the kind of firms which had been producing previously in the city region. In a return flow of migration, some foreign traders and a few people with specialist skills came from abroad to live and work in the city.

There are a lot fewer formal sector jobs. In rural areas, the informal development has been accepted. The situation is less clear-cut in the cities.



Impact of slider-scale calibration: By 2040, the Chinese political system had evolved, but not fundamentally altered. The Chinese Communist Party was still in control, but the difficulties in the economy and previous experience with the devolution of some decision-making autonomy to city level meant that (successful) local experiments were welcomed. Unsuccessful experiments adversely affected career chances for local officials and managers – leading in extreme cases to disgrace, demotion and/or relocation. But so did continued inadequate economic performance in the city and signs of public discontent. Citizens' interest groups could organise around local issues of service delivery, economic performance, and issues such as the efficiency and cleanliness of the city, housing, etc. They did not have to be under Party control but were still not allowed to challenge the system or threaten its 'stability' (order) as defined by the Party. To do so could trigger direct reprisals and police intervention – even with force – for example, clearing streets by police action if a demonstration 'got out of hand'.

The coordinated pressure for better services on the one hand, and the comprehensive use of electronic surveillance technologies on the other, mean that there is now permanent potential for conflict. There is a danger that the middle class may become more insistent that the state should 'get a grip' and impose more order.



Impact of slider-scale calibration: The period 2025–35 revolutionised the industrial base of the city. Computerised, robotised and fully automated production processes replaced the need for less skilled labour working in assembly for instance. The manufacturing process was mainly centred on carbon compounds and new materials, not metal. 3D printing largely replaced the need for transport of components and assembly. Finished items were much smaller and lighter. In many cases software transfer meant that customers could have their items locally produced in '3D print warehouses'. This meant that the large factory buildings were mainly standing idle – but some were adapted to other uses – broken up into small units used for product design, such as 3D print shops of various kinds and centres for manufacturing green energy technologies.

The new technology inevitably meant that there will be winners and losers – the main losers are likely to be lower-skilled workers and those working in transport.

What might be the policy response to increased tensions and violence in this cityscape? First, the strong citizen response to the floods, coupled with

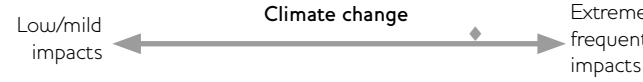
a more responsive attitude by the authorities, creates new possibilities of a stronger coalition between the authorities and the wider population. The poorer sections of the population insist on no evictions and no victimisation for those involved in activism – particularly the squatters' movement. The 'no empty space' movement is a citizen-led coalition campaigning for any empty housing to be made available and for factory space to be used at advantageous rates for business, community groups, self-help training initiatives and so on. The community is also providing labour at subsistence wages to build up the sea defences to provide a new protective barrier for the poorer residential areas. The city is providing the rocks and cement to make this possible. Street vendors' organisations succeed in their campaign for a more progressive policy and indoor space for regularisation of their status. A liaison group between the traders and the city and police negotiates a resolution of almost all areas of friction in a tolerable and mutually acceptable way.

Second, the precarious stand-off between the authorities and certain sections of the population continues. Occasional victimisation of prominent activists, such as leaders of the street vendors or squatters, continues. Periodic 'crackdowns' lead to confrontation between police and local youth – sometimes with violence and counter-violence. Groups do not achieve any wider solidarity, each group has to 'fight its own corner' – leading to contestation over services and mistrust and competitiveness between different initiatives. There is some voluntary work and patchy philanthropic initiatives. The port is still functioning, but is of diminishing economic importance. Within the wider city area (the 30-million conurbation) some new small enterprises emerge and some 'urban farm' ventures develop on a small-scale cooperative model.

Finally, the downward spiral continues. The 'Chinese Detroit' scenario threatens. City finances are non-viable – the city is effectively bankrupt and the state is not keen to bail it out or provide a rescue package. Policing and services are – step by step, without a deliberate policy or announcement – gradually withdrawn from the poor areas. The poorer sections of the population are left to fend for themselves and these areas of the city become effectively 'no go' areas for officials and outsiders from the residential areas which are not so hard hit.

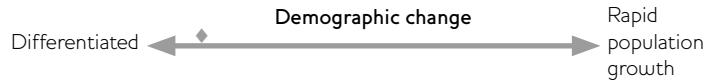
Cityscape 2040: 'Post-capital commons'[4]

This cityscape was built using a contemporary non-coastal Indian city as a starting point.

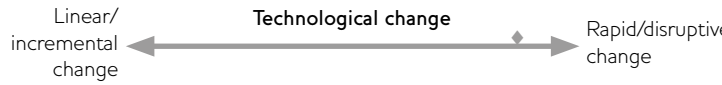


Impact of slider-scale calibration: Climate variability is thought to be highly disruptive, with serious conditions of flooding and high levels of out-of-season rainfall interspersed with heat stresses getting more frequent and intense with time. However, as the city itself is not coastal, the climate-related shocks and stresses are perceived as 'happening

elsewhere'. As a result, risk management is not highly systematised across the city. Most efforts towards building resilience are mainstream and 'off-the-shelf' approaches.

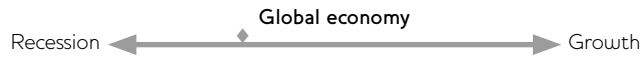


Impact of slider-scale calibration: The population can be described by extreme demographic differentiation and accompanied by a reduction in family sizes. A change in gender dynamics is perceptively evident with women more likely to work, given the need for dual incomes across most households. Smaller family units also imply fewer elderly parents are able to live in the same home – this marked transformation in domestic space is significantly different from rural settings, where larger households are more common.



Impact of slider-scale calibration: The city is envisaged as being shaped by new technologies that are disruptive to the status quo. In particular, 3D printing technologies have rapidly developed and revolutionised two sectors. Firstly, new building technologies have replaced bricks and mortar with 3D printed materials. The technology has become widespread through middle- and upper-income neighbourhoods, where residents have been able to readily afford the expensive raw materials required to switch to this technology. Low-income neighbourhoods continue to use low-grade non-permanent materials. The regulatory environment has been unable to cope with the 'democratisation' of building technology, and this has inevitably led to a greater degree of non-conformity with building regulations. Recent government efforts have been aimed at regulating the design files, while building regulations need to be enforced through code inspectors.

Second, small arms manufacturing has switched almost completely to using 3D printing. The open-source nature of the design files has led to widespread gun ownership among civilians in all walks of life. Control of ammunition is one of the few remaining state controls of firearm use.



A collapsing dollar has triggered the Chinese to demand repayment of their debt. As a result, a new Bretton Woods system has emerged that sets up a global consensus that the reconstruction of spaces and economies is in the collective interest, and directs money towards such efforts. Though cities become less important, this, however, does not exacerbate intra-urban inequalities. A group of global leaders articulate a different way of generating and allocating resources that 'ensure the public good' across countries and across cities.

What might be the policy response to increased tensions and violence in this cityscape? First, the nature of governance structures in the city imply that the burden of risk management cannot be placed on any one single scale, but is spread across local and national actors. Investing in a strong evidence base early is important, as is the need to empower communities with access to this evidence. Substantial resources need to be diverted towards re-imagining the conceptual frameworks used to understand 'refugees' and 'internally displaced'. As people get displaced from one city and seek refuge in another, city-based citizenship becomes a contested topic that requires support from research funding.

Second, technology regulation systems are key to maintaining order and control; however, there are differential impacts across the city. Innovators in design and usage of new materials are thought-leaders and key influencers – so development interventions need to focus on including them in the process of change. Gender dimensions continue to be central, not only for the differential impact of violence, but also due to the gendered nature of the relationships people have with technological innovations. Interventions therefore need to focus on creating space for both women and men to be leading innovators.

6 Conclusions

Using foresight methods, we find that there is a continuing need for donors to invest in more evidence-gathering and to undertake more detailed research on the interplay between violence and order in cities. This includes maintaining focus on different typologies of violence. Violence might occur 'upon cities' (as in cities coming under siege). But it might also occur 'within cities' (where violence is located in urban settings, but almost by circumstance), or it may be 'inherent to cities' (where the type and modalities of violence are specifically urban in nature; and even become ingrained in the everyday fabric of urban life). The three levels are deeply interconnected (through cross-cutting themes of gender, for instance), but they present significantly different challenges in terms of entry points for violence mitigation strategies.

Another important conclusion is that 'ordered cities' are often synonymised with 'planned', 'smart', or even 'charter' cities. Misconceived planning, policy, or design interventions are likely to create insecurity, not reduce it. Urban order can also be repressive and exclusionary, and these processes can occur over very long periods of time. As such, 'order for whom?' is the operative question that significantly impacts outcomes. In this sense, there is a critical gap in our understanding of the lessons that the safest cities provide us in terms of systems thinking – as opposed to violence preventing innovations in unsafe cities.

Both national and local governments, as well as donors and other stakeholders, need to rethink their tools and analytical frameworks to assess whether the lived experiences of urban violence are being adequately taken into account. This should also extend to research, policy design and programme implementation. Using 'foresighting' can

help identify urban futures that are possible, probable and preferable. As heuristic tools, these future scenario-planning approaches are useful in helping to assess the nature of future challenges, and the types of policy response, both today and in the future, that these might necessitate.

The futures thinking presented in this study is relevant for mega-cities such as Mumbai and Rio de Janeiro as they continue to change, but importantly also for smaller towns and cities that are projected to host more than 500,000 residents, particularly in fragile and conflict-affected countries. In either setting, experience shows that an approach to 'get the economy right first', or even focusing too much on national institutions of government, without giving attention to local government, might create social and political fissures and create violence in cities. Institutional conditions and governance arrangements are such that they tend to exacerbate processes of marginalisation, unless that is, issues of inclusion are explicitly placed on the table.

In terms of violence mitigation, there are tangible differences between 'political settlements' and 'peace processes' – in many ways, the former is static and non-transformative, while the latter is more geared towards the fluid future of cities. As we have noted, crime and violence statistics are useful proxy indicators of everyday violence and fragility in cities because they represent social stress, failures of state systems/legitimacy, and may create deeper processes beyond specific numbers (i.e. fear of taking certain bus lines, visiting certain neighbourhoods, or mistrust of other ethnic, religious and political groups).

But everyday violence and fragility also goes beyond simple statistics of violence to include the ungoverned or non-state governed spaces that they can represent. It also includes the destabilising factors that urban pressure can bring to national politics, and the positive element that this might have on forcing greater accountability on political elites. One commentator refers to 'pirate' cities in regard to how citizens have created their own service systems, while another has referred to the 'self service' state.[5] Both reflect the ways in which governance failures have an impact on local communities. The complex nature of the overlap between urban and national fragility is, however, a pressing issue at a national and international scale as well.

Notes

* This article draws on Gupte, J. with Commins, S. (2016) *Cities, Violence and Order: The Challenges and Complex Taxonomy of Security Provision in Cities of Tomorrow*, IDS Evidence Report 175, Brighton: IDS.

1 Interview with Rajan Medhekar, Director Gender (Retd.), National Security Guard, India.

2 For more details, see: https://sustainabledevelopment.un.org/post2015/transformingourworld.

3 Group notes contributed by Roger Williamson.

4 Group notes contributed by Eric Kasper.

5 Garth Myers, written communication.

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Glossary

ACA additional central assistance
ADB Asian Development Bank
AFI African Futures Institute
ANR Agence Nationale de la Recherche [National Research Agency]
APEC Asia-Pacific Economic Cooperation
AT Agricultural Trends
BFAP Bureau for Food and Agricultural Policy
BFP Basin Focal Project
CAP Country Assistance Planning
CCAFS Climate Change, Agriculture and Food Security
CDD Community-Driven Development
CGAP Consultative Group to Assist the Poor
CGIAR Consultative Group on International Agricultural Research
CIAT International Center for Tropical Agriculture
CIRAD Centre de coopération internationale en recherche agronomique pour le développement [Agricultural Research Centre for International Development]
CIRED Centre International de Recherche sur l'Environnement et le Développement [International Centre of Research on Environment and Development]
CNAM Conservatoire National des Arts et Métiers [National Conservatory of Arts and Crafts]
CoLUPSIA Collaborative land-use planning project [Indonesia]
CPCB Central Pollution Control Board
CPHEEO Central Public Health & Environmental Engineering Organization [India]
CSO civil society organisation
CSP Centre for Social Protection
DFID Department for International Development
DG Directorate General
ECOSOC Economic and Social Council
EEA European Environment Agency
EFC Economic and Financial Committee
EFMN European Foresight Monitoring Network
eLAC Regional Action Plan for the Information Society in Latin America and the Caribbean
Embrapa Empresa Brasileira de Pesquisa Agropecuária [Brazilian Agricultural Research Corporation]
EPA Environment Protection Agency
EPR extended producer responsibility
ESCAP Economic and Social Commission for Asia and the Pacific
ESRC Economic and Social Research Council
EU European Union
FAO Food and Agriculture Organization

FAPRI-MU Food and Agricultural Policy Research Institute at the University of Missouri
FCO Foreign and Commonwealth Office
FFEM Fonds Français pour l'Environnemente Mondial [French Global Environment Facility]
FI4AR French Initiative for International Agricultural Research
FONTAGRO Regional Fund for Agricultural Technology [Latin America]
FTP Forward Thinking Platform
GCARD Global Conference on Agricultural Research for Development
GCPSE Global Centre for Public Service Excellence
GEA Global Energy Assessment
GFAR Global Forum on Agricultural Research
GHG greenhouse gas
GIS geographic information system
GmbH Gesellschaft mit beschränkter Haftung [limited liability company, Germany]
GMO genetically modified organism
GO Global Orchestration
GovInn Centre for Studies on Governance Innovation
GPS global positioning system
GTZ Gesellschaft für Technische Zusammenarbeit [German Society for Technical Cooperation]
HSC Horizon Scanning Centre
IAASTD International Assessment of Agricultural Knowledge, Science and Technology for Development
IAF Institute for Alternative Futures
ICT information and communications technology
IDDRI Institut du développement durable et des relations internationales [Institute for Sustainable Development and International Relations]
IDS Institute of Development Studies
IEA Institute of Economic Affairs
IFs International Futures
IFPRI International Food Policy Research Institute
IFTF Institute for the Future
IHEST Institut des hautes études pour la science et la technologie [Institute for Advanced Studies in Science and Technology]
ILAC Institutional Learning and Change
ILO International Labour Organization
ILRI International Livestock Research Institute
INGO international non-governmental organisation
INR Indian rupee
INRA Institut national de la recherche agronomique [National Institute for Agricultural Research]
IPEA Instituto de Pesquisa Econômica Aplicada [Institute for Applied Economic Research]
IPCC Intergovernmental Panel on Climate Change
ISNAR International Service for National Agricultural Research
ISS Institute for Security Studies

JNNURM Jawaharlal Nehru National Urban Renewal Mission
KI key informant(s)
LAC Latin America and the Caribbean
LCS Low Carbon Society
MA Millennium Ecosystem Assessment
MDG Millennium Development Goal
MICROCON Micro Level Analysis of Violent Conflict
MoD Ministry of Defence
MoUD Ministry of Urban Development
MSW municipal solid waste
MSWM municipal solid waste management
NGO non-governmental organisation
NPM New Public Management
NSPP National Social Protection Policy
NSPS National Social Protection Strategy
ODI Overseas Development Institute
OECD Organisation for Economic Co-operation and Development
PARME Partnership and Research in the Caribbean
PBL Planbureau voor de Leefomgeving [Netherlands Environmental Assessment Agency]
PEACH Political Economy Analysis of Climate Change Policies
SAMAQQ Sécurité alimentaire en Méditerranée à l'horizon 2030: aspects qualitatifs et quantitatifs [Food Security in the Mediterranean: Qualitative and Quantitative Aspects]
SASP South Africa Scenario Planning
SCAF Simulação de Cenários Agrícolas Futuros [Future Agriculture Scenario Simulation Project]
SCAR Standing Committee on Agricultural Research
SDG Sustainable Development Goal
SID Society for International Development
SOFI State of the Future Index
STEEP(LE) social, technological, economic, environmental, political (legal, ethical)
STEPS Social, Technological and Environmental Pathways to Sustainability
SUAS Swedish University of Agricultural Sciences [Sveriges Lantbruksuniversitet (SLU)]
SWAC Sahel and West Africa Club
TEAGASC Irish Agriculture and Food Development Authority
TFLAC Technology Foresight Programme for Latin America and the Caribbean
UCLA University of California, Los Angeles
UKCDS UK Collaborative on Development Sciences
ULB urban local body
UNDP United Nations Development Programme
UNEP United Nations Environment Programme
UNESCO United Nations Educational, Scientific and Cultural Organization
UNFPA United Nations Population Fund

UNHCR United Nations High Commissioner for Refugees
UNICEF United Nations Children's Fund
UNIDO United Nations Industrial Development Organization
USAID United States Agency for International Development
V & O violence and order
WARDA West Africa Rice Development Association

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Foresight in International Development

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'While the benefit of "looking back to look forward" is well recognised, foresight is more akin to "looking forward to look forward"'

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