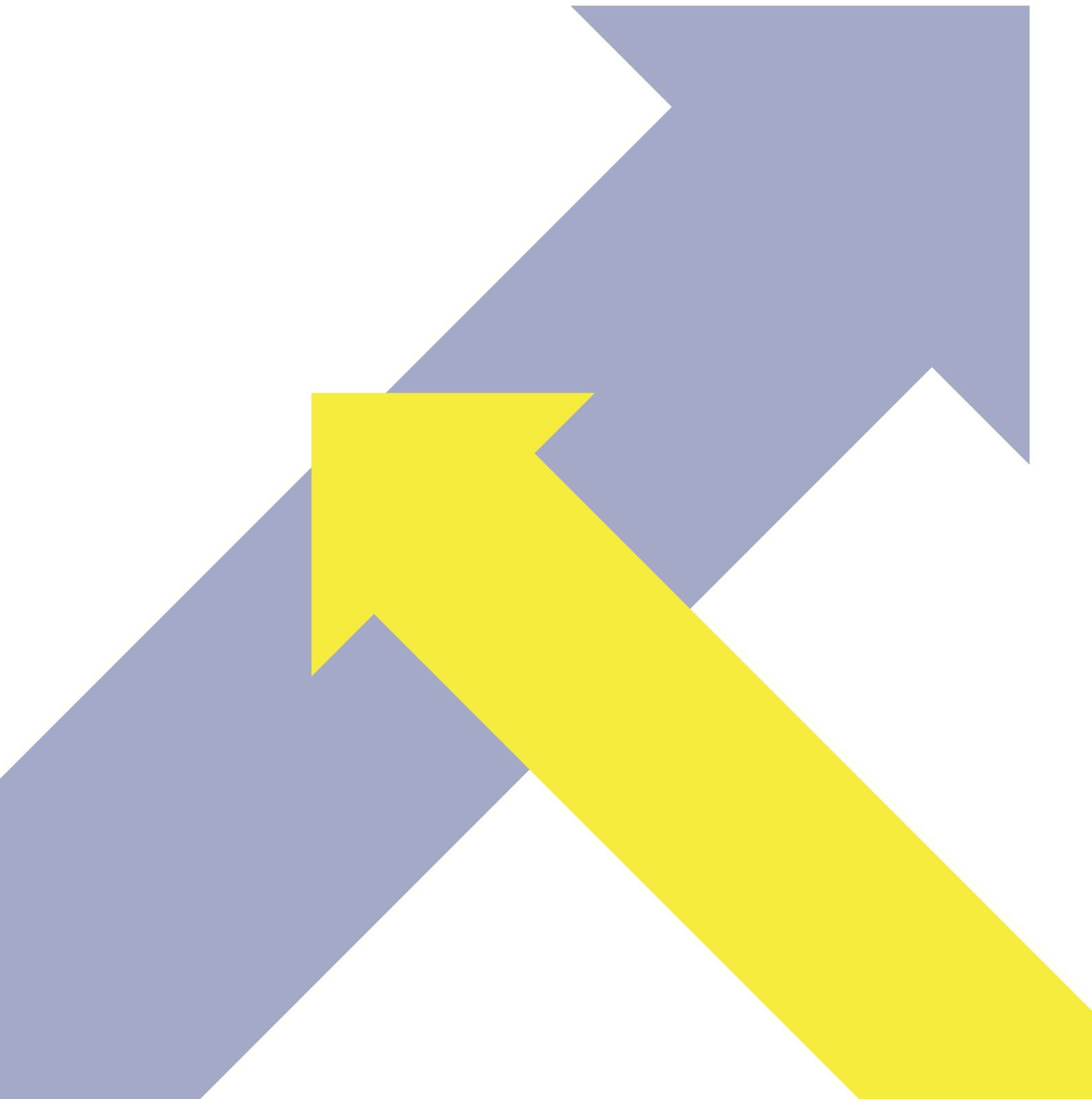




Now for the Long Term

The Report of the
Oxford Martin Commission
for Future Generations







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October 2013

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The Commissioners are acting in their personal capacity. They were selected because of their breadth and depth of expertise, their geographical reach, and their extensive leadership experience gathered over many years in large organisations, multilateral negotiations and complex national and global institutions.

This report represents the collective views of the Commission, and does not necessarily represent the individual opinions of any single Commissioner or the organisations to which they are affiliated.

The Oxford Martin School Commission Secretariat was led by Natalie Day (Head of Policy), with Anushya Devendra (Communications and Policy Officer) and Dr Travers McLeod (Policy Adviser). This report was published by the Oxford Martin School.



5 Abbreviations

6 Executive Summary

8 Introduction

9 **Governing for the future**

10 **One world; many cultures, perspectives and identities**

11 **About this report**

12 Part A: Possible Futures

13 **Megatrends**

14 Demographics

15 Mobility

16 Society

17 Geopolitics

18 Sustainability

20 Health

22 Technology

24 **Challenges**

24 Society

26 Resources

29 Health

31 Geopolitics

33 Governance

36 Part B: Responsible Futures

37 **Looking Back to Look Forward**

37 Lessons from Previous Successes

41 Lessons from Failure

44 **Shaping Factors: What Makes Change so Hard?**

44 1: Institutions

45 2: Time

48 3: Political Engagement and Public Trust

52 4: Growing Complexity

53 5: Cultural Biases

56 Part C: Practical Futures: Principles and Recommendations

57 **1: Creative Coalitions**

57 C20-C30-C40

57 CyberEx

58 Fit Cities

58 **2: Innovative, Open and Reinvigorated Institutions**

58 Decades, not Days

58 Fit for Purpose

59 Open up Politics

59 Make the Numbers Count

60 Transparent Taxation

60 **3: Revalue the Future**

60 Focus Business on the Long Term

61 Discounting

61 Invest in People

62 Measure Long-term Impact

62 **4: Invest in Younger Generations**

62 Attack Poverty at its Source

63 A Future for Youth

63 **5: Establish a Common Platform of Understanding**

63 Build Shared Global Values

65 **What Next?**

66 Endnotes

84 Acknowledgements



Abbreviations

AIDS	Acquired Immunodeficiency Syndrome	G20	Group of Twenty	NPCs	National Planning Commissions
ASEAN	Association of Southeast Asian Nations	G30	Group of Thirty Consultative Group on International Economic and Monetary Affairs	OECD	Organisation for Economic Co-operation and Development
BEPS	Base Erosion and Profit Shifting	GATT	General Agreement on Tariffs and Trade	OGP	Open Government Partnership
C40	Cities Climate Leadership Group	GAVI	Global Alliance for Vaccines and Immunisations	R&D	Research and Development
CDOs	Collateralised Debt Obligations	GDP	Gross Domestic Product	RGI	Resource Governance Index
CEO	Chief Executive Officer	HIV	Human Immunodeficiency Virus	SARS	Severe Acute Respiratory Syndrome
CERN	European Organization for Nuclear Research	IFPRI	International Food Policy Research Institute	SMP	Single Market Programme (Europe)
CFC	Chlorofluorocarbon	IFRS	International Financial Reporting Standards	TB	Tuberculosis
CGIAR	Consultative Group for International Agricultural Research	IHR	International Health Regulations	TRIPS	Trade-Related Aspects of Intellectual Property Rights
CO₂	Carbon Dioxide	IIAG	Ibrahim Index of African Governance	UDHR	Universal Declaration of Human Rights
CPI	Corruption Perceptions Index	ILO	International Labour Organization	UN	United Nations
CSIRO	Commonwealth Scientific and Industrial Research Organisation	IMF	International Monetary Fund	UNDP	United Nations Development Programme
DNA	Deoxyribonucleic Acid	IP	Intellectual Property	UNEP	United Nations Environment Programme
ECOSOC	Economic and Social Council (United Nations)	IPCC	Intergovernmental Panel on Climate Change	UNESCO	United Nations Educational Scientific and Cultural Organization
FAO	Food and Agricultural Organization	IUCN	International Union for Conservation of Nature	UNFCCC	United Nations Framework Convention on Climate Change
FCF	Committee for the Future (Finland)	LPG	Liquefied Petroleum Gas	UNICEF	United Nations Children's Fund
FCTC	Framework Convention on Tobacco Control	MDGs	Millennium Development Goals	WGI	Worldwide Governance Indicators
FDI	Foreign Direct Investment	NCDs	Non-Communicable Diseases	WHO	World Health Organization
FSB	Financial Stability Board	NGOs	Non-Governmental Organisations	WIPO	World Intellectual Property Organization
G7	Group of Seven	NHS	National Health Service (United Kingdom)	WTO	World Trade Organization
G8	Group of Eight				

Executive Summary

As the world slowly emerges from the devastating Financial Crisis, it is time to reflect on the lessons of this turbulent period and think afresh about how to prevent future crises. **The Oxford Martin Commission for Future Generations** focuses on the increasing short-termism of modern politics and our collective inability to break the gridlock which undermines attempts to address the biggest challenges that will shape our future. In **Now for the Long Term**, we urge decision-makers to overcome their pressing daily preoccupations to tackle problems that will determine the lives of today's and tomorrow's generations. Dr James Martin, the founder of the Oxford Martin School, highlighted that humanity is at a crossroads. This could be our best century ever, or our worst. The outcome will depend on our ability to understand and harness the extraordinary opportunities as well as manage the unprecedented uncertainties and risks.

Our report identifies what these challenges are, explains how progress can be made, and provides practical recommendations. The Commission outlines an agenda for the long term. Our case for action is built in three parts. The first, *Possible Futures*, identifies the key drivers of change and considers how we may address the challenges that will dominate this century. Next, in *Responsible Futures*, the Commission draws inspiration from previous examples of where impediments to action have been overcome, and lessons from where progress has been stalled. We then consider the characteristics of our current national and global society that frustrate progress. The final part, *Practical Futures*, sets out the principles for action and offers illustrative recommendations which show how we can build a sustainable, inclusive and resilient future for all.

Part A, *Possible Futures*, identifies a number of interacting **megatrends**, grouped under seven headings: *demographics* (large, ageing populations); *mobility* (urbanisation and a growing middle class); *society* (inequality and unemployment); *geopolitics* (power transitions); *sustainability* (resource insecurity); *health* (shifting burdens of disease); and *technology* (information and communications revolution). These megatrends apply the world over, reinforcing old and generating new sets of challenges.

The Commission then considers five categories of challenges that arise from these megatrends that are likely to shape our future:

1. **Society**: How can growth and development be made more sustainable and inclusive?
2. **Resources**: How can food, energy, water and biodiversity be made more secure?
3. **Health**: How can public health infrastructure and processes respond to the needs of all?
4. **Geopolitics**: How can power transitions be the basis for fresh forms of collaboration?
5. **Governance**: How can businesses, institutions and governments contribute to more inclusive and sustainable growth?

Part A also highlights what is known about **possible responses** to these challenges. New targets on growth and employment, and a focus on youth workers and flexible workplaces are presented. The importance of resource transparency and information sharing is reiterated, as are measures to counteract climate change. Goals to reduce non-communicable diseases (NCDs), remedy deficiencies in public health systems, implement agreed best practice, and partner creatively with the pharmaceutical industry are stressed. Countries are advised to identify shared interests, update institutions and develop cybersecurity capacity as they navigate structural transitions in international politics. Better governance will aid this quest, particularly if technology is used creatively, indicators are improved, and business is rewired to invest for the long term.

In Part B, *Responsible Futures*, the Commission examines historical drivers of transformative change, such as the existence of crisis, shared interests, leadership, inclusion, institutions and networks, partnerships, as well as goals and prizes. From campaigns to protect the ozone layer and reduce tobacco use, to the European Single Market and the Millennium Development Goals, there are many examples of where disparate groups have come together and made significant progress. At the other end of the results spectrum, the Commission considers less successful characteristics of modern politics, including the tragedy of the commons, a lack of intergenerational vision and awareness, the absence of global oversight, and vested interests. Following these insights, Part B sets out five **shaping factors** that make positive change so difficult:

1. **Institutions**: Too many have struggled to adapt to today's hyper-connected world.
2. **Time**: Short-termism directs political and business cycles, despite compelling exceptions.
3. **Political Engagement and Public Trust**: Politics has not adapted to new methods or members.
4. **Growing Complexity**: Problems can escalate much more rapidly than they can be solved.
5. **Cultural Biases**: Globalisation can amplify cultural differences and exclude key voices.

Part C, *Practical Futures*, contains the Commission's **Agenda for the Long Term**. It is arranged around **five principles**, with practical examples proposed to illustrate each principle. Some build on possible responses to the challenges identified in Part A. Others respond to the shaping factors outlined in Part B, and seek to address deeper political and cultural factors that obstruct a longer-term engagement. We provide indicative examples of principles and proposals that advance the interests of future generations and promote resilience, inclusiveness and sustainability. The Agenda is as follows:

1. **Creative Coalitions:** Responding to this century's challenges will require multi-stakeholder partnerships. The Commission suggests three:
 - **C20-C30-C40:** a Coalition of the Working comprising countries, companies and cities to counteract climate change.
 - **CyberEx:** a new early warning platform to promote a better understanding of common threats amongst government, corporate and individual users.
 - **Fit Cities:** a city-based network to fight the rise of non-communicable diseases.
2. **Innovative, Open and Reinvigorated Institutions:** Institutions and processes should be renewed for the modern operating environment. Five steps are suggested:
 - **Decades, not Days:** invest in independent, accountable institutions able to operate across longer-term horizons.
 - **Fit for Purpose:** incorporate sunset clauses into publicly funded international institutions to ensure regular review of accomplishments and mandates.
 - **Open up Politics:** build on initiatives such as the Open Government Platform to optimise new forms of participation and transparency.
 - **Make the Numbers Count:** establish Worldstat to improve the reliability and availability of statistics.
 - **Transparent Taxation:** address tax abuse and avoidance through a Voluntary Taxation and Regulatory Exchange.
3. **Revalue the Future:** Existing institutional incentives should be rebalanced to reduce bias against future generations. This can be done in four ways:
 - **Focus Business on the Long Term:** ensure companies and financial systems give greater priority to long term "health" and look beyond daily or quarterly reporting cycles.
 - **Discounting:** future generations should not be discounted against simply because they are born tomorrow and not today.
 - **Invest in People:** remove perverse subsidies on hydrocarbons and agriculture, and redirect support to the poor.
 - **Measure Long-term Impact:** create an index to track the effectiveness of countries, companies and international institutions on longer term issues.
4. **Invest in Younger Generations:** Greater attention should be given to promoting a more inclusive and empowered society, particularly for younger generations. Two priorities should be:
 - **Attack Poverty at its Source:** break the intergenerational cycle of poverty through social protection measures such as conditional cash transfer programmes.
 - **A Future for Youth:** countries should invest in youth guarantees to address unemployment and underemployment.
5. **Establish a Common Platform of Understanding:** The ability to address today's global challenges is undermined by the absence of a collective vision for society. To remedy this, the Commission urges renewed dialogue on an updated set of shared global values around which a unified and enduring pathway for society can be built.

The Commission applauds the remarkable progress of past decades: on balance, the world's population is safer, healthier, more productive and cooperative than ever. Nevertheless, much work remains to be done. **Now for the Long Term** aims to stimulate action and debate. Commissioners look forward to engaging with governments, businesses, NGOs and civil society in order to take these ideas and recommendations forward in the months and years ahead. ●●●

Introduction



NOW is the best time in history to be alive.

Our world has experienced a sustained period of positive change. The average person is about eight times richer than a century ago,¹ nearly one billion people have been lifted out of extreme poverty over the past two decades,² living standards have soared, life expectancy has risen, the threat of war between great powers has declined, and our genetic code and universe have been unlocked in previously inconceivable ways. Many of today's goods are unimaginable without collective contributions from different parts of the world, through which more of us can move freely with a passport or visa, provided we have the means to do so. Our world is functionally smaller, and its possibilities are bigger and brighter than ever before. Never before have so many people been optimistic about *their* future.³

While the future is full of opportunity arising from the extraordinary advances of recent decades, it is also highly uncertain and characterised by growing systemic risks. In many cases, these risks are the consequences of our success, arising from rising incomes, population growth, interconnectedness and technological advances. Risks arising from the plundering of our planet's natural capital, growing inequality, and the potentially devastating results of accidental or deliberate use of new technologies are among the reasons we urgently need to deepen our understanding of the threats posed by business as usual.

The empowerment of people through investment in education and other forms of human capital is critical for sustainable and inclusive growth. Entrepreneurs and investment thrive when not only infrastructure and innovative capacity is developed, but when the rules governing society are also transparent and fair. Given the scale of the challenges and the prospect of very positive but also possibly disastrous change, the response of governments, businesses and citizens should not be to become more short-sighted. The scale of the opportunities and risks requires more attention to the future and a more far-sighted attitude. In an increasingly integrated and hyper-connected world, our individual future depends more than ever on our collective future and our capacity to work together to deepen our understanding of the critical challenges. We need to ensure that we have the skills, tools, institutions and social fabric necessary to navigate safely through the hazardous fog of the future.

As the late French politician Pierre Mendès France used to say, "*gouverner, c'est prévoir*" – governing is looking forward, or foreseeing. Preparing for the future, however, seems a luxury for today's governments, who are increasingly preoccupied with the present; indeed, many governments even "live with their eyes on the rear-view mirror, refighting ancient battles and reigniting ancient enmities".⁴ An inability to "look forward" characterises much of modern politics, especially in democratic

countries. Government and business leaders tend to focus on the short term, which offers quicker and potentially easier payoffs at lower political cost.

The aim of the Oxford Martin Commission for Future Generations ("the Commission") is to identify the scale of the challenges humanity is facing and to offer suggestions as to how they may better be managed. We believe that we can and must do a much better job of securing the opportunities and mitigating the risks. The Commission seeks to draw attention to a growing gap between knowledge and action on many of today's challenges, identify why action has slowed, and suggest pathways to move the global agenda forward.

Governing for the future

The Commissioners have come together out of concern for the future. We agree governing requires a dual vision: a commitment to address current needs *and* to build the foundations for vibrant generations in the decades ahead. This responsibility transcends obligations to today's citizens: it also relates to future generations and a broader societal ideal of trusteeship that requires us to leave the world better than we find it.⁵ This is a unique time in history. Our younger generation is the first to live free of the scars of previous global wars. Given extraordinary advances in knowledge and scientific understanding, today we are more aware than ever of the implications of our actions on future generations, not least in areas like climate

change and biodiversity. And we could arguably be amongst the last generations able to do anything to stop the long-term devastation of our planet. Soon it may be too late. We hold a unique responsibility, arising from our advanced knowledge of the implications of our actions and the potential that our actions could create or prevent irreversible damage to the livelihoods of future generations. This report aims to help us step up to this unique responsibility for the benefit of those alive today and in the future.⁶

Justice Weeramantry, former Vice President of the International Court of Justice, reminded us that civilisations across the ages have “refused to adopt a one-eyed vision of concentration on the present”.⁷ Sustainable development, he has argued, “is one of the most ancient ideas in the human heritage”.⁸ Evidence of long-term thinking comes in a variety of forms, whether it is in defence, health care, fiscal planning, demography, migration, the environment, or governance structures more generally. Governments regularly make long-term commitments, such as in education, welfare and infrastructure, though these are not necessarily guided by a longer-term view or explicitly mandated to address difficult long-term questions.

Uncertainty about the future, the never-ending immediacy of pressures at our doorsteps and the rapidity of change in today’s society make it easier to rationalise living in the eternal present. Changing course towards the longer term requires society to devote sustained attention

to the transformational changes which will characterise our lifetimes and shape the future for the next generations. Taking a longer view is no panacea; striking a sustainable balance between short-term and long-term interests is key. Currently, there is a lack of understanding on the conditions under which long-term thinking might be improved.⁹ Existing structures bestow a higher value to immediate returns on investment. Some of these returns exacerbate the risks and social consequences posed by longer-term challenges and delay collaborative action on them.

The debate about the future, however, is not simply about the virtue of long-term thinking. This is a debate about *what* is owed to future generations. The Commission does not intend to settle this debate. We accept there are a range of good reasons to care about the interests of future persons, and to reflect on the extent to which such interests should be protected, considered, restored or enhanced by those of us living today. No one system of government has a monopoly on thinking about, or governing for, future generations, even if certain systems may prove more adept than others. We, the Commissioners, drawn from different parts of the world, are united by a desire to harness the opportunities presented in today’s world for the benefit of current generations, whilst also ensuring that we leave the world in a better position for our grandchildren, and the generations that succeed them.

One world; many cultures, perspectives and identities

Globalisation is not new but the global breadth and depth of its impact has changed. Many asserted globalisation would result in greater homogenisation of customs and cultures, which may have assisted in developing a common understanding and agreement on how to address today’s challenges.¹⁰ In fact, in some cases, the opposite appears to have transpired: globalisation has not been “equated with homogenisation or uniformity” but has found “localisation as its counterforce”.¹¹

Since the Second World War, there has been great progress in building trust and momentum on a number of national and international challenges. This has often been done by focusing on mutual interests, not just between people but also among cities, nations and businesses. Such a capacity has been necessary “to perceive, recognise, and deal with differences, conflicts, and oppositions and to arrive at workable solutions to the problems and challenges that result from an accelerating process of globalisation”.¹² For the most part, however, today’s challenges are even more intertwined and beyond the scope of national jurisdiction. Many of these challenges, not least those related to climate change, are the by-products of industrialisation and economic growth. While the already advanced economies have generated many of the externalities, much of the burden going forward will need to be shared by the developing world, whose rapid growth is

compounding challenges such as climate change and resource scarcity. Our hyper-connected world requires unprecedented collaboration. Reaching consensus on a path forward requires a deep understanding of “how the one world affects the many and how the many worlds affect the one”. This, in turn, necessitates a deep awareness of local and regional cultures, perspectives and identities, and how they are responding to each other in an era in which cooperation is a prerequisite for progress.¹³

Individuals often take as a starting point *difference*, not *likeness*: we often define ourselves largely based on what differentiates us from those we encounter.¹⁴ This “precedence of difference over sameness” has important, and perhaps misunderstood, consequences for the conduct of multilateral dialogues and negotiations on the longer-term challenges identified in this report. As Commissioners, we have observed that globalisation can sharpen cultural contrasts and invoke stronger claims for localisation.¹⁵ While the interconnections made possible via a globalised world provide hope for “economical, ecological, educational, informational, and military forms of cooperation”, this environment can also trigger “a counter-reaction to what people experience as a threat”.¹⁶ Such a reaction – defensive localisation despite globalisation – might come from individuals, communities, or take place within institutions. This means the Commission cannot be starry-eyed about the prospect of broad, sweeping changes and position leaps on the challenges it identifies. Movement along pathways

necessary to tackle challenges common to all and requiring national and wider cooperation may need to occur incrementally.

About this report

This report aims to contribute to the ability of national and local governments, international institutions, businesses and the broader community to understand and navigate these competing tensions in order to grapple with the major long-term issues of today. It examines five sets of challenges requiring concerted attention. The Commission does not attempt to provide one-stop solutions and we are aware of the wide-ranging arguments regarding the right course of action. Today’s challenges are deeply complex and interconnected, and will require multiple and sustained actions in order to be fully addressed. Our aim is to highlight areas where action could be taken if the political will were mobilised to do so, and how it could be taken. We try to understand why action has become more difficult and provide recommendations which we hope will be useful in terms of moving forward the agenda for future generations.

The report comprises three parts:

PART A: *Possible Futures* gives a synopsis of global megatrends and introduces the key challenges on which action is essential. These challenges are introduced within five broad categories: **society, resources, health, geopolitics** and **governance**. This is by no means an exclusive or comprehensive list, but the

categories are used to illustrate key challenges that need to be grappled with, the links between them, and how they might be addressed.

PART B: *Responsible Futures* seeks to diagnose why gridlock and a lack of political will for change persist on many challenges where action is imperative. It draws lessons from examples where impediments to action have been overcome, and also considers why certain efforts have failed or stalled. Five shaping factors that impact the ability to get things done are identified: **institutions, time, political engagement and trust, complexity** and **culture**.

PART C: *Practical Futures* builds from the possible and responsible futures suggested in Parts A and B, and offers practical, overarching recommendations to overcome the gridlock of modern politics and shift mindsets towards the long term. The recommendations are arranged around five key principles: **creative coalitions; innovative, open and reinvigorated institutions; revalue the future; invest in younger generations** and **establish a platform of understanding**. ●●●

The background is a dark, textured surface with numerous diagonal streaks in shades of red and yellow, creating a sense of motion or light trails. A white, three-dimensional geometric shape, resembling a cube or a prism, is positioned in the lower-left quadrant, appearing to be part of the scene or a focal point.

Part A: Possible Futures

Megatrends

Taking stock

Megatrends mark important shifts in the evolution of society.¹⁷ They tend to persist over the long term, at times with impacts that are not immediately evident. Some are more reversible than others. Megatrends can be extremely positive, such as poverty reduction, the emergence of the Internet, longer lifespans and the decline of great wars. They can also be negative, as is evidenced by growing inequality and the rising threats of both infectious and non-communicable diseases (NCDs). Either way, megatrends can and often do generate profound and potentially permanent changes to the way societies are governed.

Presenting a picture of the future can be risky. It can leave us jumping at “distant and fragile shadows” and unprepared when the real world knocks at the door.¹⁸ We know events are often unanticipated. The future is bound to be full of good and bad surprises. This does not mean we should be complacent about what is happening around us, and ignore what that might mean for the future.

In this section, we identify a number of prominent global megatrends. Some date back to before the Industrial Revolution; others have become influential since the end of the Cold War. We do not seek to be too predictive. Ensuring that one is able to seize the positive opportunities and build resilience against the downside risks will require an open mind and constant commitment to discovery and learning.

The megatrends are grouped under seven headings but are highly interactive. Many megatrends are slow, whilst the direction of others may turn or accelerate unexpectedly. Globalisation underpins them all. Together, these megatrends are transforming the world and doing so in a manner that is distinct from the drivers of change in earlier times.

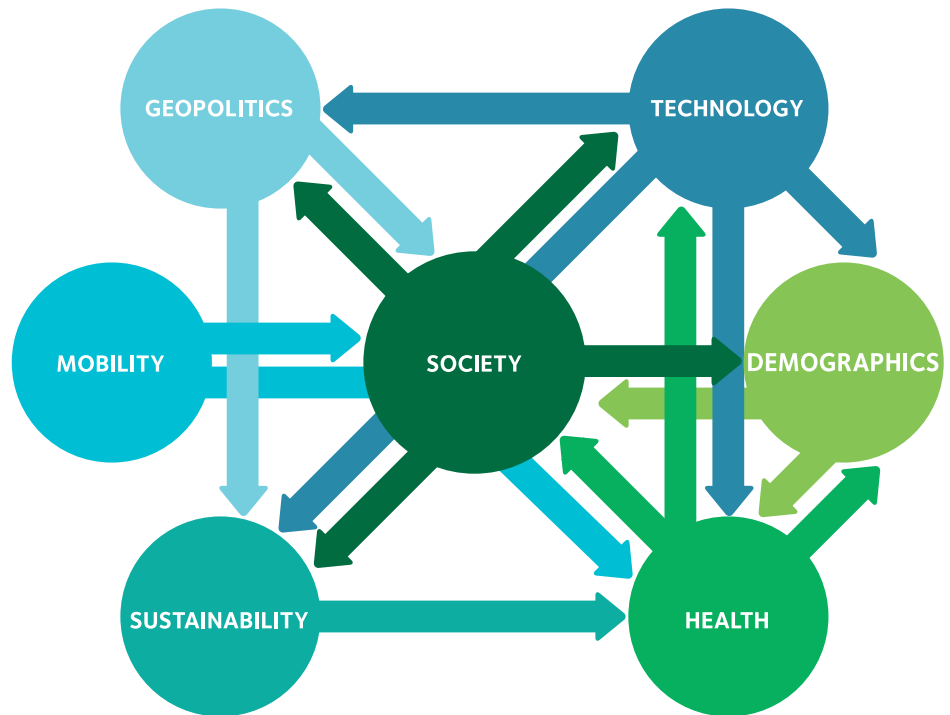
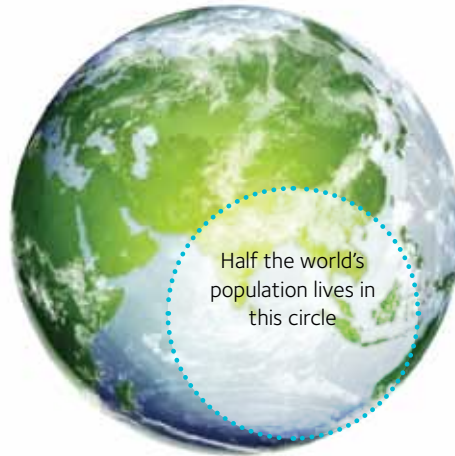


Figure 1: Global megatrends in the 21st century

Source: Oxford Martin Commission for Future Generations.

Demographics

Over the next century, changes in the world's demography – the characteristics and composition of the global population – are likely to be dramatic. This is not just about gross numbers; it is also about the age, lifespan, distribution and activities of people. The world's population has climbed from 1.6 billion in 1900 to around 7 billion today, and is projected to exceed 8 billion by 2025 and perhaps 9 billion by 2050. Over 60 percent of the global population is likely to live in Africa and Asia by 2050.¹⁹ Approximately 70 percent of the growth is likely to occur in 24 of the world's poorest countries.²



Ageing nations

The world's population is getting older, with the population over 60 growing fastest.²¹ In less than 40 years, one in every five people will be at least 60 years old. Average lifespan is projected to be 83 years in the developed world and 72 in the less developed world by 2050, compared with 78 and 67 today, and 66 and 42 in 1950.²² The overall ratio of old to young is set to almost double from current levels, and total numbers of over 60s will more than double from 810 million to 2 billion. Ageing will impact certain parts of the world much earlier, transforming populations: the ratio of the old-age population to the working population (15–64 years) in Japan is already over 38 percent and is projected to reach almost 70 percent by 2050, for example,²³ and half of Europe will be over 50 by the end of this decade.²⁴ Discrepancies in sex ratios have also become more pronounced in some places. Whilst the longer life expectancy of females is gradually diminishing imbalanced sex ratios in many populations, Asia is experiencing an increased “masculinisation” of society. The difference between the numbers of men and women in Asia more than tripled from 1950–2005.²⁵

Figure 2: Global population distribution, 2013

Source: Oxford Martin Commission for Future Generations.

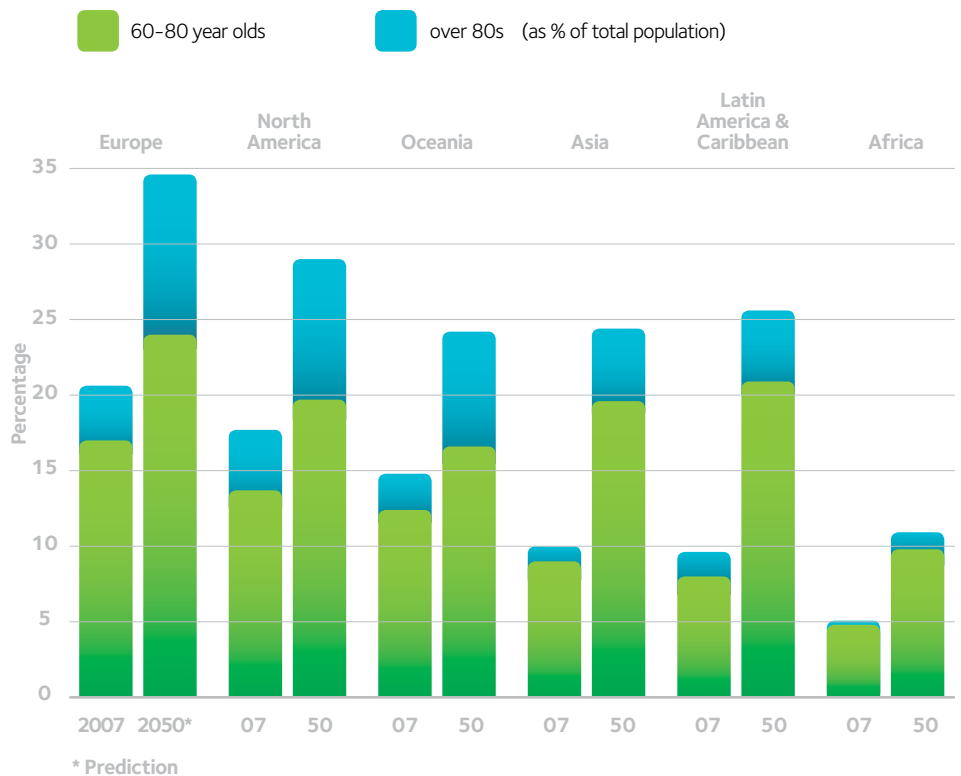


Figure 3: The ageing global population

Source: UN-DESA, *World Population Prospects – The 2010 Revision: Highlights and Advance Tables* (New York: United Nations Department of Economic and Social Affairs), p. 8.

Mobility

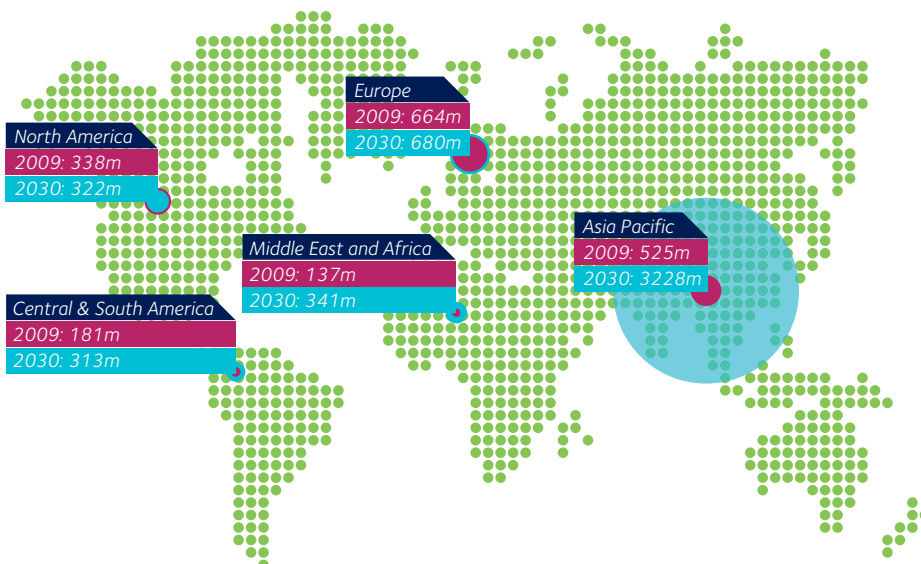


Figure 4: The rise of the global middle class

Note: m = millions of people. "Middle Class" is defined as those households with daily expenditures of between USD \$10 and USD \$100 per person. The light blue circle depicts the size of the middle class population in 2030; the dark red circle charts the 2009 middle class population. Source: Commonwealth of Australia, *Australia in the Asian Century* (Canberra: Department of the Prime Minister and Cabinet, 2012), p. 63.

As a share of the world's population, migration today is less prevalent than it has been in the past, such as during the age of mass migration in the 19th century. Nevertheless, the total number of migrants has grown with the world's population. The birthplace and destination of migrants is constantly changing. Currently, there are over 210 million people living outside their country of origin, up from 150 million in 1990.²⁶ Remittances to developing countries are estimated to have reached USD \$406 billion in 2012.²⁷

Urbanisation is also occurring rapidly within our populations.²⁸ In 1950, only three of every ten people lived in cities. In 2008, the number of people in cities was greater than that in rural areas for the first time. Urbanisation generates opportunities particularly in the delivery of services and public goods but also presents sizeable challenges. By 2030, over two billion people may well be living in urban slums.²⁹ A dramatic rise in the number of people living in urban floodplains is also expected, especially in Eastern and Southern Asia and in Africa.³⁰

Rise of the middle class

Mobility is not just about geography; there is also an integral socioeconomic dimension. Over the next 40 years, billions more people are expected to join the global middle class.³¹ The

vast majority will come from emerging markets, which are projected to double their share of global consumption (from one third to two thirds) by 2050.³² Consumers will increasingly be concentrated in cities within emerging markets.³³

This emerging middle class could provide a much-needed impetus for balanced global growth by boosting consumption, investing in health, education and renewable energy, and driving higher productivity, sustainable economic development, and more political stability via increased demand for accountability and good governance.³⁴ Whilst this constitutes a significant opportunity, there is also the risk of an increasing divide between the growing middle class and those left behind. At the same time, growth in consumption and incomes will add further pressure to our strained resources and environment.

Empowerment through education

Access to primary education in particular is regarded as critical to socioeconomic mobility, and for this reason it has been an objective of the Millennium Development Goals (MDGs). Substantial inroads have been made this past decade in reducing the number of out-of-school children (now about 60 million, down from 108 million 20 years ago, with a 66

percent reduction in South and West Asia).³⁵ University enrolments in emerging countries doubled between 1996 and 2007, whilst student mobility globally also increased. Nearly four million students studied abroad in 2010, almost twice more than a decade earlier. The overall return on education is also climbing. Within OECD countries, tertiary-educated workers earn 55 percent more on average than those with upper-secondary and alternative post-secondary qualifications.³⁶ As we will see, however, education helps but does not guarantee employment – connecting educated individuals with jobs remains a challenge.

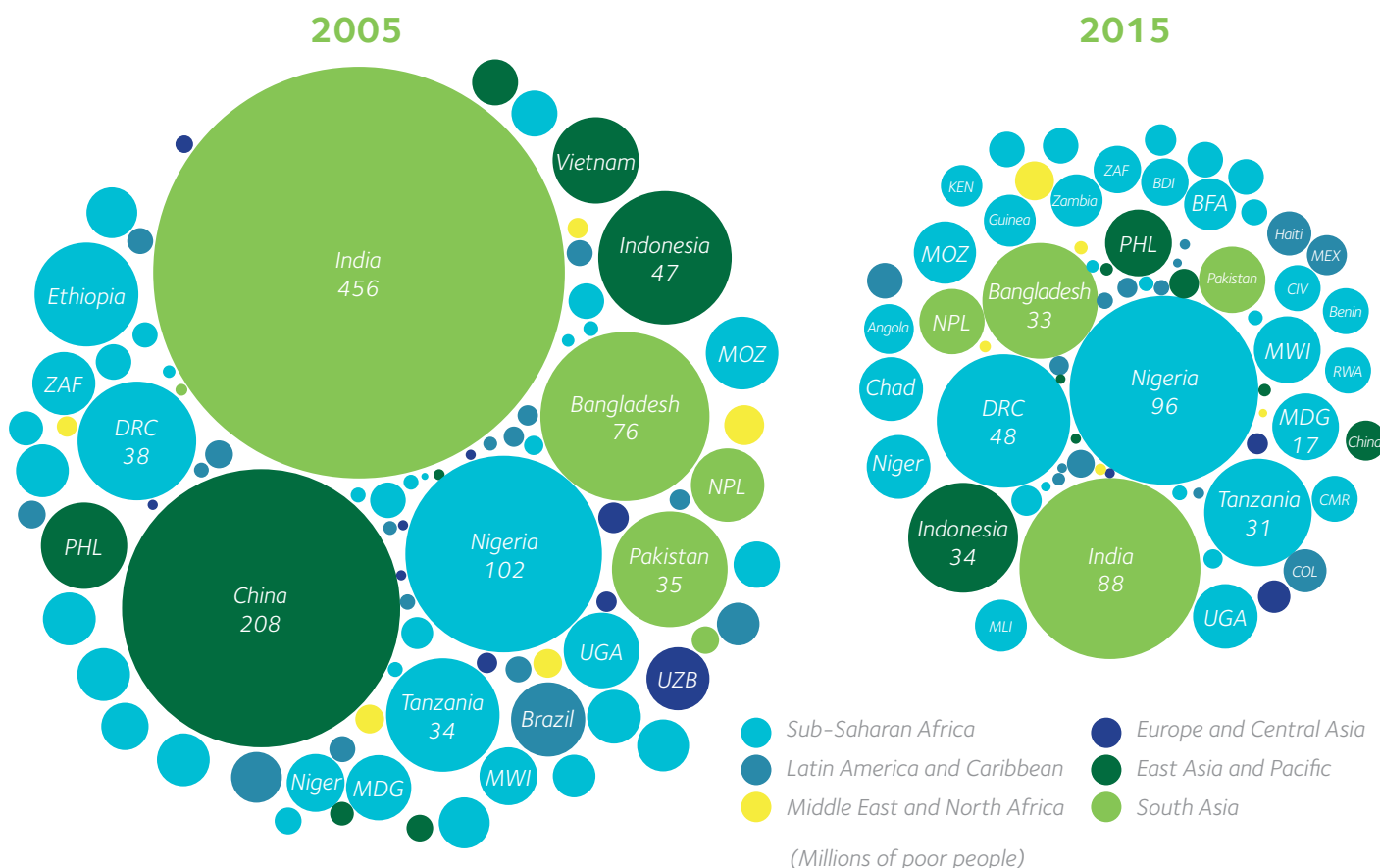


Figure 5: The changing global poverty landscape

Note: Numbers refer to individuals living below the international poverty line of USD \$1.25 a day, figures rounded to the nearest million. The 2015 numbers are forecasts and for a number of countries the scale of improvement is indicative of the number of people clustered around the poverty line used in the figure. Source: Laurence Chandy and Geoffrey Gertz, *Poverty in Numbers: The Changing State of Global Poverty from 2005–2015* (Washington DC: The Brookings Institution, 2011), p. 8.

Uneven and unequal

For the past three decades, there has been a steady decline in poverty rates in the developing world. As highlighted in Figure 5, this progress is anticipated to continue, not least in countries such as China and India. Yet the contrast between rich and poor remains stark. Despite overall progress on education, three out of every four illiterate adults are located in just ten countries (37 percent of them in India)³⁷ and about half of all out-of-school children are in sub-Saharan Africa.³⁸ According to the World Bank, more than 1.2 billion people do not have access to electricity, including 550 million in Africa and 400 million in India.³⁹ Societies and individuals are becoming increasingly unequal. The Gini coefficient – an imperfect measure of the gap between the richest and poorest – has risen by more than 10 percent in OECD countries since 1992. In some emerging

countries such as China, India, Russia and South Africa, it is widening rapidly.⁴⁰

Generational and gender divides

One third of the world's labour force began 2012 poor or unemployed; global unemployment is expected to remain over 200 million until at least 2015. According to the ILO, over the past five years long-term unemployment has increased in 60 percent of advanced and developing countries where there is available data.⁴¹ Young people are 3–4 times more likely to be without a job: the global youth unemployment rate (12.6 percent) is more than double the unemployment rate of the labour force as a whole.⁴²

While there has been solid progress on reducing extreme poverty (by 2050 it might only remain a concern in India and sub-Saharan

Africa⁴³), social exclusion persists (through unemployment, poverty or a lack of access to political, economic, educational or societal processes).⁴⁴ Exclusion hits the old, the young and women hardest, especially in developing countries. Gender inequality remains a key barrier to economic growth and poverty reduction. Women and girls account for six out of ten of the world's poorest and two-thirds of the world's illiterate people. According to the UNDP, women perform 66 percent of the world's work, but earn just 10 percent of the income and own only 1 percent of the property.⁴⁵

Geopolitics

New world order

The shift of economic power to emerging markets is in full swing. Reports suggest that the GDP of developing countries is now at least equal to the developed world.⁴⁶ Developing countries' share of global exports has increased over the last decade from 33 to 43 percent. Their share of global foreign direct investments (FDI) inflow has grown from nearly 20 to over 50 percent.⁴⁷ China and India are on track to have 35 percent of the world's population and 25 percent of its GDP by 2030.⁴⁸ Brazil, Russia, India, and China's combined share of world GDP is expected to match that of the original G7 countries by 2030.⁴⁹ Even if these projections prove too optimistic, the rise of new economic powers may be expected to lead to a new world order.⁵⁰

Shared networks now transcend state boundaries and render distinctions between North, South, East and West increasingly redundant. Networks of economic activity as well as of diaspora communities and students educated in foreign countries are vital to this transformation. Increased "brain circulation" enables the flow of capital, cultures, ideas, global connections and cutting-edge expertise around the world, whilst international research networks and collaborations have flourished. More than a third of scientific papers published in international journals are now internationally collaborative, up from one quarter of publications nearly two decades ago.⁵¹

The global marketplace

The landscape of trade in goods and services has fundamentally changed since the Second World War, as the General Agreement on Tariffs and Trade (GATT) shepherded in a more open and connected global economy. Today there are nearly 160 members of GATT's successor, the World Trade Organization (WTO). From 1950–2007 trade grew by an average of 6.2 percent per year.⁵² In 2011 the total value of world merchandise trade was estimated at USD\$18.2 trillion.⁵³ Developing countries achieved a share of over 50 percent of global trade in 2012.⁵⁴

Trade in value-added goods and global supply chains ensure exports rely on imports more than ever, a reality of the global marketplace that new OECD-WTO data has begun to capture.⁵⁵ Many of our most used goods and services are "made in the world". The foreign content of "Korean" and "Chinese" electronic goods exported in 2009, for example, was around 40

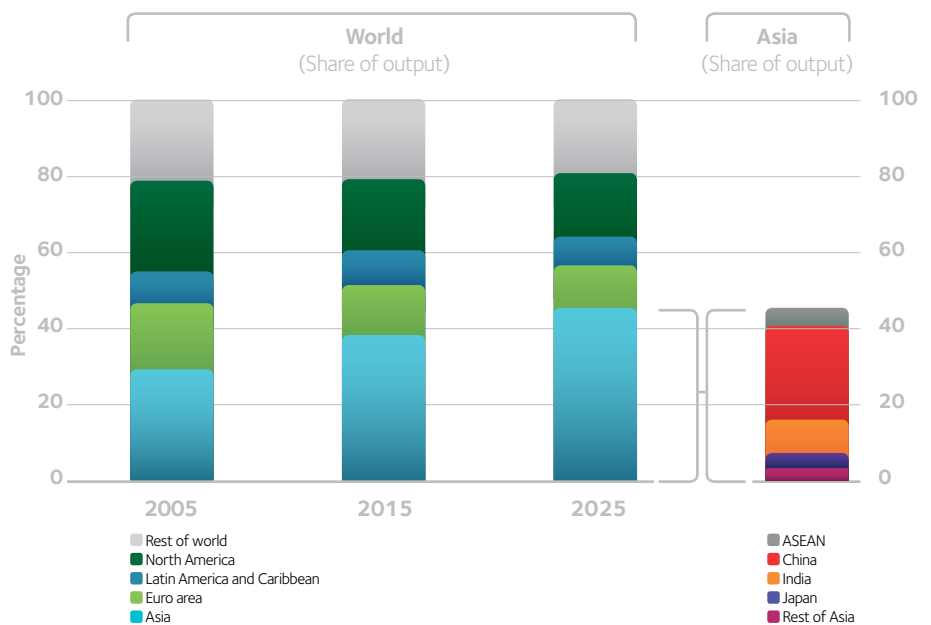


Figure 6: Share of world output

Source: Commonwealth of Australia, *Australia in the Asian Century* (Canberra: Department of the Prime Minister and Cabinet, 2012) p. 52.

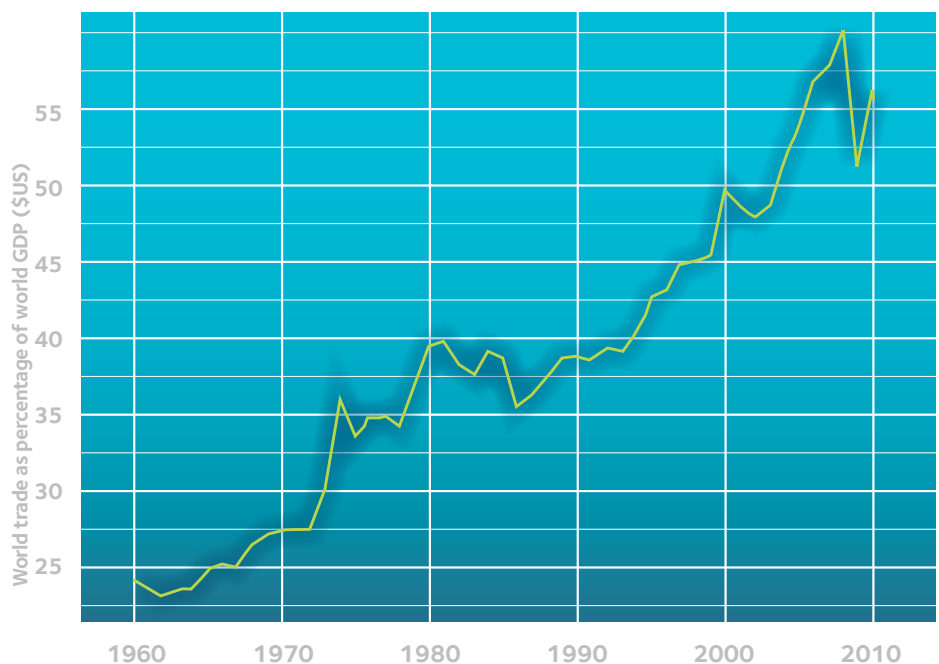


Figure 7: Growth in world trade 1960–2010

Source: Andrew McCulloch, "Globalisation and Protectionism Today", *Significance* magazine, <http://www.significancemagazine.org/details/webexclusive/2528931/Globalisation-and-Protectionism-today.html>.

Sustainability

percent.⁵⁶ In many sectors, tariffs have declined sharply. Less prominent improvements include more flexible rules on access to key medicines, improved monitoring functions, and peaceful and robust dispute settlement procedures. Non-tariff barriers are becoming the principal impediment to the movement of a growing range of goods and services, and are becoming a bigger part of world trade.⁵⁷ Despite the surge in global trade,⁵⁸ disagreement remains between advanced and emerging economies on how to reconcile trade with the development and environmental agendas.

More seats at the table

Whilst the state remains the principal actor in world politics, there are now almost four times as many states as there were in 1945. This increase in players makes international consensus on global challenges harder to reach. Demand for legitimate governance – often through democratisation and transparency – has grown, as has the concern about fragile states. Expectations regarding the roles and responsibilities of states reflect changing global norms and expectations. The responsibility to protect citizens against grave crimes is among recent advances. Others include the growing influence of international law in trade, investment and armed conflict. The rise of international institutions and NGOs as key players has also been associated with an increase in the complexity of geopolitical power and international arrangements.

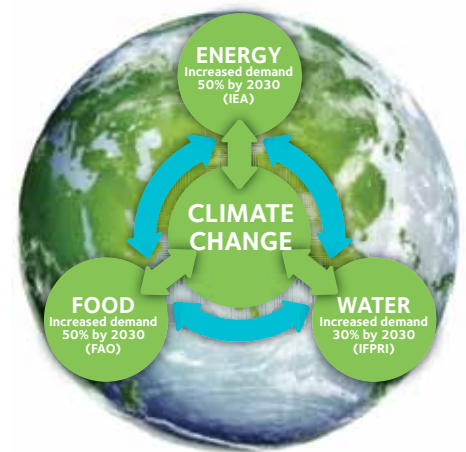
Back to the future?

It has been powerfully argued that the recent “decline of violence may be the most significant and least appreciated development in the history” of the human race.⁵⁹ With two World Wars and the Cold War dominating the 20th century, it is remarkable that wars between the great powers appear increasingly unlikely. While overall violence has declined, conflict has not ceased. At certain times during the last decade, 15 major conflicts were taking place at once.⁶⁰ The majority of wars remain civil wars or insurgencies, largely ethnic and nationalist conflicts. Potentially devastating tensions still simmer, increasingly driven by religious fundamentalism. The stalemate of the Middle East peace process provides continued instability. Increasingly, small networks and individuals have the capacity to create havoc on an unprecedented scale at low cost. In today’s security landscape, issues of cyber or biological warfare are growing concerns for

governments and businesses, not least due to the low barriers to entry. Old concerns – such as nuclear and chemical weapons – still remain serious threats. Nuclear powers operating outside the Nuclear Non-Proliferation Treaty increase the risk of disaster, either by design, accident, or third party exploitation. The other lingering fear is a mismanaged power transition, whereby emerging powers repeat their predecessors’ mistakes by allowing military plans to become built-in escalators to war.⁶¹

The “perfect storm”

Sustainability is inherently about the long term. It requires the reconciliation of environmental, social and economic demands necessary for the sustained survival of humankind and other organisms on our planet. Above all, living sustainably means grappling with the “perfect storm” associated with the inseparability of water, food, energy and climate.⁶²



**Figure 8: The “perfect storm”:
food, water and energy**

Source: Professor Sir John Beddington, *Biodiversity: Policy Challenges in a Changing World* (London: Government Office for Science, 2009), slide 19.

It takes 1,500 litres of water and almost 10 megajoules of energy to produce 1kg of wheat, and 10 times more water and around 20 times as much energy for 1kg of beef.⁶³ As incomes rise and the population grows, the pressure on these resources and the risk of resource insecurity increases rapidly. Climate change is a risk enhancer in this respect. If business continues as usual, and demand for natural resources race ahead of supply,⁶⁴ the “perfect storm” will compound an unsustainable cycle.

Total energy consumption per year is almost six times what it was in 1950; per capita use has more than doubled.⁶⁵ Food production accounts for close to one third of all available energy,⁶⁶ and agriculture accounts for around 70 percent of water withdrawals worldwide.⁶⁷ Global demand for energy and fossil fuel use has been projected to rise by as much as 50 percent by 2030.⁶⁸ Demand for coal (and associated emissions) has been reduced in the United States due to the shale gas revolution, but current indications show that this cannot

be replicated in the immediate future outside North America, and ultimately depends on the relative prices of coal and gas.⁶⁹ Allied with this growing demand is the lack of new land available for agriculture: 80 percent of arable land in developing countries is already used.⁷⁰

The energy sector is water intensive too.⁷¹ Energy accounts for 27 percent of all water consumed in the United States outside the agricultural sector.⁷² Globally, three billion people still have inadequate access to water, even though the MDG of halving the proportion of the world's population without sustainable access to safe drinking water and basic sanitation has reportedly been met.⁷³ Just 10 countries are home to two-thirds of the people without access to improved drinking water.⁷⁴ The World Bank estimates two in every three countries will be water-stressed by 2025, at which time around 2.4 billion people will face "absolute water scarcity". Yet, to feed the world in 2050, food production may need to rise by some 70 percent,⁷⁵ which may require 50 percent more water.⁷⁶ Moreover, 40 percent of arable land is already degraded to some degree, a problem that will be exacerbated by global warming.

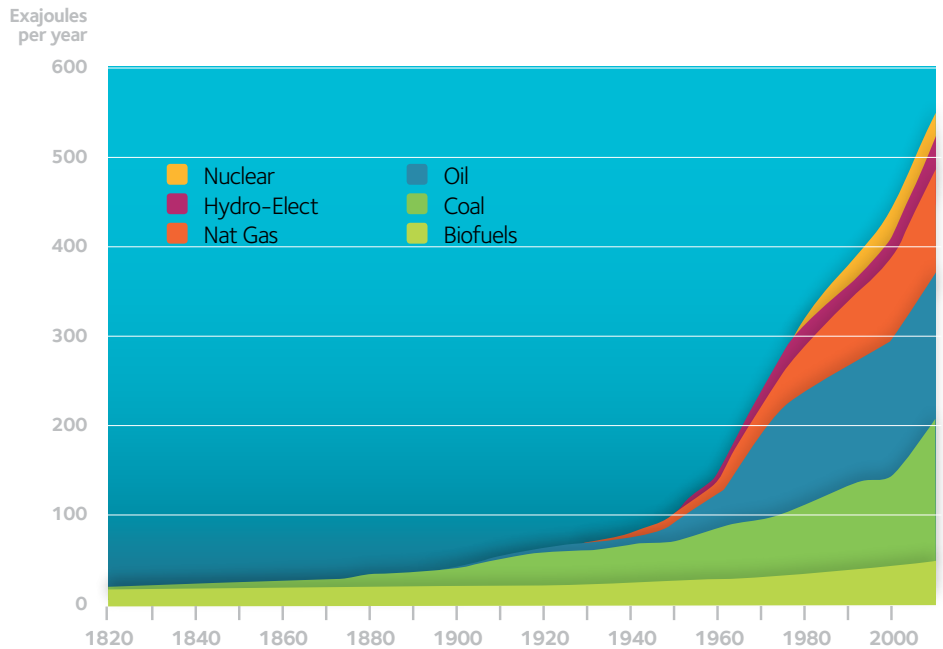


Figure 9: World energy consumption 1820-2010

Note: Based on estimates from Vaclav Smil, *Energy Transitions: History, Requirements, Prospects*, (California: Praeger, 2010) together with BP Statistical Data.

Source: Our Finite World, "World Energy Consumption Since 1820 in Charts", 12 March 2012, <http://ourfinitemworld.com/2012/03/12/world-energy-consumption-since-1820-in-charts/>



Figure 10: Global water use for energy production

Source: International Energy Agency, "Water for Energy", <http://www.worldenergyoutlook.org/resources/water-energy-nexus/>.

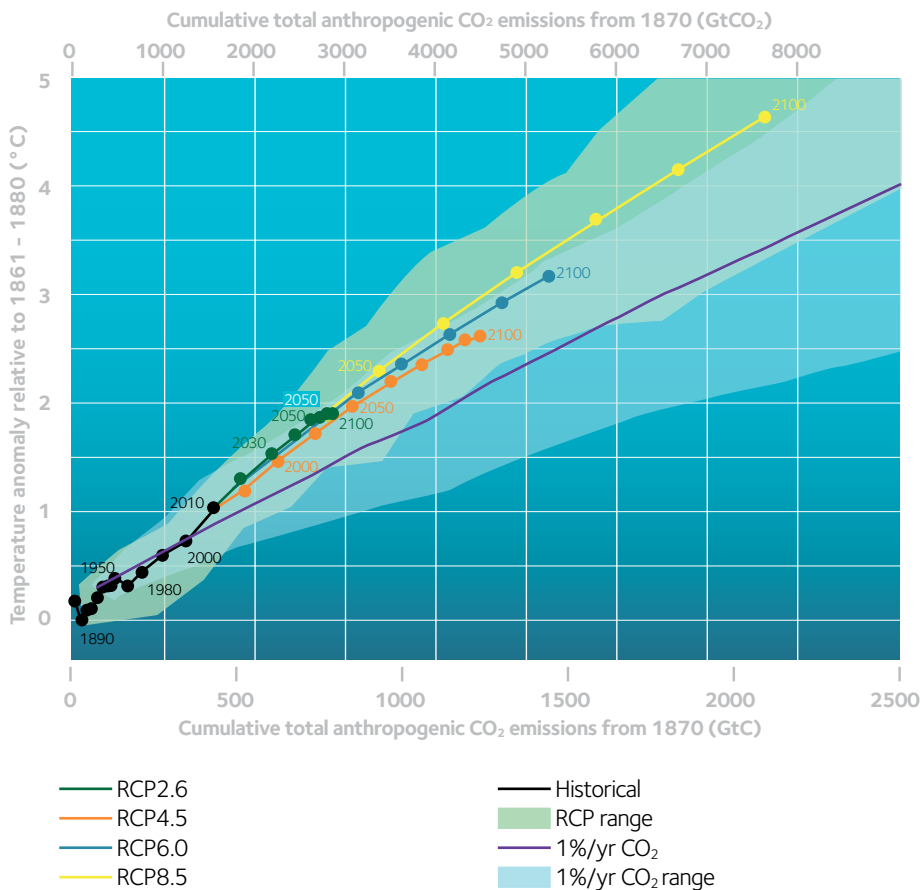


Figure 11: Cumulative total of anthropogenic CO₂ emissions and global temperature change

Source: IPCC, *Fifth Assessment Report Summary for Policymakers* (Geneva: IPCC, September 2013), p. 36. "RCP" refers to the Representative Concentration Pathway scenario used by the IPCC.

It's the green economy

Historical, carbon-intensive models of economic growth are unsustainable. Since the Industrial Revolution there has been a strong correlation of GDP per capita with CO₂ emissions.⁷⁷ The use of carbon has yielded extraordinary benefits and none of the now advanced economies would have developed without it, but the negative costs arising from the consequent climate change now pose a rising threat. Warming of the climate system is unequivocal. Atmospheric levels of CO₂, methane and nitrous oxide are "at levels unprecedented in the last 800,000 years", and CO₂ concentrations are 40 percent higher than pre-industrial times.⁷⁸ The IPCC is now highly confident that the rate of sea level increase since the mid 19th century "has been larger than the mean rate during the previous two millennia".⁷⁹ If trends continue, cyclone intensity, extreme weather events⁸⁰ and global rainfall totals are also expected to increase, with considerable regional variation.⁸¹

Our ecological footprint now exceeds our biological capacity by a record margin.⁸² By 2010, almost one in four plant species were reportedly threatened with extinction, and vertebrate species numbers have fallen by a third in the past four decades. Such biodiversity loss is made even worse by climate change.⁸³ Continued population growth will amplify already stretched human demand for land and water resources, as well as food production and energy, generating more emissions and heightening human pressures on the environment. As urbanisation continues, the focus of attention will increasingly be on our cities, which by one estimate are already responsible for around 57–75 percent of global greenhouse gas emissions.⁸⁴ The effects of climate change and environmental degradation could well undo part of the enormous progress made in tackling poverty, particularly because poor people and poor countries are least able to cope.⁸⁵

The past century has delivered remarkable advances in health, as is illustrated by the increase of 4.7 years (male) and 5.1 years (female) to the average global life expectancy at birth between 1990 and 2010.⁸⁶ The eradication of smallpox, the discovery of penicillin, the mapping of the human genome, the significant reduction in under-five mortality, developments in genetic technology, research and new treatments for HIV/AIDS, TB and malaria, and growing access to health services and insurance ensure that our potential to live longer and healthier lives is greater than at any other point in human history. However, translating public health knowledge into practice has been fragmented and fraught with difficulty. Whilst biomedical technology and capacity to enhance the quality of health care and prevention have improved significantly, access to health care remains vastly lopsided, with the poor and disadvantaged suffering a disproportionate burden of illness and disease.

We are in the midst of experiencing multiple transitions which impact health. These include a demographic transition from a pattern of high fertility and high mortality to low fertility (with the exception of sub-Saharan Africa), an ageing population, and an epidemiological shift from infectious diseases associated with malnutrition, famine and poor sanitation, to chronic and degenerative diseases associated with longevity, urban and industrial lifestyles. These changes are also associated with a turning point in nutrition, where malnutrition can be both from famine and starvation as well as from high caloric, nutrient-poor states, as in the case of obesity.⁸⁷

Lifestyle choices, lifestyle diseases

The growing threat today is NCDs. Most are caused by preventable factors, including poor diet, obesity and inactivity. NCDs like diabetes, cancer, heart disease, stroke, and chronic lung disease were responsible for 63 percent, or 36 million, of all global deaths in 2008. Described as the "invisible epidemic",⁸⁸ NCDs are now the leading cause of death in the world. Each 10 percent rise in NCDs is associated with a 0.5 percent lower rate of annual economic growth.⁸⁹ The cost of treatment for NCDs over the next two decades, as our populations grow larger and live longer, is estimated to be about USD \$30 trillion.⁹⁰

The costs of lost productivity are even higher. Globally, projections suggest that there may be a cumulative economic output loss of USD \$47

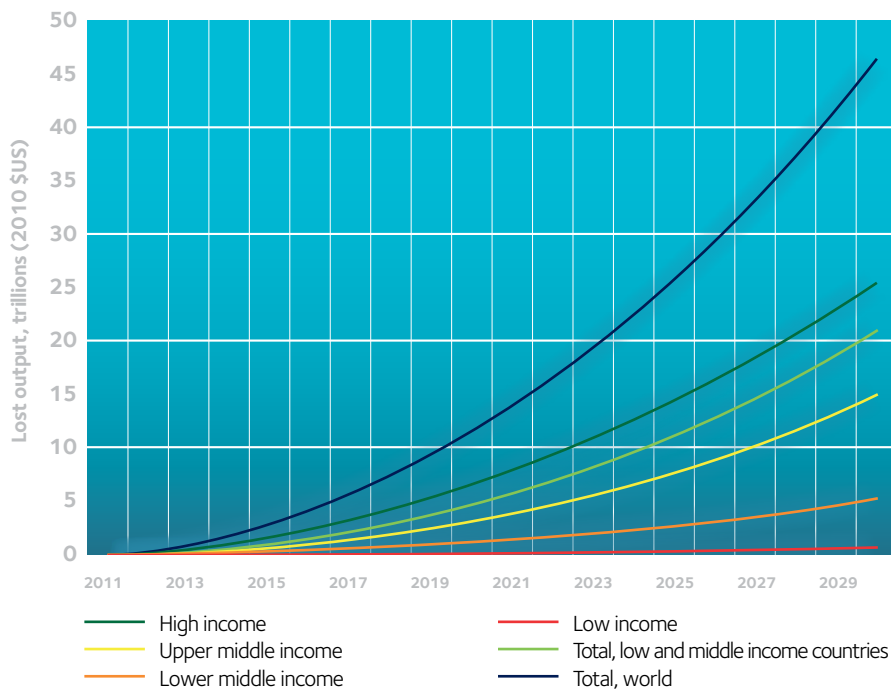


Figure 12: Projected non-communicable diseases cost by income level based on economic growth forecasts

Source: World Economic Forum & Harvard School of Public Health, *The Global Economic Burden of Non-Communicable Diseases* (Geneva: World Economic Forum, 2011), p.31.

trillion over the next two decades due to NCDs. This loss represents 75 percent of global GDP in 2010 (USD \$63 trillion). It also represents “enough money to eradicate two dollar-a-day poverty among the 2.5 billion people in that state for more than half a century.”⁹¹

Although NCDs have traditionally been considered diseases of the affluent, it is in fact poor and disadvantaged populations that have the highest rates of NCDs in high-income countries.⁹² Approximately 80 percent of the 36 million NCD deaths in 2008 occurred in low-to-middle income countries. Many social factors play decisive roles in determining the health of individuals and communities, as was reflected in the 2011 Rio Declaration.⁹³ The rate of increase of NCDs is, however, occurring much faster in low-to-middle income countries, as economic growth and life expectancy rise. Poor education and low incomes are associated with rising NCDs in both developed and developing countries.⁹⁴ Sub-Saharan Africa is facing a particularly heavy dual burden of disease, where NCDs are rising⁹⁵ but malnutrition, hunger and infectious diseases continue to be grave problems. Undernutrition is estimated to be

responsible for 35 percent of all deaths of children under five.⁹⁶ Although Africa has seen the greatest rate of decline in child mortality rates since 1990, it still has double the ratio of the next closest region.⁹⁷

Interconnected and infectious

The focus on NCDs does not mean infectious diseases are a relic of the past. They remain a significant threat, particularly in today’s highly mobile, interdependent and interconnected world. Risks anywhere can be threats everywhere. With around 40 new infectious diseases discovered in the past 40 years, of which SARS, HIV and different types of influenza are but three, the concern about further new pandemics is not a case of *if* but *when*.⁹⁸

There are concerning trends surrounding infectious diseases. Firstly, rapidly evolving viruses such as influenza, ebola, Middle East Respiratory Syndrome – Coronavirus, and HIV continue to thrive. Such threats are not new; the 1918–1919 influenza pandemic, originating towards the end of the First World War, had a devastating impact on populations

around the world.⁹⁹ Secondly, as predicted by Alexander Fleming, certain infections are re-emerging as threats because of growing drug resistance. Antibiotics were hailed as miracle drugs but due to excessive use, misuse and poor adherence to antibiotic regimens, many infection-causing bacteria have developed resistance against existing antibiotics.¹⁰⁰ Combined with the HIV epidemic, this has resulted in the resurrection of diseases such as TB, creating new epidemics that are much harder to treat, such as multi-drug resistant TB.

Technology

A dramatic megatrend of the last half-century has been the pace of technological change. Computing power has been doubling almost every 18 months, virtually matching Gordon Moore's 1965 observation. This appears likely to continue for at least the next decade or two,¹⁰¹ and will continue to revolutionise the way we lead our lives and the way societies are governed. The Internet's emergence is one such outcome; it now boasts almost 2.5 billion users and there has been a sevenfold increase in total international bandwidth from 2007–2011. Such is its reach and nascent speed, the World Wide Web has been heralded "the most powerful force for globalisation, democratisation, economic growth, and education in history".¹⁰² The information revolution has penetrated our lives in ways not entirely understood, and created a faster, smarter, "more personal and participatory" world.¹⁰³

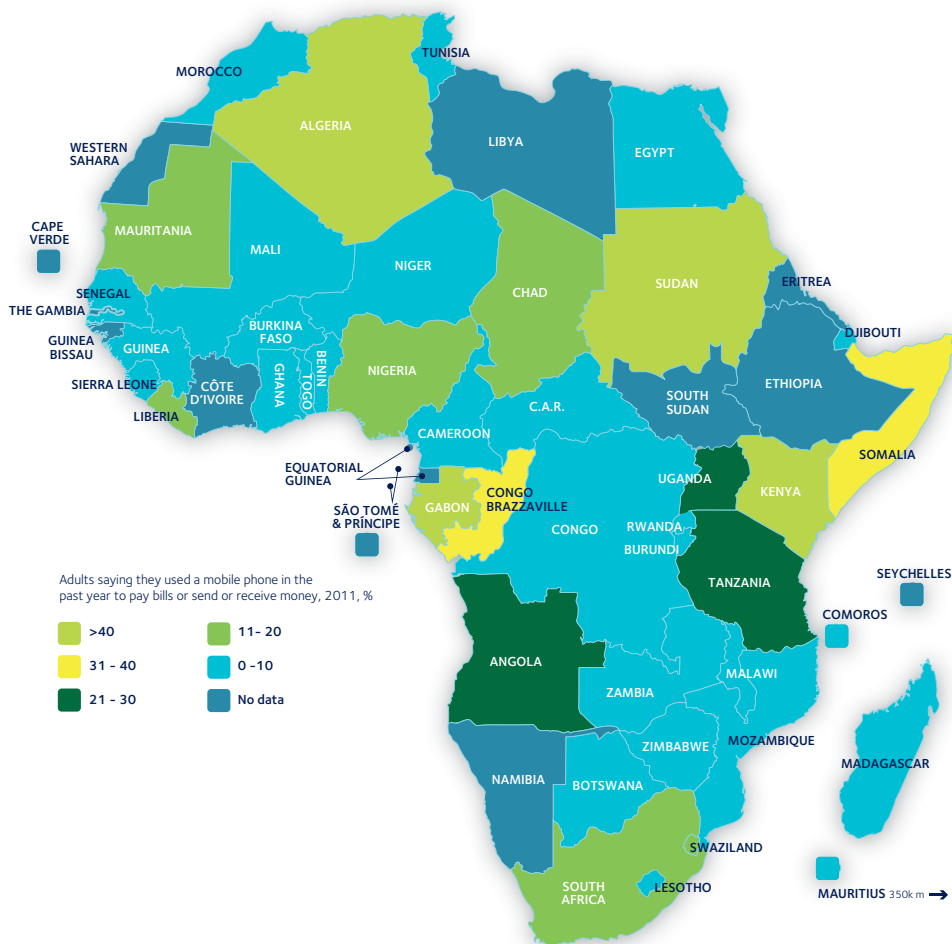


Figure 13: Mobile money users in Africa in 2011

Source: *The Economist*, "The Bank of SMS", 24 April 2012 <http://www.economist.com/blogs/graphicdetail/2012/04/daily-chart-12>.

The great leveller?

New information technologies are reaching the world's poor much faster than food and toilets. A recent UN report suggested six billion people have access to mobile phones, while only 4.5 billion have access to working toilets.¹⁰⁴ There are around one billion mobile phones in both China and India. Africa is home to twice as many mobile phones as the United States¹⁰⁵ and is the most advanced continent when it comes to "mobile money".¹⁰⁶ Developing countries accounted for 80 percent of new mobile subscriptions in 2011, with the number of Internet users doubling over a four year period.¹⁰⁷ Technology offers great potential to enhance education opportunities, dramatically improve health outcomes, promote free speech and democracy, and offer greater access to global markets.

The Internet is the key driver of global connectivity and opportunity, but different bandwidth speeds, limited access, and contrasting levels of openness can mean that the Internet exacerbates rather than offsets inequality. Recent reports indicate, for example, that less than 15 percent of the Indian population (150 million) have access to the Internet, with only three percent connected at home.¹⁰⁸ The WTO's TRIPS Agreement commits developed countries to providing incentives to the private sector for technology transfer to developing countries, but implementation remains weak.¹⁰⁹ Once online, the inequalities persist. Data speeds in the Middle East, Africa, Latin America, and Asia will reach current North American speeds by 2017. In 2017, those regions will be home to Internet speeds that are roughly six times slower than networks in North America.¹¹⁰

Double-edged sword

A consideration of possible pathways to tackle new challenges requires an awareness that technology is deeply embedded in existing institutional and societal structures. To some extent, this can act as a barrier to more sustainable innovation, and favour incumbent technologies against newcomers or more radical interventions. Scholars point to our current carbon based energy and transportation systems as evidence of “technological lock-in”, reinforced by regulatory and incentive structures with substantial environmental consequences.¹¹¹

The pace of technological change in science, information and communications has been described as “an accelerating race into the unknown”.¹¹² By 2020, there are expected to be four billion people online, 31 billion connected devices, 450 billion online interactions performed per day, and up to 50 trillion gigabytes of data.¹¹³ The notion of the cyber world as a separate “space” is increasingly redundant as technology becomes more pervasive and we become more dependent through our business models, our working and social practices, and in the delivery of key services. Whilst technological advances have revolutionised our lives, and offer profound possibilities for tackling challenges, they also maximise vulnerability. Individual hackers now have the capacity to cripple public and private services, or cause havoc through the deliberate or unintentional spread of misleading information. Controversial developments in artificial life, genetic screening and enhancement, the global division of labour, and invasions upon privacy raise profound questions about the nature of human advances. Whilst the potential of big data, open sourcing and heightened transparency are generating excitement, in some cases the ubiquity of information technology has amplified public distrust in governments and science, instead of boosting social cohesion.

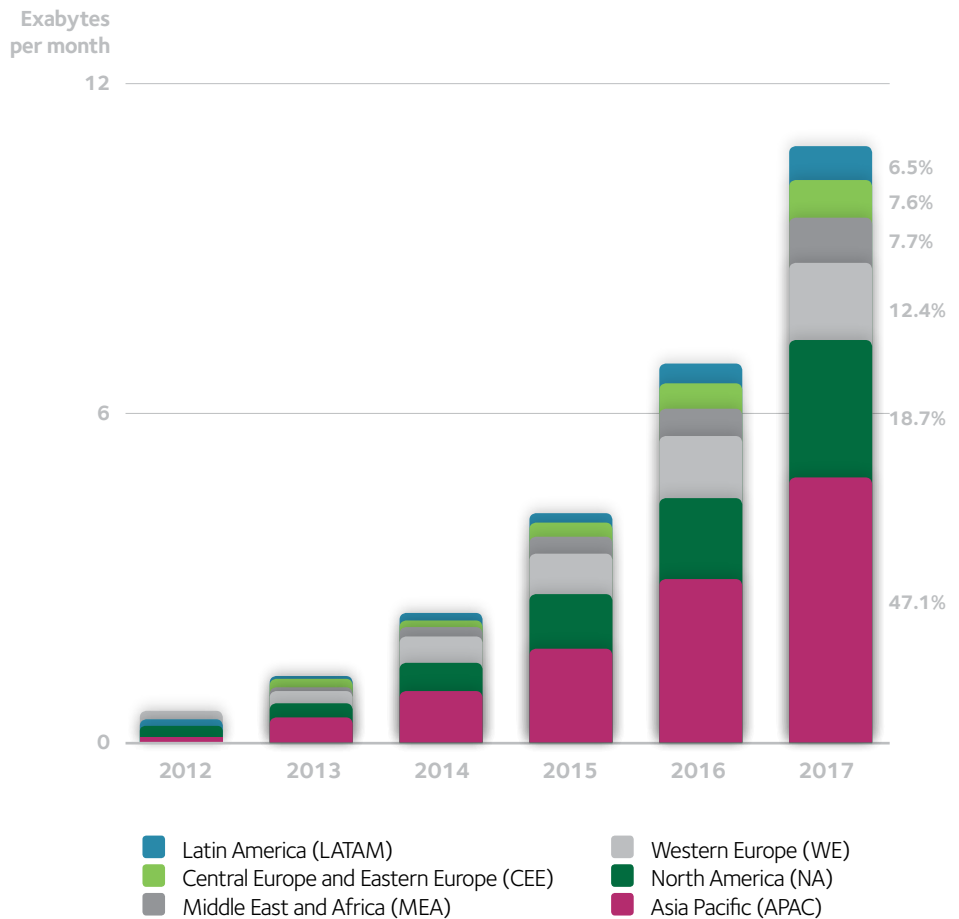


Figure 14: Global mobile data traffic forecast by region 2012–2017

Source: Cisco, “Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017”, *White Paper*, (2013), p. 6
http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf.

Challenges

Society

Many of the megatrends present extraordinary opportunities, but they also generate acute risks and challenges unable to be contained by any single actor or institution. This section examines five areas where we believe action is imperative. Space prevents us from capturing all the nuances, trade-offs, uncertainties and complications inherent within each. Nor do we cover every challenge facing our world. We have been selective and drawn on our personal expertise in order to offer indicative pathways for action on key challenges with long-term impacts.

Our five areas of focus:

1. Society

Inclusion or exclusion?

Boosting youth employment, empowering women and reducing inequality.

2. Resources

Scarce or secure?

Tackling climate change, generating green growth and resource security.

3. Health

For richer or poorer?

Raising access, changing consumption habits and preparing for pandemics.

4. Geopolitics

Compete or collaborate?

Managing change and uncertainty cooperatively, navigating power transitions productively.

5. Governance

Constructive or corrupt?

Accurate measurements, shared language and a longer-term focus.

Inclusion or exclusion?

Boosting youth employment, empowering women and reducing inequality

Future jobs

Globalisation and automation are changing the workforce. Many manufacturing activities, along with other key supply chain activities, have moved to emerging economies.¹¹⁴ Labour-saving technologies are rendering an increasing number of jobs obsolete. Recent figures in the United States point to substantial structural shifts in the workforce, and reveal that large numbers of clerical jobs have been displaced by new technologies.¹¹⁵ Technological innovation has driven down demand for low and medium skill labour.¹¹⁶ Demand for employees to reskill quickly to keep pace with technological change continues to rise. Technology and structural shifts do not necessarily mean there will be fewer jobs in the future, but adapting to the new environment and generating future jobs is a challenge.

The tech-boom has fuelled new employment opportunities in creative and innovative sectors, including computer network support roles, system architecture and web development.¹¹⁷ Technology also democratises education and training by allowing many individuals to learn online and fast-track employment opportunities. Nevertheless, computerisation is spreading to sectors traditionally confined to human labour. Algorithms for Big Data are rapidly entering domains reliant upon storing or accessing information, and replicate the human ability to make sense of it. Robots are gaining enhanced senses and dexterity, allowing them to perform a wider range of tasks. New studies suggest significantly more employment could be vulnerable to substitution by computer-driven equipment over the next two decades, in fields such as transportation and logistics, administrative support, and production.¹¹⁸

Current understanding of the relationship between employment and technological change is insufficient, and adjustment to this structural shift in the nature of work has been slow. Many countries, companies and institutions continue to believe that the market will correct employment disparities. This view may be too optimistic, especially with a deficit of high-skill workers and insufficient supply of jobs for low and medium skill workers forecast.¹¹⁹ More than ever, governments need to distinguish between jobs lost to other countries and jobs lost to the past. Protecting jobs in areas being replaced by technology is not

a viable long-term solution. Even though issues surrounding employment and workforce structure are, first and foremost, national challenges and necessitate tailored approaches, many of the problems are common to the global workforce. Inadequate adjustment is also closely connected to broader questions about mobility, development, access to property, the cost of social services, and participation in civil society.¹²⁰

This evolution in the workforce provides the context for tackling the current unemployment crisis. A generation of workers is at risk. Almost 30 million net jobs across all age groups were lost during the Financial Crisis and haven't been recovered.¹²¹ Ageism is increasingly blamed for the non-retention or non-hiring of older workers.¹²² The gender gap in unemployment has increased once again, after significant improvements in the 1990s. Women remain squeezed by inflexible workplace arrangements and are poorly represented at the top of the private and public sector. Women are also paid much less than men for equal work, especially in certain areas of the globe: more than 80 percent of female employment in Sub-Saharan Africa is unwaged, compared to less than 20 percent in Eastern Europe and Central Asia.¹²³

Young people remain the worst hit by the jobs crisis; they have been labelled the "Baby Bust" generation, destined to be poorer than their parents.¹²⁴ Over 70 million young people are out of work, and the number is projected to grow. In advanced economies, 35 percent of young unemployed have not had a job in over six months. In Greece and Spain, the youth unemployment rate is over 50 percent.¹²⁵ At least one in three unemployed people in Beijing are under the age of 35. Some young people are dropping out altogether: youth participation in the labour force is down to 30.3 percent in the Middle East and 33.6 percent in North Africa.¹²⁶ The 2013 *World Development Report* stated "621 million young people are 'idle' – not in school or training, not employed, and not looking for work".¹²⁷

Economic models and political systems built upon a desire for "full employment" may require revision. There is evidence of movement "towards a more fluid employment relationship", whereby "people are holding portfolios of activities, including paid employment, unpaid employment such as internships or volunteering, self-employment, and caring for children or the elderly".¹²⁸ Steady adoption of a portfolio of activities may lead to a different view on economic output and performance generated by the workforce, and shift tax

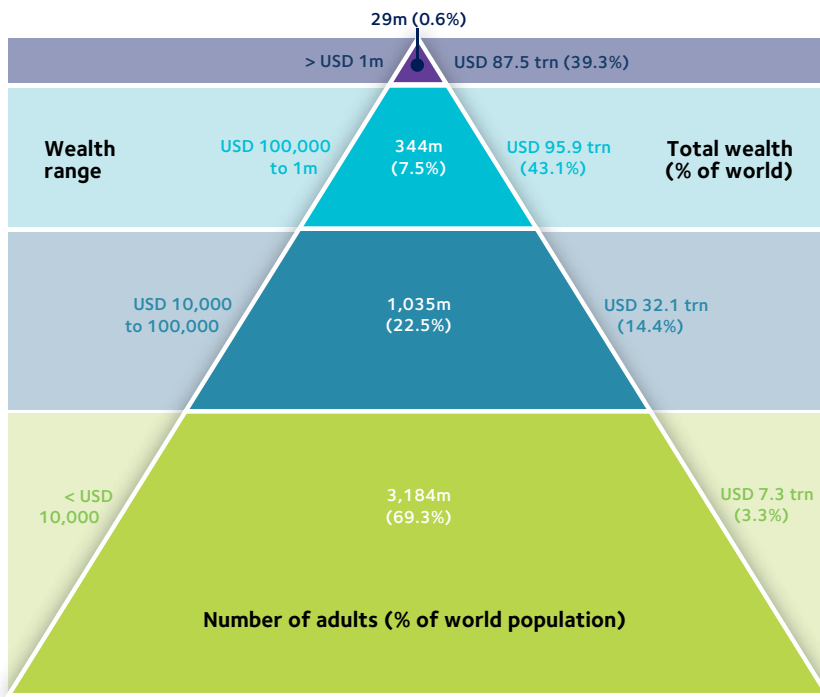


Figure 15: Global wealth pyramid 2012

Note: m = millions of people. Source: James Davies, Rodrigo Lluberas, and Anthony Shorrocks, *Global Wealth Report 2012* (Zurich: Credit Suisse AG, 2012), p. 18.

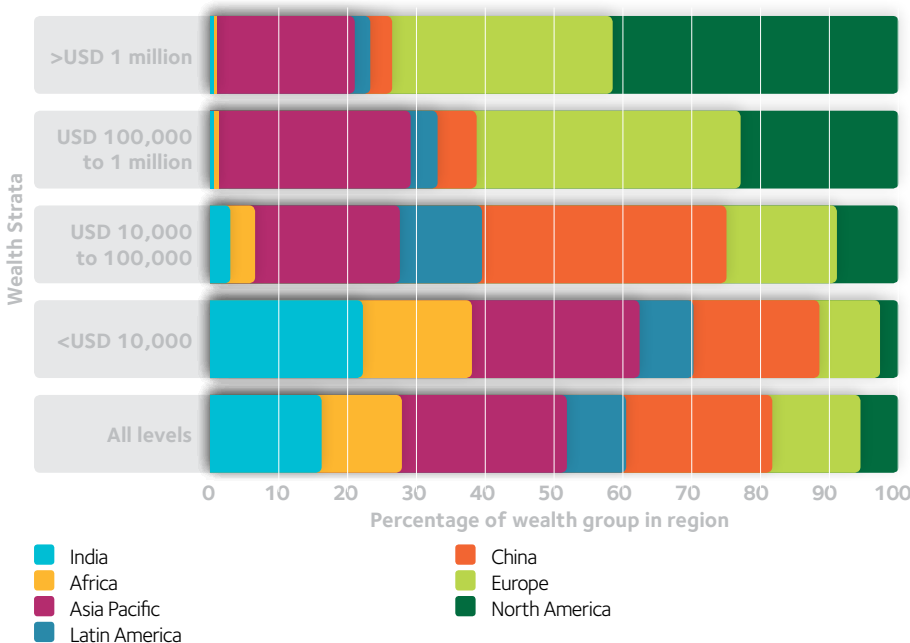


Figure 16: Regional membership of global wealth strata 2012

Source: James Davies, Rodrigo Lluberas, and Anthony Shorrocks, *Global Wealth Report 2012* (Zurich: Credit Suisse AG, 2012), p. 19.

and regulatory burdens away from labour in order to facilitate an inclusive, productive and flexible workforce fit for this century. It is worth

cautioning, however, that increased fluidity in employment can reduce both the security and the self-respect that unskilled workers deserve.

Understanding inequality

Economic growth can be unstable if wealth is too tightly concentrated.¹²⁹ Millions have been raised out of extreme poverty over the past few decades (especially in China and India, as highlighted in Figure 5), yet economic growth has not been shared inclusively. Globalisation has been associated with growing inequality. Incomes of the world's top 1.75 percent of earners reportedly exceed the combined total of those of the bottom 77 percent.¹³⁰ As shown in Figure 15, 39.3 percent of the world's wealth is reportedly held by 0.6 percent of its adults.¹³¹ In the United States, despite continued economic recovery, incomes have stagnated for all but the most highly-educated and affluent Americans.¹³²

Evidence suggests global inequality may have begun to decline, perhaps for the first time since the Industrial Revolution, but the gap between rich and poor countries and the percentage of wealth shared by the top one percent remains high.¹³⁴ Inequality is more pronounced between rich and poor countries; indeed, location and not class now appears to be the decisive indicator of inequality.²¹ Christine Lagarde, Managing Director of the IMF, has described inequality as corrosive to growth and to society, suggesting that the economics profession and policymakers need to focus more attention on inequality.¹³⁵

Generating an inclusive economy that properly and productively shares the benefits and opportunities of economic growth has proved an elusive goal. Inequality, in particular, is a complex phenomenon. Its pathology is especially intricate: one has to be careful of broad generalisations about present and historical data. Drivers of inequality and unequal access to opportunity differ across borders. So, too, do sets of cultural beliefs, norms and institutions on which communities have been built. Income disparity is simply one example of inequality, but it may also be evidenced by a lack of access to health care, malnutrition, poor education, and, increasingly, the lack of internet connectivity.

The absence of data in poor countries, particularly in Africa (where availability of household surveys has reportedly declined), makes it difficult to understand the true level of inequality and its significant drivers.¹³⁶ Knowledge on the evolution of global inequality is said to be "very tentative", even if levels of global inequality remain "much greater than inequality within any individual country".¹³⁷ Big winners in recent decades have been the "global top one percent and the middle classes of the emerging market economies".¹³⁸

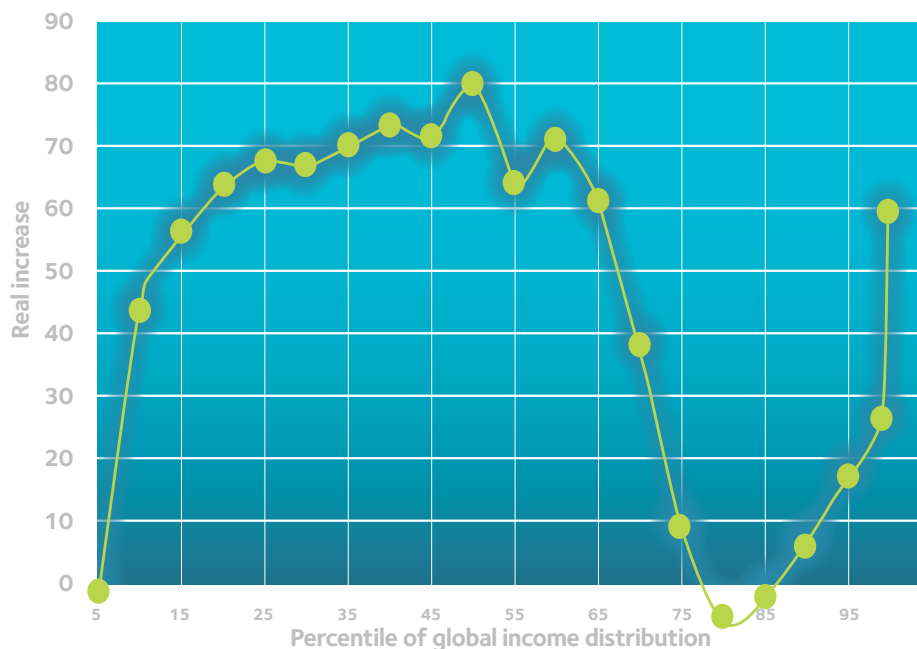


Figure 17: Changes in real income 1988–2008 at different percentiles of global income distribution

Source: Branko Milanovic *Global Income Inequality by the Numbers: In History and Now – An Overview* (Washington DC: The World Bank, 2012), p. 13.

There are signs for optimism. For some countries, within country inequality looks to have plateaued over the past two decades, and real incomes for those in the bottom third of the global income distribution have risen substantially.

What could be done?

- **New targets:** To enable a deeper understanding of global inequality, it is time to shift the focus away from GDP and increase attention on measures of household income and distribution. Job targets should be reconsidered in light of the changing nature of employment, including by considering the adoption of new metrics, which take into account informal and voluntary working arrangements.¹³⁹ Adjustments are required to the relative tax and insurance burdens operating on labour, capital and consumption.
- **Young workers:** Proven interventions designed to get young people back into work need to be championed. Businesses could be encouraged to hire long-term job seekers via tax rebates, wage subsidies and loans. Governments can consider greater provision of one-on-one support for the long-term unemployed, including through extended unemployment insurance and providing “youth guarantees”.¹⁴⁰ Improving quality and access to basic, higher and vocational education, as

well as apprenticeships and retraining, should be prioritised. Understanding the constraints on geographical mobility is vital too, and may require support for finding jobs and the provision of accommodation in different cities and towns. Creative partnerships between governments, companies and educational institutions can provide direct routes from learning to work and out of long-term unemployment.

- **Flexible workplaces:** Private and public sector partnerships should institute flexible parental leave, supportive childcare policies and mobile workplaces. Different telework initiatives to foster flexible and productive working arrangements should be studied and experimented with in order to achieve an appropriate balance for employers and employees. The 2002 European Framework Agreement on Telework is a model that may be replicated elsewhere, as are social security and tax rebates designed to promote telework schemes. Improving female access to higher education and support for equal pay and treatment instruments needs to be prioritised. Older workers should not be forced out; raised retirement ages and longer part-time participation in the workforce is necessary and desirable, given demographic changes.

Scarce or secure?

Tackling climate change, generating green growth and resource security

Overall and per capita consumption of food, water, minerals and energy is rising rapidly.¹⁴¹ Resources such as biofuels and shale gas may ease pressures on energy supply, but there are environmental concerns and uncertainties surrounding both techniques that need to be fully explored.¹⁴² There remains a worrying lack of willpower and momentum in the private and public sector to change existing approaches on the scale required. Policy uncertainty, particularly in areas like wind energy or carbon pricing, is a key impediment to industry investment.¹⁴³ Investment in carbon free energy technology of between USD \$48–80 billion per year is required over at least the next two decades if we are to pursue a more sustainable path. The reality, however, is that perverse subsidies into fossil fuels continue at even higher levels: the IMF recently calculated the current total after tax subsidies to be USD \$1.90 trillion.¹⁴⁴ Trade practices, including industry subsidies, continue to restrain progress on resource security. Vital knowledge on waste reduction, agricultural yields and energy efficiency is insufficiently shared. The waste problem remains acute: between 30–50 percent of the food produced worldwide is never consumed and it is feasible, with the right policies, to prevent the waste or loss of a substantial fraction of this figure.¹⁴⁵

Policymakers and academics have historically treated water, energy and food separately, with governance and research isolated in unhelpful silos.¹⁴⁶ The absence of close coordination between policies that impact energy, water supply, land use, the oceans, ecosystem services and biodiversity is a barrier to a sustainable resource future. Practices across all areas need to be integrated and ultimately incorporated into systems designed to maximise resource efficiency, counteract carbon emissions, and minimise waste and environmental damage.¹⁴⁷

Sustainable intensification

Food supply is one area especially hampered by the “separate silos” approach to resources. The global food system (including agricultural production as well as distribution, storage, and packaging and consumption) directly produces 16 percent of total greenhouse gas emissions (with the same amount being released through the conversion of land to

agriculture) and is a considerable drain on water resources (approximately 75 percent of the water we use globally is for agriculture).¹⁴⁸ As populations grow, it will become increasingly important to manage landscapes in a way that reflects their multifunctionality – as places where food is produced, carbon is stored and sequestered, water is purified and its flow regulated, biodiversity thrives, and humans find recreation and cultural fulfilment. Higher yields in some places will reduce the pressure on land that has other important functions in addition to, or instead of, agriculture.¹⁴⁹ Greater information sharing and assistance between countries and across sectors will be vital.¹⁵⁰ Policy on food production cannot solely focus on yields and the environment; it must also help to improve human nutrition and rural economic development.¹⁵¹ Sustainable intensification and the attainment of food security will require both closing the yield gap – the difference between yields that are possible and those that are achieved – as well as investing in new knowledge to raise maximum yields. This will require increased investment in the agricultural sciences, not just in advanced biotech. Genetic modification is potentially a very valuable technology, but not a magic bullet. Its advantages and disadvantages should be evaluated together with other approaches and a more open public dialogue to build trust.¹⁵²

Valuing biodiversity and ecosystem services

Preserving the variety of natural life – biodiversity – is a key element of sustainability. All species, especially humans, rely on ecosystems and their services. Such services are underpinned by biodiversity and generate ecological, socio-cultural and economic goods and benefits.¹⁵³ The Millennium Ecosystem Assessment discovered 60 percent of such services “have been degraded or are being used unsustainably”, and that “over the last 50 years human activity has altered ecosystems at a faster rate and on a larger scale than at any other time in human history”.¹⁵⁴ The International Union for the Conservation of Nature’s Red List of Threatened Species (“IUCN Red List”) has been a trusted source of information on the status, trends and threats to species.¹⁵⁵ It is used to support policymaking, guide financial investment, raise public awareness and track progress in achieving global targets to reduce biodiversity loss. Today, the IUCN Red List contains records for over 70,000 species, 29 percent of which are threatened with extinction, including one in four mammals

and one in three amphibians. The IUCN Red List shows alarming trends for several groups of species. Its sample indicates how life on Earth is faring, how little is known, and how urgent the need is to know more.

Biodiversity loss threatens clean water provision, food production, climate stability and water regulation, reducing the resilience of the natural environment in adapting to change. Work is being done to enhance mapping and modelling of biodiversity and ecosystem services, create mechanisms for their protection, and ensure fair exploitation.¹⁵⁶ Central to this task are monetary and non-monetary valuations of biodiversity and ecosystem services, along with partnerships between businesses, markets and government agencies. Payments for Ecosystem Services (PES) schemes, including REDD (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries), play a role by rewarding local communities who are dependent on ecosystems but often struggle to interact with them in a sustainable manner.¹⁵⁷

Considerable work remains to be done, however, so that governments can distinguish between the different benefits generated by biodiversity. Tripling the number of species assessed by the IUCN Red List so that it better represents life on Earth would help to guide better policy decisions. Both the public and private sector will need to make difficult choices in developing landscapes so that they can service multiple functions. It will not be possible to save all species, but the interests of future generations and the need for careful stewardship should be kept closely in mind.

Critical, controversial and complicated

The science underpinning climate change is complex. Whilst recent evidence suggests there may be a current hiatus in global warming,¹⁵⁸ over 97 percent of scientists support the tenets of human-induced climate change as outlined by the IPCC.¹⁵⁹ In 2008, the Stern Review suggested a 75 percent chance of global temperatures rising by between 2–3 °C. The most recent IPCC report, released in September 2013, confirmed that global average land and sea temperatures are continuing to increase, sea levels are rising and glaciers and polar ice caps are melting. It suggests that unless greenhouse gas emissions are strongly reduced, the average temperature could rise by more than 2 °C, and perhaps by over 4 °C, this century compared with its pre-industrial level.¹⁶⁰ As Rajendra

Pachauri, Chair of the IPCC has warned, there is still little time left to act decisively: “we have five minutes before midnight”.¹⁶¹ Reorienting climate change drivers, controlling pollutants, and capping CO₂ emissions at manageable levels is one of the most pressing challenges of the 21st century. The actions required are of the scale of a new Industrial Revolution: we need to cut CO₂ emissions by 70–80 percent or face a drastically hotter planet. As climate change impacts are non-linear, the faster we act, the safer we will be.

Current modelling tools are unable to predict accurately the exact impact of climate changes on specific countries and communities. Evidence suggests they may eradicate certain plant and animal species; cause severe flooding and other extreme weather events with crippling impacts on people in low and marginal lands, particularly poor people; and threaten critical infrastructure worldwide, including energy supplies and agricultural yields.¹⁶² Left unchecked, climate change will exacerbate tension across the resource mix and potentially increase the risk of conflict.¹⁶³

An international climate prediction facility similar in scale to CERN’s Large Hadron Collider may be required to comprehend fully the scale of these threats and steer adaptation.¹⁶⁴ Climate modelling requires improvement so feedback effects, temporary slowdowns and regional manifestations can be better understood. This will improve capacity to communicate climate change impacts and ensure this informs policy development. Geoengineering – involving deliberate attempts to manipulate the Earth’s climate on a large scale – cannot be discounted, but models, methods and feasibility remain uncertain. Geoengineering is unlikely to supply an easy or alternative solution to climate change, but detailed analysis of possible methods and the development of governance frameworks are needed to guide the research and its application.¹⁶⁵

Signs of change

The safest and most effective response is to reduce carbon emissions and turn economies away from carbon dependency. There are positive signs of change. Over 90 countries, responsible for over 75 percent of current carbon emissions, have made mitigation pledges for 2020 under the Cancun Agreements.¹⁶⁶ The most recent Chinese Five Year Plan highlights the need to modify practices and consume less carbon, including by imposing strict quotas on

total energy consumption and targets on energy efficiency.¹⁶⁷ Trial cap-and-trade systems have begun in five Chinese cities and two provinces.¹⁶⁸ Other countries and regions have adopted or are designing comprehensive carbon taxes or cap-and-trade systems.¹⁶⁹ The United States has introduced tougher standards for power plants and taken steps to end financial support for new coal-fired plants overseas.¹⁷⁰ Collectively, however, we remain some distance from where we need to be.

Whilst it is impressive that many countries, cities, provinces, firms, communities and individuals are acting, overall progress is far too slow. International undertakings and agreements, together with national and local action, support each other. Debates about climate change need to be recalibrated so that their focus is opportunity, and to ensure progress does not rely disproportionately on a unanimously agreed outcome at the UNFCCC. Internationally, the best case scenario is a multilateral agreement by 2015 that will come into effect by 2020. This might be too late. Fortunately, much can happen in the interim if communities, businesses, governments and the media work together to shift individual and market behaviour towards a safer trajectory. New actors should be engaged, and other pollutants tackled.¹⁷¹ There are understandable tensions between developed and developing countries about the burden of mitigation, particularly at the cost of economic development in poorer countries. Similarly, how poor countries withstand the devastating effects of climate change, arguably caused by richer countries, is also a major challenge. The architecture of a global agreement is complex, much more so than the Montreal Protocol, which addressed the depletion of the ozone layer. Concerted action at the city, company and country level will be vital in creating the necessary dynamics for effective multilateral action.

What could be done?

On resource futures:

- **Transparency:** There should be greater transparency, including in commodity trading, declaration of national reserves, and land purchases in less developed countries. Phasing out fossil fuel and agricultural subsidies is well overdue.¹⁷² If taken up, Chatham House's proposal for a new Resource 30 (or R30) group comprising the leading importers and exporters of natural resources to enhance transparency, security and accessibility across the food, water, and

energy sectors would provide a significant step forward. This should be complemented by greater commitment to initiatives like the Natural Resource Charter and the Extractive Industries Transparency Initiative, which foster sustainable and transparent extraction of minerals and other natural resources.¹⁷³

- **Technology:** Government and business investment into integrated research and development (R&D) and long-term systems approaches uniting food, energy, water and land use and biodiversity preservation need to increase considerably. Incentivising new technologies that offer alternatives to existing resource-intensive "locked-in" technologies, and measuring available "stockpiles" of renewable energy would make a significant contribution.¹⁷⁴ Large prizes to drive innovative solutions on pre-defined climate and sustainability goals could be considered, perhaps as a substitute (or top-up) for intellectual property rights.¹⁷⁵
- **Transfer and consumption:** Excessive consumption in the developed world must be reduced, whilst food waste in developing countries should be addressed in order to close the yield gap. Global food, water and energy systems need to work together to generate sustainable pathways that enhance resource security. Agriculture holds vast potential for rural development, yet landscapes need to be managed to support multiple functions and the fair exploitation of natural resources.¹⁷⁶ Yields could potentially be benchmarked and regulated alongside carbon sequestration, nutrient density, biodiversity conservation, and resilience to climate fluctuations.

On carbon:

- **New actors, multiple targets:** A global carbon price, reflecting the extent of adjustment required to achieve an agreed amount of total or per capita CO₂ that can be emitted over time, will be vital to drive the scale of investment needed in low-carbon infrastructure.¹⁷⁷ Realistically, this is sometime off and will require greater support and more concerted action from China and the United States. (Although the United States has reduced its emissions, a sharper reduction in United States per capita emissions and a more rapid slowing of the growth in China's per capita emissions is required.)¹⁷⁸ Action by groups of cities, countries and companies, aided by international coordination, could spur renewed momentum toward a global

agreement. Initiatives can include domestic carbon taxes or cap-and-trade systems, temporary border carbon adjustments (removed upon the assumption of a global price), a moratorium on new coal stations that do not use the most effective available technologies for reducing emissions (except in rare economic circumstances), halting deforestation and other land conversion, reforestation, promotion of renewable energy, public transport improvements, tighter rules on energy efficiency, and more investment into R&D. The focus need not solely be on CO₂ emissions: tackling other pollutants is an important, and often overlooked, part of the overall effort.¹⁷⁹

- **International collaboration and exchange:** Credible incentives for, and investment in, cleaner energy infrastructure for poor and developing countries is urgently required. The Green Climate Fund, established in 2010 and aimed at helping developing countries transition to low emission and climate resilient economic development, promises much on this, but fundraising has been slow and the operational system needs to be scaled up. Technology sharing must also be prioritised, particularly on waste and clean energy. The creation of a "Manhattan project" on new energy and support of a step-up in modelling would add greatly to understanding the uncertain and uneven dynamics and consequences of climate change, as would clearer communication on the science and possible consequences of climate change.
- **Smaller groupings:** The United Nations Framework Convention on Climate Change (UNFCCC) needs reform. A few countries are holding up vital progress for all. Mechanisms need to be found to allow multi-track solutions and coalitions of like-minded countries to begin to make progress on common agreements. Technical expertise and smaller group meetings to advance negotiations must be prioritised. The unbundling of different dimensions of the agreement, to reduce complexity and allow progress on certain tracks, may also be helpful.

Health

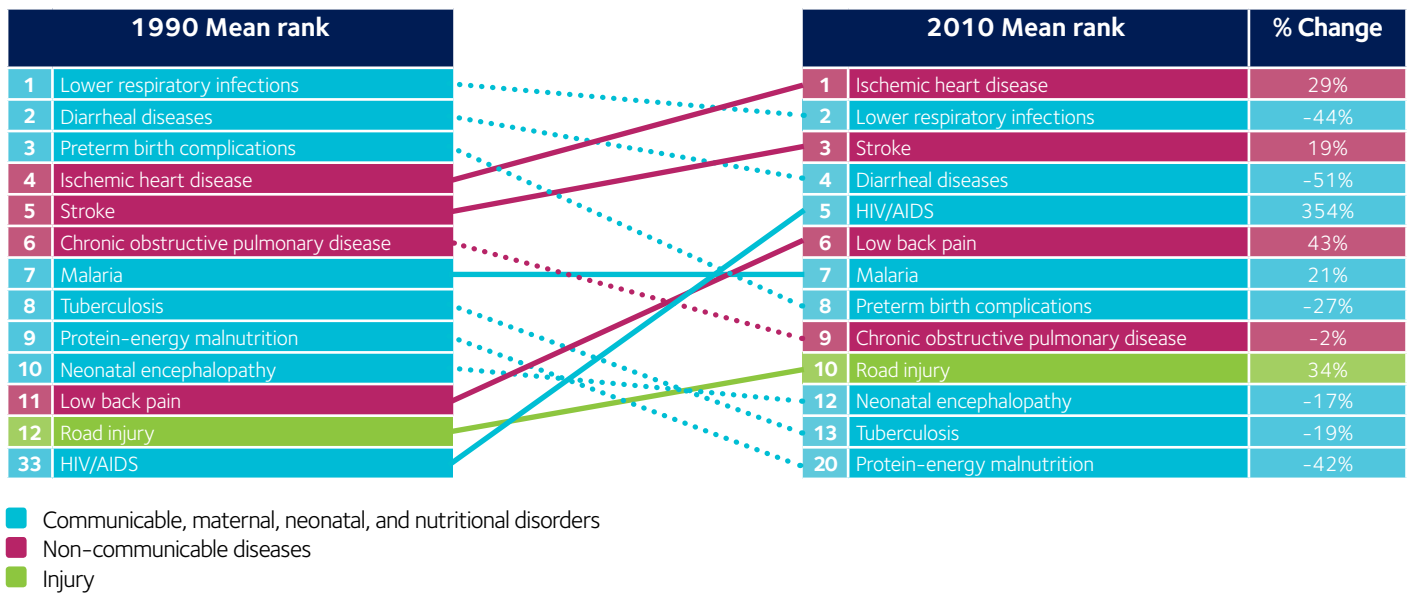


Figure 18: Changes in the global burden of disease 1990–2010

Note: These rankings refer to “Disability Adjusted Life Cycles”: the number of years lost due to early death, disability or poor health.

Source: Information adapted from the Institute for Health Metrics and Evaluation, “GBD 2010 Change in Leading Causes and Risks Between 1990 and 2010”.

<http://www.healthmetricsandevaluation.org/gbd/visualizations/gbd-2010-change-leading-causes-and-risks-between-1990-and-2010>.

For richer or poorer? Raising access, changing consumption habits and uniting against pandemics

The past two decades have witnessed significant changes in the burden of disease: NCDs now take the greatest toll on life, even if infectious diseases (especially HIV/AIDS) continue to pose a major threat to health. For the time being, resources remain stretched or unavailable in the developing world, whilst the health issues associated with older and heavier populations dominate health sector spending in the developed world.¹⁸⁰ Deep global inequalities persist in access to food, sanitation, vaccines and health care. Demographic changes – principally ageing and population growth – in conjunction with longer life expectancy will produce a rising dependency ratio between workers and non-workers over the coming decades. Chronic disease, increasing levels of dementia and mental illness already impact public finances significantly, but will do so to an even greater degree in the decades ahead, not least in many developing countries. Managing these changes requires difficult spending choices and challenges governmental capacity to provide basic health care and other vital services. Decisions and allocations will raise hard questions about both the redistribution of resources within populations

and issues of intergenerational fairness. Health systems can no longer be constructed based on historical needs; they must be developed cognisant of the changing disease burden profile that is likely for the future.¹⁸¹

For every eight people in the world today, one still goes to bed hungry each night.¹⁸² Consumption of food in other parts of the world is well above the level that can be sustained.¹⁸³ It is estimated we will “need two or three Earths” if everybody adopted “Western” levels of consumption over the coming century.¹⁸⁴

Bigger than tobacco

Almost 60 years ago Richard Doll and Austin Bradford-Hill identified smoking as a reason for excess risk of various diseases, especially lung cancer.¹⁸⁵ Increasing recognition of the harmful effects of smoking facilitated a growing anti-smoking campaign. Awareness culminated in the UN Framework Convention on Tobacco Control, the most widely and rapidly embraced treaty in history, now boasting 176 signatory states.¹⁸⁶ Countries that have implemented the Convention have tackled tobacco better than others. Nevertheless, one billion people (one-seventh of the world’s population) still smoke, with rates as high as 52 percent of adult men in East Asia and the Pacific.¹⁸⁷

Nowadays, NCDs like diabetes, heart disease, stroke and cancer similarly threaten health. The reality is that there is no single cure or cause for NCDs. Yet “common, modifiable risk factors” are known about many NCDs, including obesity, overconsumption of unhealthy foods and alcohol, and lack of physical activity. Solutions focused on risk prevention are said to be “highly cost-effective”,¹⁸⁸ including the promotion of good nutrition, regular exercise and avoiding excessive consumption. NCDs are extremely expensive. Illnesses related to obesity cost the United Kingdom’s National Health Service (NHS) over GBP £5 billion per year and generate 70 percent of health costs in the United States,¹⁸⁹ where obesity prevalence is increasing for all adult income and education levels.¹⁹⁰ In Samoa, roughly 75 percent of adult deaths come from NCDs. If the government paid for dialysis for everyone that needs it, the bill would total more than twelve times the country’s Gross National Income.¹⁹¹

It is unclear whether education campaigns and interventions placing responsibility on the individual will make a great impact on NCDs.¹⁹² No single action or policy – a tax on certain foods, school menus, advertising restrictions, calorie labelling or size limits – is itself sufficient.¹⁹³ The challenge becomes more difficult when one realises the food industry is

three times bigger than the tobacco industry.¹⁹⁴ As Margaret Chan, Director-General of the World Health Organization (WHO), commented recently: “It is not just Big Tobacco anymore. Public health must also contend with Big Food, Big Soda, and Big Alcohol”.¹⁹⁵ New York City provides a good example of a major city’s successful response to NCDs. The city has implemented a smoking ban in public places, banned trans-fat in food, and pushed for the display of calories counts in restaurants.¹⁹⁶ As good nutrition, sustainable development and GDP are closely related, developing healthier lifestyles is a responsibility not just for individuals but for societies as a whole, with increasing healthcare costs and decreased productivity representing the major negative externalities of the obesity epidemic.¹⁹⁷

Infectious diseases

The extreme danger of a population-crippling pandemic remains very real. SARS, swine flu, the prevalence of HIV and Hepatitis C infections, and the persistence of malaria and cholera demonstrate the need for enhanced systems management to deal with worldwide threats to health. The threat posed by infectious diseases will only grow with up to two billion people projected to be living in slums by 2030, urbanisation concentrating human contact, antimicrobial resistance on the rise¹⁹⁸ and bioterrorism an increasing danger.¹⁹⁹ Another looming concern is new and re-emerging diseases evolving to become drug resistant, such as drug resistant tuberculosis.²⁰⁰

The International Health Regulations, negotiated by the WHO and binding 193 States Parties, present a mechanism for states to “prevent, protect against, control and provide a public health response to the international spread of disease” and “avoid unnecessary interference with international traffic and trade.”²⁰¹ In addition, several global outbreak detection systems are now functioning, using traditional and social media monitoring and allowing evermore prompt detection of outbreaks. Should another pandemic arise, however, it is doubtful sufficient global capacity exists to deal with the loss of life, resulting panic and the potentially crippling effects on the world economy.²⁰² The connectivity and just-in-time pressures generated by globalisation make these threats more acute, and magnify the ramifications of poor coordination.²⁰³ Too much of the current focus appears reactionary, despite evidence showing “a breakdown or absence of public health infrastructure was the

driving factor” in nearly 40 percent of infectious disease outbreaks internationally.²⁰⁴

Competing bedfellows

Tension persists in health between creativity, cooperation and control. Without a belief that the investment will deliver adequate returns, private innovation slows. Fewer drugs are hitting the market and those that do are marketed as “super-drugs” that can be used by a broad middle-class consumer base, such as cholesterol lowering statins. Pharmaceutical companies are increasingly focused on incremental variations to existing drugs, rather than new innovations for today’s health challenges. The last few decades have been described as a “persistent antibiotic-development drought”, with only two new classes developed in the past 30 years.²⁰⁵ While 75 percent of new molecular entities created in the past 10 years can be traced back to state-funded labs or university research, it is industry that develops new medicines and brings them to the market.²⁰⁶ Countries have different priorities and relative power in dealing with the pharmaceutical industry. A report by the Grattan Institute suggested Australia pays AUD\$1.3 billion too much per year for prescription drugs, with one particular drug in New Zealand costing less than 4 percent of the Australian price.²⁰⁷ A number of countries, such as Brazil, have provided access to cheaper drugs through the use of generics.²⁰⁸ Uncertainty surrounding access and profit were influential in Indonesia’s reluctance, beginning in January 2007, to cooperate on a vaccine during the avian flu crisis.²⁰⁹

Solid strides have been made over the past century in improving access to key medicines, but the competing demands outlined above have meant that progress has been inconsistent. The creation of a separate and relatively successful Global Fund to tackle AIDS, Tuberculosis and Malaria was a response to this, as is the GAVI Alliance’s important work on immunisation and the United States President’s Emergency Plan for AIDS Relief.²¹⁰ Trilateral cooperation between the WTO, the World Intellectual Property Organisation and WHO to promote greater access to health technologies and innovation is working towards a further harmonisation of interests.²¹¹ Over the last decade, major pharmaceutical companies have fostered greater access to new medicines in low-income countries, particularly for drugs combating infectious diseases such as HIV and tuberculosis. Today, nearly all of the biggest

pharmaceutical companies practice tiered pricing (however, this is not yet the case for non-communicable diseases, notably cancer). Notwithstanding these efforts, some reforms appear to be too slow or piecemeal.²¹²

Enhancing cooperation and coherence

Historically, health has been a great role model for international cooperation and coherence between domestic and global systems.²¹³ Such synergies, however, have not kept pace with globalisation. The WHO is the most likely candidate to streamline global health governance, but regional subsidiaries and a handful of donors have a powerful influence on its finances and programmes. The WHO’s primary power is in setting and suggesting standards, not enforcing them, and in data collection and dissemination. The private sector plays an increasing role, while philanthropists and NGOs ensure there are multiple, though not always complementary, avenues for aid. New and reinvigorated avenues of cooperation are necessary to stem the burden of disease, including through greater sharing of knowledge by individuals and networks. In an age of strained public research budgets, incentives for both private and public sectors to encourage new innovations and foster greater collaboration are much needed, particularly as technology enables the physiology and granularity of disease to be better understood. Action cannot only be top-down: priorities and responsibilities must be embraced at a national, local and individual level, and must be coordinated to ensure needs are met and resources are well spent.

What could be done?

- **NCDs:** Measurable targets for reducing NCDs – such as a 30 percent reduction in relative mortality from NCDs by 2030 – could be a core part of the post-2015 development agenda,²¹⁴ with networks and institutions responding to the social determinants of health.²¹⁵ The WHO could convene negotiations among interested partners to establish a Framework Convention or Code of Practice on Alcohol Control.²¹⁶ Regulatory interventions are only one possible course of action. Attention could be directed towards initiatives, including within education, infrastructure and markets, that prompt changes to diets and lifestyles over the long term, particularly those that stretch demand for the most resource intensive types of food and energy.²¹⁷
- **Infectious diseases:** Renewed focus on infectious diseases in the post-2015

Geopolitics

agenda should encourage ongoing action in the area of HIV, TB, malaria and neglected infectious diseases such as dengue fever and different worm infections, with new targets and partnerships.²¹⁸ The WHO's 2005 International Health Regulations (IHR) need to be made operational at both the national level and across borders to a much greater extent, given the nature of the epidemics. Further IHR revisions could be considered in order to provide specifics on immediate action; rapid diagnosis and intervention teams; shared R&D on animal and human pathogens; a regulatory regime for safety and security; and consistency in local, national and international practices. The WHO should consider setting up regional rapid response teams that can better connect with outbreak alert networks monitoring social media and local rumours. Correcting deficiencies (or voids) in infrastructure (such as surveillance, diagnostic capacities, individual awareness, reporting avenues, sanitation, and control provisions) in the event of threats to public health should be prioritised.²¹⁹ Encouraging innovations in vaccine distribution, such as creating vaccines that are stable in fluctuating temperatures, or utilising pre-existing infrastructure such as refrigeration, as well as the mass production of dry vaccines,²²⁰ will enable greater penetration of immunisation programmes into the most remote parts of the world.²²¹

- **Pharmaceuticals:** More pharmaceutical companies could commit to tiered prices based on national income, and grant voluntary licenses to enable local production in low-income countries. Further reforms to the pricing of drugs to incorporate outcomes should also be considered, along with public-private partnerships to share the costs and revenue of drug development. Pharmaceutical companies could give access to drug trial results, provided privacy concerns are respected, for greater insight into negative as well as positive results. Rights to patent natural DNA, as opposed to its exploitation, could be restricted, as demonstrated by the United States Supreme Court in its June 2013 decision.²²² Reforms to IP rules should be developed to ensure adequate protection and enforcement of rights alongside incentives for innovation and faster access to cheaper medicines in poor countries.

Compete or collaborate? Managing change and uncertainty cooperatively, navigating power transitions productively

Nations have historically tended to pursue self-interest instead of working together for mutual benefit. Since the Second World War, the balance has slowly shifted: the incidence of cooperative behaviour, particularly within institutions and through international rules and regulations, has grown. Although traditional security threats remain, unconventional security dilemmas are on the rise and require greater levels of international cooperation. Adversaries continue to emerge in greater numbers from individuals or networks and seek to cause or provoke violence on an industrial scale. Risks arising from natural and synthetically created pandemics, climate change, cyber attacks and other cross-border threats are more intense, rapid and complex than many previous threats, with increased integration and rising populations and incomes compounding the risks of contagion and cascading failures. New age connectivity necessitates new age solidarity.²²³ States will have legitimate claims to put themselves first, but this century's challenges cannot be dealt with by states acting alone. Outward looking policies and collaboration are required.

Sharing power

China looks set to overtake the United States as the world's biggest economy, potentially as early as 2016.²²⁴ While few doubt the continued strength of the United States,

especially in per capita terms, emerging powers are gaining prominence on the global stage. History tells us power transitions present immense geopolitical challenges. In this respect, the Sino-American relationship is this century's most important bilateral partnership. We concur with the experts who suggest China's rise need not be seen as threatening, and would welcome wider recognition that China and Asia's stake in the world necessitates greater engagement in global institutions and cooperation to address critical challenges.²²⁵ Although power shifts do not have a good track record, no aspiring great power resembles Germany in 1914 or the Soviet Union during the Cold War. Peace prospers to a far greater degree. Power is more diffuse than ever. The convergence should be embraced, not resisted. More global conversations, less anachronistic policies and an agreed global ethic are essential for a one-world theory to emerge triumphant.²²⁶

Virtual tensions

When President Obama met the new Chinese President, Xi Jinping, in California in June 2013, cyber security was high on the agenda. The potential for cybercrime and cyber aggression within the digital world is relatively unconstrained by jurisdictional boundaries and virtually unregulated by government agencies or frameworks. State-directed cyber espionage is alleged to target political and military enterprises, and many states assert their private sector is subject to cyber attacks. Individuals are increasingly victims of cybercrime. There is renewed suspicion about



Note: Economic centre of gravity is calculated by weighting locations by GDP in three dimensions and projected to the nearest point on the Earth's surface. The surface projection of the centre of gravity shifts north over the course of the century, reflecting the fact that in three-dimensional space America and Asia are not only "next" to each other, but also "across" from each other.

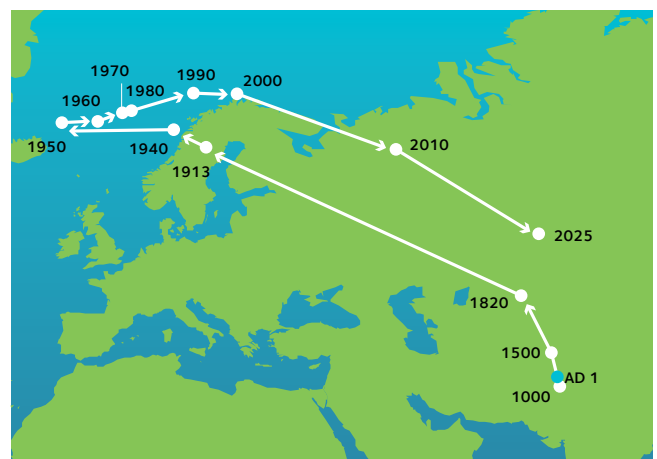


Figure 19: Evolution of the Earth's economic centre of gravity AD 1–2025

Source: Richard Dobbs et al, *Urban World: Cities and the Rise of the Consuming Class* (San Francisco: McKinsey Global Institute, 2012), p. 17.

the reach of surveillance tools used by states to monitor cyber interactions, just as there is greater fear on the part of governments about the vulnerability of critical infrastructure to cyber attack. The cost of cybercrime in just 24 countries is estimated to cost the global economy USD \$274 billion per year.²²⁷ Threats emerging from cyberspace are considered one of the most serious economic and national security challenges states will face this century. Online aggression could trigger conventional military conflicts.

Action to enhance cyber security will require collaboration. Coordination within and across national boundaries (not least in evidence gathering) will be vital if cyber threats are to be addressed. This is not an issue where cyber capacity, be it offensive or defensive, can be easily compared to security threats that existed during the Cold War; this is not like building a warhead, maintaining a military, or enriching uranium. Low costs of entry could well mean the cyber domain is the predominant site for asymmetric warfare: combatants are just as likely to be non-states, who exploit deficient infrastructure elsewhere. Threats could emanate from places where information on cyber protection is insufficiently shared or inadequately developed. This is particularly the case in African and South American markets where technology is spreading fast. Deficient cyber infrastructure is not just an issue in developing countries; recent reports indicate “four in five of the United Kingdom’s largest quoted companies are not prepared for cyber attacks”.²²⁸ The need to develop capacity throughout the world to enhance the security of the cyber domain is paramount.

Reflecting power

China is not the only new power this century. India, Brazil, Germany, Nigeria, South Africa and Indonesia are just some of the others touted as emerging powers. Most international institutions, however, operate under 20th century geopolitical arrangements, with two serious shortcomings. The first is countries with a diminishing stake retain disproportionate power. The second is there are almost four times as many countries, along with new networks and NGOs, at many decision-making tables. Both realities endure at a time when the issues are more connected and complicated.²²⁹ They combine to shut important countries or institutions out of key decisions and undermine meaningful dialogue. Longevity does not necessarily make institutions redundant – indeed,

some thrive due to their endurance – but it is clear many current institutions could be reformed to better reflect the demands of the new century. Should this occur, countries might be more willing to delegate greater power to them. They will also be in a better position to decide which forum is best for which issues, and generate the authority and legitimacy to match. This will reduce forum shopping and ensure activities can be optimised for the issues at hand.

Opening up

The international community remains divided on the direction of trade opening. The vast increase in trade opportunities has not been matched by a commitment to update trade rules for the 21st century. Paralysis rather than progress has been the norm in the 12 years since the launch of the Doha Development Round, which has revealed stark differences over precisely how to progress the trade agenda, especially in the developing world. Although there was an increase in protectionist measures following the Financial Crisis, they remained minor irritations rather than a frontal assault on trade. Instead, bilateral and plurilateral trade agreements have meant that trade advances have come through these achievements, rather than what was thought to be possible via the Doha Round, the conclusion of which is estimated to be worth an additional USD \$280 billion annually to global GDP.²³⁰ As of January 2013, over 540 regional trade agreements have been received by the WTO, with over 350 of these in force. Some of these buttress and boost momentum on multilateral trade efforts; others are alleged to undermine them.²³¹ Several commentators have found hope in the renewed commitment of the European Union and the United States to push for a free trade agreement by 2015,²³² along with the Trans-Pacific Partnership in the Asia-Pacific and the Regional Comprehensive Economic Partnership in East Asia between ASEAN and its Free Trade Partners. Such initiatives have potential if all countries work together cooperatively and collaboratively; if they do not, they risk damaging global trade even further.

The Doha Round has broken down because of the differences among just a few advanced and emerging economies, not because of the “consensus” problem. Our Commission Chair, the former Director-General of the WTO, Pascal Lamy, argues that those who declare Doha dead are missing the point of a process that is unique amongst trade negotiations in having development at its core.²³³ Key disputes include

the lead time required before the commitments of emerging economies match those of the advanced economies, and what sort of support should be extended to the poorest countries to hasten their development. Momentum has also stalled partly because of a flawed but powerful belief that open borders hurt local economies and increase poverty, despite strong evidence to the contrary. Rising restrictions on the movement of people can also be an obstacle to economic growth, compromising the dynamism of many economies and efforts to reduce poverty.²³⁴

What could be done?

- **Sharing power:** The United States and China should work together to set a safer and sustainable course, establishing agreements in areas such as climate change, and maintaining regional peace and stability.
- **Reinvigorated institutions:** Reform of our 20th century global governance institutions is overdue. Measures could include new permanent members and semi-permanent members of the UN Security Council; voting changes in the Bretton Woods institutions and other multilateral organisations so that emerging economies possess proportionate power; using merit instead of geography to determine the leaders of multilateral institutions; and reinvigorating the G20 so it is effective outside times of crisis and influential on issues like climate change.²³⁵ This could include reassessing and strengthening the role of sherpas to ensure leaders focus on priority issues, and ensuring a portion of each G20 meeting is devoted to establishing a common agenda for the longer term.²³⁶
- **Modernising trade:** Immediate action with long-term benefits could be taken by cutting customs red tape (reducing this by half would have the same economic effect as removing all tariffs); rolling back the trade restrictive measures imposed during the Financial Crisis;²³⁷ and coming to a quid pro quo on agricultural and industrial tariffs. Completing the Doha package would renew global trade systems, whilst further important actions are required with regards to investment competition, export restrictions, corruption and energy.
- **Confronting cyber:** Work must continue on developing rules for cybercrime and cyberwar, building on recent UN progress which affirmed that international law is applicable in cyberspace.²³⁸ There are considerable gaps in the emerging legal

Governance

architecture that need to be addressed, alongside further harmonisation of existing regional treaties.²³⁹ States should step up their efforts to build cyber capacity and resilience in developing regions. Increasing efforts could be directed to remedying deficient governance structures that have implications for digital lives, and updating regulations (including in taxation and data protection) to clarify where responsibility lies.²⁴⁰ Systems should be designed with citizens firmly in mind, assisting them to maintain optimal security and protect their online activities and information.²⁴¹

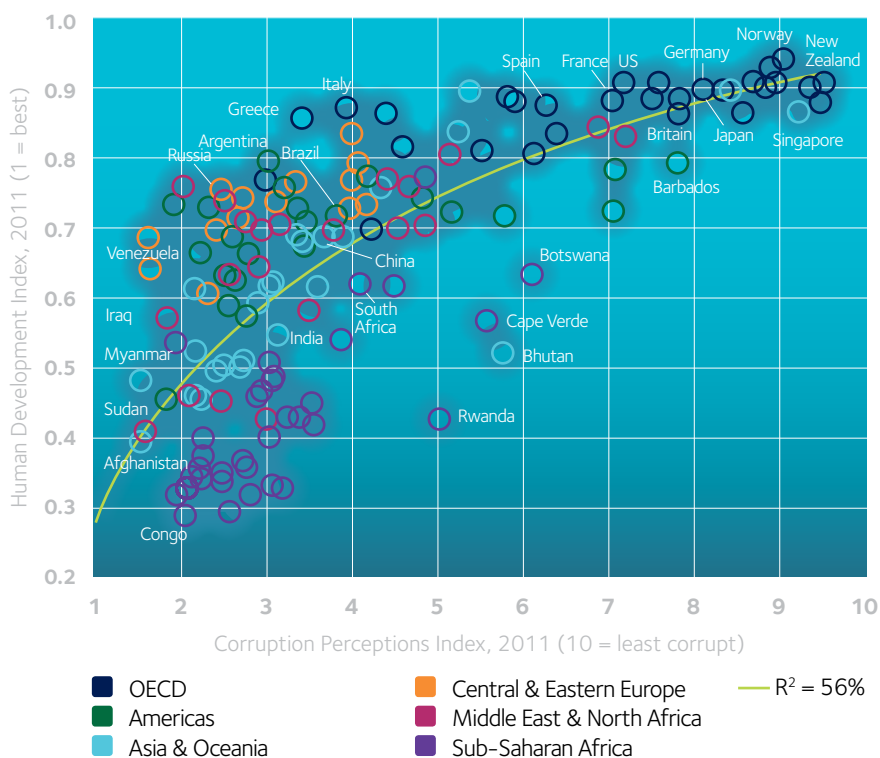


Figure 20: Global corruption and human development, 2011

Source: *The Economist*, "Corrosive Corruption", 2 Dec 2011 <http://www.economist.com/blogs/dailychart/2011/12/corruption-and-development>.

Constructive or corrupt? Accurate measurements, shared language and a longer-term focus

Two myths about governance and corruption have been dispelled over the past two decades. One is that they cannot be measured. The World Bank now examines over 350 variables on governance across more than 200 countries, principally through its Worldwide Governance Indicators (WGIs). They measure how authority is exercised across six indicators: voice and accountability; political stability and the absence of major violence and terror; government effectiveness; regulatory quality; rule of law; and control of corruption. Transparency International's Corruption Perceptions Index (CPI) and the Ibrahim Index of African Governance (IIAG) provide additional examples of efforts to measure standards of governance and corruption, difficult though that task may be. Another myth dispelled is that good governance and anti-corruption efforts are "overrated". The WGIs, developed by Daniel Kaufman and others, revealed a significant "development dividend" from

improved governance. One estimate suggests an improvement of one standard deviation can nearly triple per capita income across a population, delivering substantial reductions in infant mortality and illiteracy.²⁴² What has become clear, however, is that countries follow quite different transition paths (even those within the same region); one needs to dig into the data and conduct in-depth, in-country diagnostics to determine what remedial action is necessary for improved governance.²⁴³

Pathway from poverty

Kaufman's latest initiative, the Resource Governance Index (RGI), measures transparency and accountability in the oil, gas and mining sectors of 58 countries, which collectively produce 85 percent of the world's petroleum, 90 percent of diamonds and 80 percent of copper.²⁴⁴ The 2013 RGI revealed 80 percent of those countries "fail to achieve good governance in their extractive sectors", a gap that "extends to state-owned companies, natural resource funds and subnational transfers".²⁴⁵ Of course, the world's natural

resources do not only flow from rich countries such as Australia, Saudi Arabia or Qatar. Zambia, Ghana, Mali, Nigeria and Angola are examples of poorer countries with large amounts of natural resources. Large, untapped resource pools will likely be found elsewhere. Natural resources can be transformative if appropriately harnessed. This can lead to an effective pathway out of poverty or prove to be a curse on poor countries. Too many resource rich countries have remained poor despite their endowment: poor governance structures and short-sighted, often corrupt, decisions on the part of both foreign and local players can ensure countries miss “one-off” chances to foster a prosperous and economically sustainable future before resources are depleted. Here, the priority cannot be simply to diagnose gaps in good governance, it must primarily be to develop governance capacity in response to such deficiencies.

Accurate measurements

A recent World Bank study of Africa called on governments to invest the benefits of the resources “windfall” to increase economic opportunities and improve health and education, especially for young and future generations.²⁴⁶ The report claimed that the benefits of recent economic growth in Africa had failed to reach the poorest segments of society, with the number of impoverished people increasing in some resource rich countries. A natural ally in this quest is improving governance capacity. Experts have identified “complexity and corruption of bureaucratic procedures”, “instability of national regulations” and “low levels of political stability” as the top three barriers to renewable energy investment in Africa.²⁴⁷ Governance indicators have the potential to shift decision-making by correcting information asymmetries and changing incentive structures. Such indicators have provided crucial information to decision-makers and helped focus attention on good governance in policymaking. The growth of governance indices has also generated momentum and awareness about reducing corruption.

Despite great intentions, the diagnostic tools are not enough. Current indicators suffer from several challenges, both in data quality and theoretical grounding, and are often based on perceptions.²⁴⁸ Such indicators can also obscure the subtleties of difference between sector specific forms of governance and disregard potential varieties in what good governance may entail. It has been suggested that many

indicators should come with a “health warning”, emphasising their caveats and limitations.²⁴⁹ The measurements and data matter most where countries or companies feel vulnerable and are motivated to reform existing practices. The governance gap is still holding too many countries back, particularly in the management of natural resources. The targeting of corruption (including legal corruption) as an impediment to good governance needs particular attention.

Corporate governance

The June 2013 G8 and July 2013 G20 declarations on tax evasion challenge long-standing practices of shifting profits to avoid taxes, a lack of transparency on tax havens, insufficient clarity on company ownership, and the non-reporting of payments made by extractive companies to governments.²⁵⁰ These realities combine to exacerbate the governance gap and prevent much-needed growth within developing countries. Action to address such long-standing practices along with further cultural, structural and procedural changes remain overdue. This includes addressing the short-termism that dominates much of the private sector and reorienting company priorities and performance towards a longer time horizon.

The public sector does not have a monopoly on poor governance. Dominic Barton, Managing Director of McKinsey & Company, has explained that “much of what went awry before and after the Financial Crisis stemmed from failures of governance, decision-making, and leadership within companies”.²⁵¹ The problem, however, did not start and certainly did not end with the Financial Crisis. The private sector remains the strongest source of growth and jobs (creating 9 of every 10 jobs in the developing world),²⁵² but some businesses continue to undermine the sustainability of the planet. Vested interests and “legal corruption” in the form of pork barrelling and tax avoidance play a negative role.

Private sector governance reform is especially important for resource sustainability. Unsustainable growth models continue to heighten instability across financial systems and threaten geopolitical unrest. Without a greener, longer-sighted growth model, the environment will become increasingly unbalanced, expensive or extinct. The recent auction of a Bluefin tuna in Tokyo for a record amount of GBP £1.09 million (USD\$1.7 million), for example, heightened concerns that market signals could result in certain species being viewed as “too valuable to

save”.²⁵³ Put simply: businesses can no longer operate within a “business as usual” mindset that prejudices short-term returns over longer-term sustainability. Longer-term planning timeframes must be ingrained into our business practices, planning and cultures. Several companies have already taken significant strides; Unilever is one that has taken the lead in shifting its focus towards sustainability and the long-term.²⁵⁴ Tackling the future requires systemic reform of the current capitalist growth model and providing a pathway for the financial sector “to reassert a client service culture that values long-term relationships and emphasises the duty of care”.²⁵⁵

Shared language

During the last century, shared language became increasingly important. By this we do not mean Chinese, English or Arabic, but the language contained in international treaties and regulations. International law is now ubiquitous: shared language on law and human rights has been essential to humanitarian progress. Agreed standards on aviation ensure air travel is safer than ever before. Coordination on radiation enables levels around the world to be compared and exposures regulated. Shared answers on the risks posed by halogenated hydrocarbons enabled agreement on protecting the ozone layer. On the other hand, a lack of shared language and coordination can be divisive. To take just one example: migration. States that have ratified at least one of the three international instruments related to migrant workers hosted less than a third of the total global migrant population in 2010. In other words, states that had ratified none of the applicable instruments hosted over two thirds of the world’s migrants, ensuring many were insufficiently protected.²⁵⁶

As the challenges become more complex and connected, the world’s capacity to agree a common legal and rights language to make this century more peaceful and prosperous is vital. Here, leaders and lawmakers must think carefully about the type of legal regulation most conducive to progress. Shared language need not prevent devolution to the lowest levels to ensure communities can tackle agreed problems in their own fashion, but towards a collective end. This requires a certain level of discretion, flexibility and perhaps even simplicity to be built into national and multilateral rules and agreements.²⁵⁷ At a minimum, however, agreed rules must be implemented effectively at the domestic level.

What could be done?

On public sector governance

- **Improving indicators:** Attention must be devoted to improving the transparency, consistency, scope and availability of baseline governance indicators, with particular focus on making more governance indicators results-based. Existing indicators should also give countries greater ownership of the process. The Ibrahim Index is a useful model in this respect for assisting regions to create data autonomy. Producers of existing indicators should make explicit the theoretical assumptions behind their variables so that users are more aware of their limitations.
- **Governance guidance and transparency:** Multi-stakeholder groups could be formed to help countries that do not improve governance and anti-corruption scores and request assistance. Remedial action should be decentralised where possible to local actors, with countries facing similar challenges "paired" to ensure useful lessons from comparable past transitions are properly shared.²⁵⁸ The Natural Resource Charter provides a powerful template "to help governments and citizens harness natural resources wealth by making decisions that will provide the maximum sustained economic benefit".²⁵⁹ Efforts to reduce tax evasion and improve transparency begun at the June 2013 G8 meeting and carried forward at G20 meetings in July and September 2013 should be actively pursued.²⁶⁰
- **Embracing technology:** The possibilities presented by smart phone applications, social media, big data and other technologies should be leveraged to enhance transparency and accountability within governments and community organisations. Most simply, this might involve reaching the widest audience by making information available in as many formats and institutions as possible. More ambitiously, technology can be used to increase civic engagement in policy development, enabling a more inclusive and empowered society.

On private sector governance

- **Rewire businesses for the long term:** Business incentives could be realigned towards a longer horizon by rolling back the weight attached to mark-to-market accounting, quarterly earnings and short-term incentive bonuses.²⁶¹

A rethinking of corporate governance so that owners and boards embrace longer-term responsibilities is also required.²⁶² This involves smarter regulation, remuneration tied to long-term performance, and voting structures that reward long-term growth. There is a pressing need for a market recalibration of private and societal interest that properly accounts for their interdependence. This necessitates reforming accounting frameworks and performance measurements – including by developing long-term "health" metrics²⁶³ – so that they respond to social needs, foster innovation and investment towards sustainable ends, and appropriately engender a longer-term view.²⁶⁴

Part B: Responsible Futures



Looking Back to Look Forward

Lessons from Previous Successes

This Commission believes the scale of today's challenges means countries and organisations need to enhance, and prioritise, their capacity to think and act with a longer-term perspective. In Part A, we identified a number of the megatrends and challenges that will shape our future, and explored some of the responses that are already available. In Part B, *Responsible Futures*, we aim to shed light on why gridlock prevails where action is imperative. We seek to understand the factors that are undermining political will to act, despite the urgency and extent of the problems. In this first section, we begin by identifying key lessons from historical examples where impediments to action have been successfully overcome. The elements contributing to success include the necessity for action created by crisis, the power of mutual interests, individual leadership, and the establishment of effective partnerships. By contrast, the elements which have contributed to gridlock and failure to act include the "tragedy of the commons", vested interests, lack of intergenerational oversight and an absence of vision. By drawing on these historical examples of success and failure, the second section of Part B draws out the implications for bridging the gap between knowledge and action and enabling a longer-term focus.

While gridlock and inaction persist in a number of spheres, it is important to draw inspiration from the remarkable progress made last century in addressing seemingly intractable challenges. The following examples were not unequivocal successes, but they illustrate key factors that contributed to meaningful action on apparently insurmountable challenges.

Crisis

As the creation of the UN and the Bretton Woods system after the Second World War illustrates, *crisis* is often a stimulant for action. Crises provide moments of opportunity. They can propel ideas from the margins to the mainstream and lead to the acceleration of much needed reforms.¹ Even in the context of deep ideological division during the Cold War, leaders reached across the Iron Curtain following the Cuban Missile Crisis to promote international security. The resulting Limited Test Ban Treaty of 1963 and the Non-Proliferation Treaty of 1968 contained the spread of nuclear weapons.

More recently, in the aftermath of the 2008 global Financial Crisis, the G20's action to avert a global depression and restore confidence in the international financial system was hailed as a watershed for multilateral cooperation.² The G20 arose out of the Asian Financial Crisis of the late 1990s in order for finance ministers and central bank governors to deliberate about issues impacting the global economy.³ Following the 2008 Financial Crisis it evolved into a forum for heads of government. The flexibility, speed and scope of international cooperation to lower interest rates and recapitalise the banking system in the midst of the crisis was unprecedented.⁴ Moreover, the establishment of the Financial Stability Board (FSB) in 2009 provided an additional lever for global governance of the financial sector, even if subsequent developments have dampened expectations about the transformative power of either the G20 or FSB.⁵

Outside finance, sometimes tragedy is the price paid for reform. In the early 1990s, the international community failed to respond adequately to civil war and genocide in Somalia and Rwanda. The humanitarian community has since worked to improve accountability, strengthen peace-building processes, and better integrate humanitarian interventions across the UN system, including through The Sphere Project.⁶ Meanwhile, the doctrine of

Responsibility to Protect (R2P) gained greater traction and was formally enshrined by the UN World Summit in 2005.⁷ On a related front, temporary ad hoc tribunals established in the 1990s strengthened support for a permanent international court for the prosecution of war criminals.⁸ Although such proposals had been floated since 1948, the International Criminal Court was formally established in 2002.

Mobilisation in response to crises has not always been reactive: the international community has also anticipated major disasters. Action has often been predicated upon the *threat* of potential crises, rather than a crisis itself. The prospect that all of the world's digitised systems would malfunction at the stroke of midnight ushering in the year 2000 (due to the abbreviation of four-digit dates to two digits) was perhaps magnified by parties who sought to encourage business to spend on mitigation. The so-called Y2K problem, which many argue was overstated, was nevertheless seen to constitute enough of a threat to prompt the Basel Committee, the Bank for International Settlements and other partners to create the Year 2000 Network. The Network was charged with developing coordinated national strategies, publishing policy papers, and providing guidance and recommendations to the public and private sectors to help Y2K preparations.⁹ In the span of six months of swift and effective action, the Network coordinated efforts between different nations and sectors to guard against the feared Y2K collapse.

Shared interests

Mutual interests have long been a key ingredient of cooperation and progress. A confluence of interests between nations, businesses, and trade unions was a key factor underpinning the Single Market Programme's (SMP's) success in transforming the European Union "from an organisation in crisis to one that was able to attain some remarkable agreements".¹⁰ The SMP attracted businesses by reducing non-tariff trade barriers and limiting changes to industries that were already highly interconnected. It also preserved individual state sovereignty over property rights and governance, opting instead for a system of mutual recognition that allowed nations to more easily exchange goods and services.

Combining related interests (and flexibility in design) was also vital to the passage of the Helsinki Accords. Signed in 1975 to improve

diplomatic relations between Eastern bloc countries and the rest of Europe, the Accords were welcomed by the Soviet Union because they acknowledged the territorial integrity of states, thereby lending legitimacy to the USSR's post-war boundaries. At the same time, the Accords appealed to the European Community and to the United States partly because they established human rights as norms in diplomatic relations.¹¹ The human rights provisions proved to have a lasting impact, establishing a framework for citizens in the Eastern bloc to challenge the legitimacy of the Soviet regime.¹²

Overlapping interests have been important in generating action on the environmental front. The 1989 Montreal Protocol to prevent ozone depletion was based on the shared interest of each of its initial signatories, and, in turn, all 197 parties. Scientific modelling had projected that without action “nearly two-thirds of the earth’s ozone layer would be gone by 2065, with UV radiation up by 650 percent and catastrophic consequences for life on Earth”.¹³ The Protocol achieved a complete phaseout of chlorofluorocarbon (CFC) production by 1996¹⁴ and has resulted in a gradual restoration of the ozone layer.¹⁵ Professor Bob Watson, whose research influenced the Protocol, argues that one of the key elements of the Protocol’s success was the interplay between scientific experts, the private sector, social scientists and large funders.¹⁶ There were other important elements beyond shared interests, of course, including the impetus provided by the clarity of the scientific evidence, the flexibility of the instruments, the accompanying trade provisions, industry involvement, and the commitment by developed countries to assist developing countries to phase out production and consumption of CFCs and halons.¹⁷ Progress was also helped by the fact that most ozone depleting substances were produced in industrialised countries and there were clear benefits in moving away from their use.¹⁸

Taking the lead

Leadership can be decisive in translating shared interests into definitive action. The achievements of Nelson Mandela, Deng Xiaoping, Martin Luther King Jr, Winston Churchill and Mahatma Gandhi reveal the importance of courageous, visionary and skilful leadership, capable of seizing the opportunity to propel action. Europe’s SMP, for example,

originated within the ranks of the European Community in 1981 as a proposal drafted by Karl Heinz Narjes, Commissioner for the Internal Market.¹⁹ Yet it was the election of Jacques Delors as President in 1985 that provided the leadership necessary to develop this idea and implement the SMP. After accepting his nomination, Delors looked at a number of possible projects to revitalise the European Community; of the options on the table, including institutional reform and monetary union, the SMP received the most support.²⁰ In his inaugural address to the European Parliament, Delors declared “the total abolition of internal frontiers remains the ultimate objective”.²¹

Leadership also played an important role in the ratification of the Framework Convention on Tobacco Control (FCTC), adopted in 2003 as the world’s first global public health treaty. The idea of regulating tobacco production and marketing faced significant resistance, but the election of Gro Harlem Brundtland in 1998 as WHO Director-General gave the FCTC overdue traction. Brundtland made tobacco control one of her two main priorities and successfully overcame resistance to negotiate the Convention.²² The FCTC represented a paradigm shift in regulating addictive substances by emphasising the need to reduce demand.²³ As of 2012, two thirds of the 177 countries party to the FCTC had instituted tax policies to limit tobacco consumption; 85 percent had introduced policies requiring tobacco products to contain warnings about health risks; and 86 countries had established comprehensive bans on advertising, promotion and sponsorship.²⁴ Eighteen of the 25 countries that have provided the WHO with data tracking tobacco consumption have seen decreased rates of adult tobacco consumption.²⁵

Inclusion

Once there is a catalyst for action, a number of factors contribute to successful implementation. Many prominent interventions have been characterised by inclusivity, which has secured broad buy-in from the international community. In the post-Second World War period, for example, the UN and GATT (now the WTO) significantly expanded global decision-making by bringing the majority of the world’s countries to the negotiating table.

The 1948 Universal Declaration of Human Rights (UDHR) provides an illustration of how

the UN’s emphasis on inclusiveness enabled a paradigm shift in global engagement. The Commission on Human Rights, which was charged with drafting the document, included a broad set of global representatives, with China’s P. C. Chang and Lebanon’s Charles Malik playing central roles. Although spearheaded by the United States, the UDHR acquired additional momentum from support by activists, religious groups and politicians from smaller nations. The Commission’s emphasis on global representation paid off in consolidating broad support and adherence to the declaration, with most of the UDHR’s provisions adopted unanimously by UN member nations.

Today, even the world’s more exclusive collaborative platforms have made substantive attempts to extend decision-making power to a broader base. The G20, for example, is viewed as a platform that brought rising economies such as China, Brazil and India into high-level consultations previously the domain of the G8.²⁶ The broader reach of the G20, and notably its incorporation of emerging economies, was vital in stabilising the financial system in 2008.²⁷ Taken together, G20 nations represent over 80 percent of the world’s GDP, two thirds of the global population, and comprise 80 percent of the world’s trade.²⁸

Institutions and networks

Inclusivity is meaningless if actors do not have an effective medium within which to collaborate. Such platforms might include “sets of practices and expectations rather than formal organisations,”²⁹ which function through soft power engagement without imposing legal obligations on states.³⁰ In this respect, networks have become vital. As Anne-Marie Slaughter has written, networks counter the paradox of globalisation: “We need more government on a global and a regional scale, but we don’t want the centralisation of decision-making power and coercive authority so far from the people actually to be governed.”³¹ As non-hierarchical platforms for governance and dialogue, networks create a framework for government without requiring a sacrifice of sovereign power.³² Inter-governmental networks facilitate flexibility, speed, and information sharing. Their egalitarian nature allows for more democratic decision-making. By including developing nations, and lending legitimacy to peripheral players through collaboration, networks facilitate equal and open dialogue and trust between participants.³³

Formal institutions, even when their *modus operandi* is informality, remain vital. The Association of Southeast Asian Nations (ASEAN) and Asia-Pacific Economic Cooperation (APEC)³⁴ are two examples of diverse but effective institutions working to build unity through inter-governmental agenda setting and coordination. ASEAN is a particularly useful example. Established in 1967 to promote national reconciliation in the context of regional conflict,³⁵ ASEAN has evolved to become a highly flexible institution central to stability and cooperation in Asia. It was able to mobilise in the aftermath of the 1997 Asian Financial Crisis to develop regional surveillance mechanisms, shore up financing to support regional currencies, and subsequently enact successful programmes to prevent future crises.³⁶ ASEAN's historic engagement of Myanmar, even as other states retreated and imposed sanctions, helped facilitate the recent opening up of the country. It will likely provide further encouragement for reform when Myanmar chairs ASEAN in 2014.³⁷ ASEAN's emphasis on information sharing and consensus building³⁸ has reduced levels of distrust and increased goodwill between diverse nations in the region.³⁹

The coordination and flexibility that networks facilitate can also occur within more formalised settings. The UN Economic and Social Council's (ECOSOC) ad hoc advisory groups on African countries are one such example. First endorsed in 2002, these groups are semi-formal instruments to mobilise peace-building efforts in African countries emerging from conflict, such as Guinea-Bissau (2002) and Burundi (2003). By facilitating cooperation between various UN agencies, including the Security Council, and other key in-country stakeholders, these groups provide a voice for countries mired in conflict and bolster the UN's capacity to promote peace through activities such as disarmament, demobilisation, and reintegration of former combatants.⁴⁰

The campaign to eradicate smallpox is another example in which informal networks operating within institutional structures have facilitated successful interventions. The last case of smallpox was reported in Somalia in 1977, marking an extraordinary achievement in global health. Smallpox killed millions of people annually before becoming the only major human disease to have been completely eradicated. When the WHO launched the Intensified Smallpox Eradication Programme in 1967, it planned to pursue a campaign of mass vaccination in smallpox-prone countries. As the

campaign proceeded, however, this strategy gave way to a programme of ring vaccination, in which outbreaks of infection were targeted, isolated and contained through the vaccination of all potentially exposed individuals. The campaign exhibited adaptability and flexibility, as independent national programmes developed their own operating procedures based on local conditions. These programmes formed network-like connections with the WHO, which developed a set of performance measures and standards informed by local and national practitioners. The campaign illustrated the value of information exchange along vertical axes of power and the importance of self-governance amongst national and local stakeholders.⁴¹

Partnerships

Some of the most renowned collaborations, responsible for shaping new paradigms in the face of grave problems and international crises, have been generated by partnering stakeholders from government, business, academia and civil society. The Intergovernmental Panel on Climate Change (IPCC), for example, was established in 1988 to provide scientific assessments of technical, social and economic research on risks, consequences and ways to address climate change. The IPCC's major "assessment" reports, produced every five to seven years, bring the scientific community into policy conversations and help facilitate consensus. The reports have faced criticism, but their collaborative and inclusive nature means they "undergo more scrutiny than any other documents in the history of science".⁴² Similarly, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, established in 2012, facilitates the integration of information from governments, academia, NGOs and indigenous communities to address reductions in biodiversity and ecosystem services.

Inspired by the smallpox success, the Global Alliance for Vaccines and Immunisations (GAVI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria are examples of public-private partnerships that align different constituencies working on a common problem. GAVI and the Global Fund work with governments and in-country actors to channel resources based on locally determined needs. GAVI collaborates with health ministries in developing countries to contribute to national vaccine programmes through co-financing,⁴³ while the Global Fund

relies on Country Coordinating Mechanisms comprised of government, NGOs, donors, private sector, academic representatives and others to develop grant proposals for individual countries.⁴⁴ The boards of both organisations bring together representatives from different sectors including civil society, the UN system, the private sector, developing, and donor nations.⁴⁵ These bodies have been successful in shoring up financing to fight critical health challenges: GAVI has disbursed over USD \$5 billion in over 70 countries while the Global Fund has disbursed over USD \$17 billion. By their own estimates, GAVI and the Global Fund have helped prevent 5.5 million and 6.5 million deaths from their respective diseases of focus.⁴⁶

Partnerships forged by and between the World Bank, the Global Fund, the United States President's Emergency Program for AIDS Relief and the Gates Foundation have also been instrumental in the global response to HIV/AIDS. These collaborations have increased access to funding opportunities for governments with weak public health infrastructure and high HIV prevalence rates, and have endeavoured to integrate the work of national governments, multilateral and bilateral agencies, NGOs, national representatives, and the private sector.⁴⁷ Thanks in part to these interventions aimed at prevention and antiretroviral treatment, there were an estimated 700,000 fewer HIV infections globally in 2011 than in 2001, with a 50 percent reduction in HIV incidence rates across many low and middle-income countries over the same period. There were also 600,000 fewer deaths due to HIV infections in 2011 than in 2005.⁴⁸ Public-private partnerships have played a significant role in enabling greater access to antiretroviral drugs for HIV/AIDS patients, pushing down prices in some countries from USD \$10,000 per person per year a decade ago to around USD \$100 today.⁴⁹

At a more local level, partnerships are also proving a powerful tool in knowledge sharing and policy influence. Innovative networks such as C40, the International Council for Local Environmental Initiatives and the World Association of Major Metropolises are enabling city based partnerships on issues ranging from climate change and disaster relief, education schemes and IT hubs.⁵⁰ As city leaders become increasingly assertive on the global stage, there are likely to be further mechanisms for partnership and exchange on global challenges.

Goals and prizes

In addition to having the right participants, successful interventions also require the setting of clear, well-defined, and realistic objectives. The MDGs provide a useful example of clear, concrete targets that can make even the largest aims – such as eradicating extreme poverty – seem more attainable. Adopted in 2001, the scale of global acceptance of and commitment to the MDGs has been remarkable: almost all national governments and international agencies incorporated the MDGs as central components of their development agendas.⁵¹ Broad challenges like ensuring environmental sustainability (Goal 7) are effectively translated into tangible targets such as halving the proportion of people without access to safe drinking water by 2015 (Target 10) and improving the lives of 100 million slum dwellers by 2020 (Target 11). The GAVI and Global Fund health initiatives, explored above, are other examples where effective targeting has helped to achieve measurable outcomes. With the process now well underway to develop a set of Sustainable Development Goals to succeed the MDGs, it is vital that clear, concrete and attainable targets are maintained. Encouragingly, the UN Secretary General's High-Level Panel on the Post-2015 Development Agenda has already set out comprehensive recommendations to eradicate extreme poverty by 2030 and deliver more sustainable development⁵², whilst the UN Open Working Group of 30 member countries and associated taskforces are working to ensure that the new goals complement national development priorities.⁵³

Prestigious “recognition” awards, such as the Ibrahim Prize for Achievement in African Leadership, honour individual excellence and highlight the importance of good role models. Founded in 2007 by Commissioner Mo Ibrahim, the Ibrahim Prize is the largest annually awarded honour, with the winner receiving USD \$5 million and an additional USD \$200,000 per year for life.⁵⁴ The prize is focused on former African heads of state or government who have left office in the past three years, enabling exceptional leaders to continue to play a public role on the continent after they relinquish office.⁵⁵ Importantly, since its establishment in 2007, the prize has only been awarded three times; the annual process has proven to be an instructive tool in heightening attention on leadership challenges within Africa.

As opposed to “recognition” prizes that award

past accomplishments, “challenge” prizes reward the person or organisation that first, or best, meets a defined challenge.⁵⁶ Awards such as The Google Lunar XPrize⁵⁷ promote innovation, encourage the examination of neglected challenges, and provide commercial opportunities.⁵⁸ There has been considerable growth in the number of new challenge prizes in recent years,⁵⁹ with notable examples including the Shell Springboard,⁶⁰ the Virgin Earth Challenge,⁶¹ and the Microsoft BlueHat Prize.⁶² Challenge prizes are not a new phenomenon; they have been credited as contributing to the invention of the British Spitfire aircraft,⁶³ famed for its role in the Allied victory in World War II, as well as the introduction of manned private spaceflight and the invention of margarine,⁶⁴ amongst many other innovations.

Like prizes, indices can play an important role in promoting best practice. As highlighted in Part A, Transparency International's Corruption Perceptions Index (CPI) and the Mo Ibrahim Index of African Governance (IIAG) are examples of using indices to draw attention to issues of corruption and encourage good governance. The 2012 CPI measured perceived levels of public sector corruption in 176 countries and territories around the world. Using a scale of 0 (highly corrupt) to 100 (very clean), the latest index found two-thirds of countries scored below 50, highlighting how the global fight against corruption requires far greater attention.⁶⁵ The IIAG provides an annual assessment of governance in every country in Africa, examining safety and rule of law, participation and human rights, sustainable economic opportunity, and human development.⁶⁶ It therefore not only serves as a yardstick for governments, citizens, businesses, and other institutions to measure different countries' progress, but also acts as a tool that can assist African governments in determining key policy priorities.⁶⁷ Similarly, another leading initiative is the World Economic Forum's Global Competitiveness Report. Since its launch in 2004, this annual report ranks countries based on a comprehensive assessment of national competition worldwide, looking at the drivers of productivity and prosperity.⁶⁸

National transformation

Lessons can also be drawn from transformative changes and progressive interventions on the national level. Countries such as South Africa and Rwanda have made strides to overcome deep social divisions engendered by internal

conflict and oppression. In South Africa, following the end of the apartheid system in 1994, the establishment of the Truth and Reconciliation Commission in 1995 created a platform through which deep-seated historical subjugation could be addressed.

In the economic sphere, South Korea has been internationally lauded for its economic turnaround following the Korean War. Beginning in the 1960s, government-orchestrated industrialisation and export-led economic growth transformed South Korea from one of the poorest countries in the world to a modernised and highly educated economy with a per capita GDP higher than that of the European Union.⁶⁹ This transformation, facilitated largely by technological and industrial innovation, has been so significant and so quick that it has been dubbed the “Miracle on the Hangang River”.⁷⁰

Beyond South Korea, many governments are seeking transformative change through progressive and innovative poverty alleviation initiatives. For example, Brazil's poverty alleviation campaign, headlined by the *Bolsa Família* (Family Grant) programme, has contributed to a decline in Brazil's absolute poverty and inequality.⁷¹ Formally established in 2003, *Bolsa Família* is the largest Conditional Cash Transfer in the world. It utilises targeted social safety nets to provide assistance to vulnerable populations based on qualifying requirements that incentivise investment in health, nutrition and education.⁷²

India is in the process of establishing a unique identification scheme which seeks to assign a 12-digit number, known as *Aadhaar*, to every Indian resident. Under the leadership of our Commissioner Nandan Nilekani, this ambitious programme aims to “improve the delivery of government services and welfare, reduce fraud and corruption, facilitate robust voting processes, and improve security”.⁷³ Such reforms will be critical in helping poorer communities access basic political rights, as well as key services such as healthcare and other welfare measures. Capitalising on India's renowned technology industry, the scheme has been called the most technologically and organisationally complex federal identification effort in the world.⁷⁴ Since the programme was rolled out in 2010, over 415 million people have been allocated a unique identification number.⁷⁵

India's neighbour Bangladesh has made dramatic

Lessons from Failure

progress over the past two decades, and has done so partly because it has successfully targeted gender inequality. Women's participation in the workforce is now more than double that of India, and school participation and literacy rates are now higher for girls than boys. Although it remains poorer, Bangladesh has overtaken India in many aspects of human development, including life expectancy, child immunisation and child mortality.⁷⁶

Several countries in Latin America, Europe, Africa, and Australasia have legalised same-sex marriage in the past decade, often overcoming strong resistance from some sections of society, including powerful religious institutions. In 2010, Argentina became the first country in Latin America to permit same-sex marriage, with President Cristina Fernandez de Kirchner's government narrowly winning a senate vote in spite of the Roman Catholic Church's opposition, led by Cardinal Jorge Bergoglio, now Pope Francis.⁷⁷

On the environmental front, Germany has led the way in growing its renewable energy sector and promoting renewable energy since the passage of its Renewable Energy Sources Act.⁷⁸ Utilising a policy of feed-in tariffs, renewable energy accounted for 23 percent of Germany's gross energy consumption at the end of 2012.⁷⁹ Germany is now one of the world's largest solar energy markets,⁸⁰ and accounts for 30 percent of installed European wind capacity (12 percent globally). The government's current goal is to increase the share that renewable energy sources contribute to Germany's electricity production to 80 percent by 2050.

While celebrating these successes, it is vital to reflect on the lessons from the numerous failures to address major challenges. As Part A demonstrates, increased interconnectedness means that there are a rising number of challenges that cannot be resolved by nations acting on their own. Yet, "multilateralism's ability to achieve collective and cooperative action has eroded relative to the challenges it faces".⁸¹ Next, we consider the elements that have contributed to undermining much-needed action at both national and international level.

Tragedy of the commons

Individuals, communities and nations, acting rationally, can generate collective failure. This is particularly true when we consider natural resources and the environment. When actors seek to maximise their consumption (or production) of a scarce resource, thereby benefiting in the short-term, the resource is threatened with ultimate collapse in the longer term. The shrinking of the Aral Sea, described as "one of the greatest man-made environmental disasters in history", provides a stark example of such a tragedy.⁸² By 2007 it had shrunk to 10 percent of its original size: it was once the fourth largest inland body of water with a surface area of 66,000km². Its relatively swift destruction has been caused by irrigation and agricultural demands of bordering Central Asian states and the countries of the former Soviet Union. Individual policy decisions of these countries led to large irrigation projects, with little regard for long-term or downstream impacts.⁸³ This collective failure has meant that water levels have declined to the extent that what was once a sea is now just three lakes, two of which are too salty for fish. Thousands of jobs have been lost as "once thriving fishing fleets have disappeared and former shore towns have collapsed".⁸⁴ Salt and toxic substances blown from dry seabeds are now reported to be causing significant health problems.⁸⁵ While it may have seemed rational for an individual country to feed its population with irrigation water from the sea, too many countries have followed this path, with disastrous effects.

Overfishing is another example of the "tragedy of the commons", as public fish stocks are exploited due to a lack of coordination among commercial fishing operations and the absence of effective governance of the high seas. Widespread overfishing began in the mid-20th century, as governments seeking to create jobs and incomes for fishing communities

and develop thriving fishing industries passed favourable laws, including loans and subsidies, which encouraged the rise of large-scale industrial fishing operations. Global gross revenue from the market value of marine fisheries was conservatively estimated at an annual USD \$80–85 billion in 2010.⁸⁶ The global industry reached its peak harvest in 1989, yielding 90 million metric tonnes of catch. Since then, harvests have stagnated or declined and, for some of the most highly demanded species, fisheries have reached the point of collapse.⁸⁷ For sustainability to be achieved, some 65 percent of the boats now active will need to be retired, leading to the potential loss of jobs of up to 22 million people currently employed in the fishing industry.⁸⁸ It may be rational for an individual to fish, but the current scale of fishing, driven by increasing individual and industrial competition as well as rising income levels, is unsustainable.

The rapid increase in global fishing has led to the decline of marine biodiversity, with ecosystem sustainability and ocean resilience also compromised.⁸⁹ The UN, the WTO, the Marine Stewardship Council and other international bodies are working to develop appropriate rules, standards and intervention measures. Yet the global failure to anticipate the collective impact of large-scale commercial fishing operations before substantial damage was incurred provides a painful lesson. It is also a symptom of broader inaction on the environmental front. In 2010, the *Global Biodiversity Outlook* confirmed the world "had failed to meet its target to achieve a significant reduction in the rate of biodiversity loss" and that tipping points destructive to human societies would only be avoided if "effective and coordinated action is taken to reduce the multiple pressures being imposed on biodiversity".⁹⁰ The seemingly rational choices of individuals and countries in the short term frequently have severely negative effects when aggregated over the long term, leading to collective failure. As consumer power and freedom rise rapidly across the globe, the spillover effects of our interconnected behaviours also rise. The tragedy of the commons – a concept that was developed in relation to the commons shared by villagers – is now relevant in the national and world context as we inhabit a global village.

Lack of intergenerational vision

The inability or reluctance of decision-makers to look ahead to the long-term horizon can lead to gridlock in global negotiations. Former Irish President Mary Robinson described the much-anticipated Rio+20 Summit in 2012 as a gathering of leaders “without an intergenerational vision” who “failed to rise to the challenge”.⁹¹ The Summit’s final statement was described as “an outcome that makes nobody happy”. Others, like Kumi Naidoo, Executive Director of Greenpeace International, were more scathing, calling it “a failure of epic proportions... the longest suicide note in history”.⁹² Rio+20 is not the only high profile forum to disappoint. Other critical environmental negotiations, including those on climate change and biodiversity, have fallen far short of their ambitions, largely due to a failure of vision and commitment to binding agreements amongst global leaders and their advisors.

The 2009 UN Climate Change negotiations in Copenhagen are worthy of particular reflection. After two years of multilateral discussions at the expert level, world leaders descended on the Danish capital, and were widely expected to agree a global deal to combat climate change. Expectations were high, yet, despite the world’s attention, “the conference produced perhaps the most ambiguous outcome in diplomatic history, leaving governments and observers alike wondering how to assess the results”.⁹³ Negotiations arrived at a stalemate mainly due to irreconcilable differences between developed and developing countries. In the final days, a smaller alliance of 25 countries, led by the United States and China, tried to piece together an agreement. The resulting Copenhagen Accord was described as a weak political declaration, intended to mask the international community’s “political failure” to negotiate a legally binding global climate change treaty.⁹⁴ Leaders were criticised for a lack of ambition and for “failing to seize the opportunity and rise to the challenge”, despite the gravity of the problem.⁹⁵ Although there is evidence voluntary targets made at Copenhagen are being met, including China’s mitigation commitments to 2020,⁹⁶ the skeletal path forward agreed in Denmark set back the agreement of a global pact until at least 2015.

A lack of intergenerational vision is not a problem confined to the environmental sphere. In an age of longer life expectancy, a continued international propensity towards early retirement ages means pension financing

is increasingly unsustainable. Few governments and pension providers explicitly recognise this risk, and even fewer are prepared for it. According to the IMF, if everyone in 2050 lived just three years longer, society would “need extra resources equivalent to one to two percent of GDP per year”.⁹⁷

Absence of global oversight

Prior to and during the Financial Crisis, the inadequacy of the institutional interventions in the most powerful advanced economies, coupled with the dearth of adequate multilateral financial instruments, hampered both the prevention and resolution of the crisis. This is despite the oversight of three major global financial institutions: the IMF, the Bank of International Settlements and the Financial Stability Forum. Given that the multilateral financial system is arguably the most developed and best equipped within the global governance system to manage such vulnerabilities, its failure provides a particularly troubling lesson about global governance. And whereas there has been some progress with the reform of financial governance, in other areas, such as trade, taxation, migration and intellectual property, progress has been stymied.

Part of the challenge for global institutions is keeping up with the rapid pace of changes in technologies and the global economy. The period between 1998 and 2007 saw explosive growth in sophisticated financial instruments and innovations, along with a dramatic increase in the interconnection and complexity of the global financial system. There was a genuine failure by even the most sophisticated regulators to understand the complexities of new instruments arising from technological changes and newly globalised flows. This, combined with conceptual failures amongst economists and the undue influence of the lobbyists of private financial institutions, meant that overall financial stability was compromised. Banks prioritised “optimising and minimising their individual risks instead of taking into account the system effects of their actions”.⁹⁸ The collective impact of this deregulation was a growing gulf between global oversight and market innovation. In many cases, national regulations and standards were lowered as competing state regulators played off each other. In the absence of a global rule-making authority or collective understanding of the deep structural changes and vulnerabilities across the financial system, the key institutions

responsible for financial governance failed to predict and ultimately prevent the devastating Financial Crisis. As our connectivity leads to increasing vulnerability to future financial contagion, as well as to pandemics, climate change, cyber and other cascading shocks, it is vital that we learn lessons from this crisis so as to more effectively manage global systemic risk in the future.⁹⁹

Resistance of vested interests

Resistance from powerful financial institutions and a number of powerful countries, along with a lack of understanding and awareness, undermined international attempts to regulate financial transparency and accountability standards in the years preceding the Financial Crisis. This is not new; vested interests have fought attempts to limit tobacco consumption, tighten gun control, and mitigate climate change.¹⁰⁰ Major tobacco corporations, for example, have been accused of creating organisations to publish biased scientific reports and funding politicians who support tobacco use as part of their campaigns against action.¹⁰¹ Food conglomerates have similarly lobbied against food regulations.¹⁰²

Sir John Houghton, former co-Chair of the IPCC, has spoken out against the role played by those with something to gain from denying anthropogenic climate change, stating “a lot of resistance comes from vested interests, coal and oil interests in the United States which are very strong and which employ thousands of lobbyists in Washington to try and persuade members of Congress that climate change is not happening”.¹⁰³ This is not a phenomenon limited to the United States; it has been argued that Australia’s initial reluctance to sign the Kyoto Protocol was largely due to successful lobbying by the Australian coal industry.¹⁰⁴ Thus, while many parties may advocate financial regulation, tobacco legislation, or climate action, the strength of organisations who benefit from the status quo often outweighs this desire for reform.

Lack of awareness

Lack of awareness of critical issues by governments, corporations, and the wider public can lead to difficulty and, in some cases, disaster. In the decade preceding the Financial Crisis, Standard & Poor’s gave a triple-A rating to many Collateralised Debt Obligations

(CDOs), advising investors that there was a mere 0.12 percent probability that they would fail to pay out over the next five years; in fact, 28 percent of triple-A rated CDOs defaulted, constituting what Nate Silver calls “about as complete a failure as it is possible to make in a prediction”.¹⁰⁵ Economists, journalists, and members of the public expressed concerns over the housing bubble as early as 2000.¹⁰⁶ Awareness of the risk existed, but was either unwittingly, or perhaps wilfully, overlooked within the financial sector.

Albert Einstein is quoted as saying “Information is not knowledge”. The dawn of the digital age and the proliferation of global media outlets mean that current generations, or at least those with unrestricted internet access, cannot complain about a lack of information. A surfeit of information does not, however, always mean sufficient awareness of key global issues and challenges; in fact, too much information can cloud public judgement as to which issues are particularly important and which are less so, with people tending to become passive in the face of too much information.¹⁰⁷ Awareness is particularly challenging when many of the issues confronting us are anticipatory; it is often difficult for policymakers and citizens alike to conceptualise challenges like pandemic preparedness or cyber warfare, and their local impacts. For some individuals, communities, and countries, however, the issue is not lack of awareness as much as lack of voice; as we explore later in Part B, too many conversations are closed to too many people.

Lessons from success and failure

The examples and lessons identified above are not comprehensive. Positive examples, such as successes with nuclear non-proliferation, the European Union Single Market, HIV and human rights, remind us that seemingly intractable problems can be addressed. We have seen that certain contributing elements have historically facilitated progress. These include situations of crisis; shared interests; leadership; inclusiveness; institutions and networks; public-private partnerships; goal setting and prizes.

Negative examples, such as the Aral Sea and overfishing, the failure to come to agreement at Copenhagen, and the Financial Crisis serve to remind us of the old cliché that those who ignore history are destined to repeat it. Looking forward, antibiotic resistance, fossil fuel usage and fishing practices are just three examples

of the need to balance short-term and longer-term interests and individual and communal rationality to ensure sustainable collective outcomes.¹⁰⁸ Many of today’s challenges transcend generational and geographical boundaries. Drawing inspiration and caution from our examples, we now seek to explore the common factors that underpin or undermine our ability to take action.

Shaping Factors: What Makes Change So Hard?

1. Institutions

In this section, we seek to identify **five** shaping factors that must be taken into account in efforts to generate positive change and close the gap between knowledge and action. As our global institutions have struggled to reform at the pace required, governments and business leaders have lowered their eyes from the horizon, preoccupied by 24/7 media cycles, electoral pressures and short-term performance measures. As a society, we face “a lack of trust in institutions and a lack of confidence in existing ideas and models”.¹⁰⁹ In part, this is because issues have grown in terms of their interconnection, spill-over across sectors and boundaries and complexity, reducing our capacity to act decisively. Our ability to understand and embrace system and cultural differences requires greater effort. However, the potential to modernise our political conversations and models to embed global necessities and the long term into our decision-making structures provides enormous opportunities.

20th century structures and institutions are poorly equipped for 21st century challenges, and suffer from legitimacy, authority and effectiveness deficits.

Built for yesterday

International organisations and structures have had difficulty keeping pace with today’s hyper-connected, globalised world.¹¹⁰ Iconic 20th century global institutions, born in the aftermath of two brutal world wars, a global pandemic, and a worldwide depression, were created in the hope that humanity would never again face such unimaginable horror and destruction. As reflected above, these institutions have enjoyed some successes, not least in their role in preventing a global or nuclear war, rebuilding our international system post-1945, largely eradicating smallpox and polio, tackling tobacco reforms, reducing AIDS, and, until 2008, averting another global depression. Yet the 21st century, as illustrated in Part A, presents far more complex, interconnected and interdependent challenges, which today’s global governance institutions seem unfit to tackle within their current configurations and cultures.

Ultimately, these 20th century structures and institutions suffer from legitimacy, authority and effectiveness deficits. Countries with diminishing geopolitical strength in the 21st century still hold disproportionate power, with governance structures that do not reflect the new world order. The pace of reform has been painfully slow, and in many cases has been actively resisted or stymied by vested national, corporate or other powerful interests. Traditional powers have been reluctant to cede their influence in international institutions, whilst also demonstrating a frustrating ambivalence or even reluctance to strengthening them. This reluctance to cede power is in part due to perceptions that the biggest beneficiaries of a shift in power are likely to be emerging economies such as China or India.¹¹¹ Although some emerging powers are willing to assume leadership responsibility that is proportionate to their capacity, many lack experience in global governance arenas and need a new participatory and flexible framework in order to play an active role. It is the Commission’s view that the rebalancing of the global economy should provide an opportunity to strengthen multilateral institutions. Both traditional and emerging powers need to take ownership of the multilateral system and work together to identify new approaches to address our increasingly

complex and interconnected challenges. A number of our Commissioners have already contributed to numerous reports, expert panels, and review groups which have been charged with assessing how different global governance institutions might be made fit for purpose. Few have had substantial impact, and none at the scale or pace required. Whilst the reform of global governance is of fundamental importance, our report is not focused solely on reform of the international system. In Part A we included a number of suggestions on how specific global institutions might be empowered to confront pressing issues including reform of the WHO to enhance pandemic preparedness; reform of the G20 to realise its potential; and increasing the effectiveness of the UN Security Council. In Part C, we suggest some additional institutional reforms, designed to help ensure international institutions are fit for purpose.

Global meetings

From Copenhagen to Kyoto, and Doha to Durban, certain cities have become synonymous with particular stalled points in modern diplomatic history. The elements are familiar, whether it is trade, climate or arms control talks. Thousands of participants representing states, NGOs, businesses, foundations, and media outlets descend on the chosen city for extended meetings, side room talks, lobbying and wrangling. Too often the results are disappointing.

The entrenched positions of participants has resulted in a narrowing of the possibilities for consensus, while the increase in the number of participants has resulted in heightened fragmentation. While the number of actors and voices has multiplied on the international stage, so too it has in domestic politics, so that domestic ratification of international agreements has also become more fraught. Meanwhile, the increasing number of linkages and complexity makes attribution of cause and effect ever more difficult, compounding the difficulty in agreeing a course of action.

Many representatives attend major summits not only with a determination to hold their position, but wielding requirements that make any meaningful action virtually impossible.¹¹² Such entrenchment can be compounded by deliberate pre-meeting leaks to the media, which means that states are reluctant to waver from pre-publicised negotiating positions. The increased complexity of the issues means that contemporary diplomacy also involves numerous

2. Time

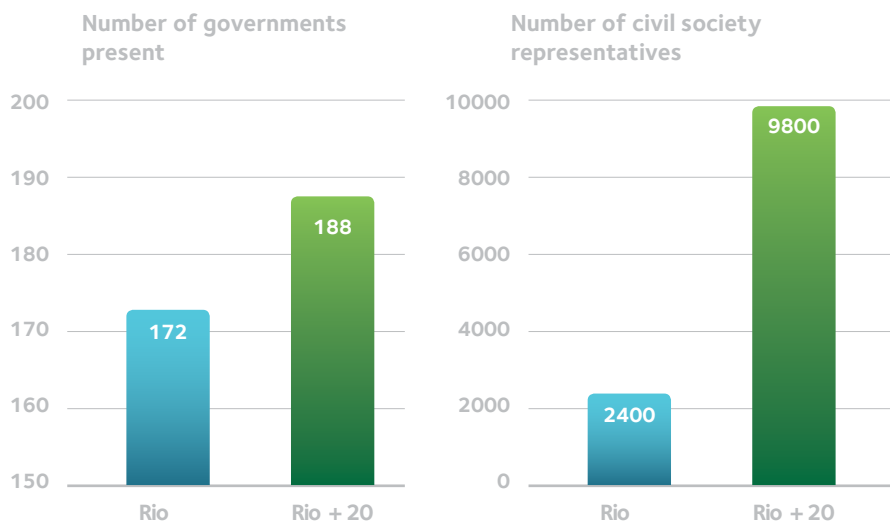


Figure 21: A comparison of participation at the Rio Earth Summit, 1992 and the Rio + 20 Summit, 2012

Source: Based on data from the United Nations, "UN Conference on Environment and Development 1992" <http://www.un.org/geninfo/bp/enviro.html> and the United Nations, "United Nations Conference on Sustainable Development Concludes with World Leaders Renewing Commitments to Save Planet" <http://www.un.org/News/Press/docs/2012/envdev1310.doc.htm>.

government departments. Whilst traditionally the domain of foreign affairs departments, today's diplomatic delegations must follow positions forged by compromise between different domestic ministries,¹¹³ which can reduce scope for critical negotiation and often results in watered-down agreements. Where prolonged debate does take place, it often fixates on lesser details; indeed, UN Secretary-General Ban Ki Moon expressed uncharacteristic frustration during the Rio+20 conference preparations, pleading "this is not the time to argue against any small, small items", asking delegates to focus on the bigger picture instead.¹¹⁴

New players, more representatives

Whilst greater inclusivity, transparency and democratisation is in many ways to be welcomed, the escalating number of parties involved raises questions about the efficacy of world summits in addressing global challenges. This is partly attributable to the increased number of member states in the UN; with only 51 members upon its founding in 1945, there are 193 member states today.¹¹⁵ Growth is also due to the pronounced rise in civil society involvement in international diplomacy. In 1948 only 40 NGOs held consultative status with ECOSOC; in 2010, the figure was 3,345.¹¹⁶ In December 2009, around 15,000 delegates, 100 world leaders, and 5,000 journalists descended

on Denmark's capital for the UN Climate Change Conference. Figure 21 shows the extraordinary growth in representatives at the Rio Earth Summits of 1992 and 2012. The presence of so many participants raises questions as to whether these international summits, which represent so many diverging interests, have become unwieldy and unworkable. This is particularly challenging given that consensus remains the most frequently used decision-making mechanism in these forums.

Electoral cycles, media pressures, company reporting timetables and just-in-time systems encourage short-sightedness

Embedded short-termism

Mario Monti, speaking at the 2013 World Economic Forum, wearily remarked, "Leadership is the opposite of short-termism".¹¹⁷ The outgoing Italian Prime Minister was speaking from experience, his country having lived through an extraordinary 62 governments since 1946.¹¹⁸ Italy provides an extreme example of short-termism, but increasingly short-term considerations drive our political, business and other decision-making bodies.

In his reflections at the end of his tenure as Director-General of the WTO, Pascal Lamy, our Chair, asserted that "short-term politics... are becoming increasingly incompatible with the setting of the medium and longer term goals essential for designing consistent trade policies".¹¹⁹ Such frustrations are not unique to trade. This Commission believes that it is vital to raise our horizons to address a series of critical global challenges, both immediate and longer term. Government leaders necessarily need to respond swiftly to dramatic events on their doorstep. However, they also need to be concerned with slow, cumulative trends. The Arab Spring, the Icelandic volcano and the Fukushima nuclear disaster are all examples of unexpected events that demanded immediate policy attention. But this is no excuse to be unprepared for those challenges requiring a longer-term perspective.

The Commission is concerned that a culture of short-termism pervades political life. Today's leaders seem increasingly distracted by 24/7 media pressures, election timetables and the "urgency of now". As our Commissioner Arianna Huffington has highlighted, the immediacy enabled via new technological tools like smart phones, Twitter, YouTube, Facebook and, more broadly, the Internet is dramatically changing how media is produced, consumed and reported. The public can now circulate images, anecdotes and video clips to a significant international audience at the press of a button. Such immediacy calls for immediate responses, as governments are increasingly put on the spot by journalists, and are expected to provide commentary with limited time for appropriate reflection, clarification and analysis of the facts.

Political and social realities

Within democracies, there are clear tensions between the capacity of governments to deliver long-term solutions in the collective interest and more short-term political demands. As many European leaders can attest, politicians are increasingly punished in times of crisis, making it harder to take difficult long-term decisions that produce immediate pain. Since mid-2010, the leaders of more than 75 percent of the European Union's 28 states have fallen or been voted out of office, including the leaders of France, Spain and Italy.¹²⁰ Increasingly difficult decisions, particularly on controversial reforms such as on carbon taxes, nuclear power or abortion, are often delayed or are beset with uncertainty.

Whilst formal political structures vary, all societies face increasing demands for political accountability, higher living standards, economic opportunities and a more sustainable and healthy environment. Both representative democracies and countries with more hierarchical governance face challenges with long-term planning, as, for example, studies of regime type and ecological management highlight.¹²¹ Sensitivity to immediate public concerns and perceptions are pressing everywhere, and not least in China. One of Xi Jinping's first moves as Chinese President was to impose a ban on lavish banquets, red carpet receptions, wasteful travel¹²² and, more recently, the construction of any new government offices for the next five years.¹²³ In a speech to an official party gathering in January 2013, President Xi warned colleagues that "if we don't redress unhealthy tendencies and allow them to develop (in how we work), it will be like putting up a wall between our party and the people, and we will lose our roots, our lifeblood and our strength".¹²⁴

Meanwhile in democracies, more frequent opinion polls, longer election campaigns, the pressures of increasingly vocal and well funded lobbies and the preference for sound bites over detailed analysis can mean the capacity to think and articulate a vision beyond the electoral term are increasingly limited. The immediate political pressures are compounded in countries like the United States by the lengthening of political campaigns. In the 2008 presidential election, Barack Obama's campaign ran for 21 months¹²⁵, compared to the already significant 10 month campaign of John F. Kennedy in 1960.¹²⁶ Similarly, much has changed since George Gallup published the first random sample public opinion poll in 1935. The proliferation and increased sophistication of

polling has led to many politicians becoming "too responsive to public opinion in the short run".¹²⁷ While becoming increasingly alert to sudden changes in opinion and surface discontent, leaders have placed much less reliance on such techniques to understand opinion and frame issues for the longer run.

Corporate myopia

Responsibility to think and act in the longer-term interest is not confined to the political sphere. The global business community also has a vital role to play. Yet with notable exceptions, businesses are failing to show leadership and grasp responsibility on the scale required. Some businesses, often through their corporate social responsibility activities or philanthropy, have sparked action, but these are only rarely mainstreamed within the firm. This is particularly acute in the financial sector where Andy Haldane, Executive Director of the Bank of England, argues that there is evidence that "myopia is mounting".¹²⁸

Times have dramatically changed since the Rothschilds reportedly used carrier pigeons to trade on the outcome of the Battle of Waterloo back in 1815.¹²⁹ Today the average speed of order execution on the New York Stock Exchange has fallen from 20 seconds a decade ago to under one second. From 1975 to 2010, the average period for stock holdings on the New York Stock Exchange dropped from six years to nearly six months. As highlighted in Part A, Dominic Barton, the Managing Director of McKinsey & Company, has been particularly vocal on the issue of increasing short-termism within corporations. He, along with Mark Wiseman, President and CEO of Canada Pension Plan Investment Board, argue that firms are under increasing pressure to be short-term at the cost of longer-term strategic decision-making. Performance metrics of CEOs based on share prices arguably encourage a focus on short-term stock prices, rather than long-term value creation. Meanwhile short-term investors who often hold shares for a few days (or potentially just a few seconds) have the same voting power as those who hold shares for a longer period, with this perversely rewarding those who want to make a quick return and are not necessarily committed to a company's long-term well-being.¹³⁰

Quarterly earnings targets, "hyper-speed" trading systems, and impatient stakeholders reinforce short-termism in business. A 2012 United Kingdom Government study into the

future of computer trading in financial markets noted the benefits of such technological advances, but underlined the need for better surveillance, timestamps and evidence-based regulatory action to minimise market instability and periodic illiquidity.¹³¹ The influence of multinational corporations over both national and global policymaking at times can also be a source of concern, as certain global firms have proved themselves adept at transcending national tax, employment or regulatory jurisdictions. In a globalised commercial world, ensuring compliance requires coordination between countries that often are competing for investment.

There are positive signs. Many companies have embraced corporate social responsibility and other long-term impact targets. The Chartered Institute of Management Accountants has noted the "retreat from shareholder value as the dominant business philosophy and increasing interest in alternative corporate models, such as those common in India and China".¹³² The World Bank has instituted procedures, through a new Compliance Advisor/Ombudsman, to provide an "independent, 'bottom-up' accountability and recourse mechanism" that, among other things, works to ensure compliance with social and environmental safeguards.¹³³ Another key initiative is the UN Global Compact, which works with companies to enhance commitment to principles in the areas of human rights, labour, the environment and anti-corruption. The World Business Council for Sustainable Development complements this work by helping to galvanise the global business community towards sustainable ends. Arising out of the Financial Crisis and challenges similar to those identified by this Commission, business led initiatives which focus on the longer term sustainability of the firms and the planet are gaining traction. The B-Team, founded by Sir Richard Branson and Jochen Zeitz, is among the most recent of this new wave of private sector responses to the short-termism of firms, calling on businesses to prioritise people and the planet alongside profit.

Governmental approaches for the longer term

Just as there are some inspiring initiatives emerging within the business sector, it is also useful to reflect on existing models and methods used by some governments to embed the longer-term into decision-making structures. Some are constitutional. Albania, Argentina, Belgium, Bhutan, Bolivia, Burundi,

Cuba, Ecuador, France, Germany, Kenya, Poland, South Africa and Sweden all include substantive provisions for future generations within their constitutions. Increasing numbers of international instruments (at least 29 at last count) directly refer to future generations. Considerable judicial attention is now devoted towards “generations unborn” and what intergenerational justice might entail.¹³⁴ Some methodological commitments that negatively impact future generations are under greater scrutiny (discounting is one particular example, especially following the Stern Climate Change Review¹³⁵). Other political and legislative mechanisms that could be adopted include lengthening electoral cycles and the tenure of representatives, and avoiding frequent Ministerial reshuffles which undermine capacity to think longer-term.¹³⁶ A strong, independent civil service is also critical in this respect. Other initiatives that require governments to outline the impact of policies on future generations (such as Intergenerational Reports and Posterity Impact Statements¹³⁷) and involve more young people in the decision-making process (including youth parliaments and youth representatives) warrant further attention.¹³⁸ Cultural norms and institutional practices also need to resist an exclusively short-term ethos, including in auditing and budgeting.¹³⁹

There is considerable variance in best practice amongst the different approaches, which may be grouped into three types of arrangements. The first, and most common, emphasise environmental sustainability. Commissions or commissioners responsible primarily for the environment or sustainable development exist in Brazil, Canada, Chile, Germany, Hong Kong, New Zealand and, until recently, the United Kingdom. Several of these bodies, such as those in Brazil and Chile, are permanent organs of the national parliament, and their authority extends to proposing or reviewing parliamentary bills and promoting community debates.

Bespoke institutions are the second type of intervention created to advance the interests of future generations. These have a varied track record. Leading examples are Finland’s Committee for the Future (“FCF”), Hungary’s Parliamentary Commissioner for Future Generations and Israel’s National Commission for Future Generations. Hungary’s model inspired the proposal from the World Future Council at the Rio+20 Summit for an International Ombudsperson for Future Generations.¹⁴⁰ In the wake of this summit, the UN is currently considering proposals to

enhance intergenerational solidarity and address the rights and needs of future generations.¹⁴¹ The FCF appears particularly promising; it is one of the Finnish Parliament’s sixteen standing committees, with members drawn from different political parties and the power to shape its own agenda. Its specific task is to create policy to advance future interests and provide a longer-term assessment of policy choices such as in healthcare.¹⁴²

Hungary’s Parliamentary Commissioner and Israel’s National Commission no longer function. The same is true of several longer-term strategy units, designed to be far-sighted in consideration of trends and political direction, but dispensed with as political priorities have changed. The United Kingdom’s Strategy Unit and the French *Commissariat de Plan* are two additional examples of forward-looking groups at the heart of government which have been closed down. The strength of these models was their capacity to provide strategic, long-term and confidential advice to leaders, whilst being separate from the immediate pressures of day-to-day politics.¹⁴³ There are reasons for optimism, however, within the French system. A replacement of *Commissariat de Plan*, called the *Commissariat général à la stratégie et à la prospective* was created in April 2013 at the request of President Hollande. In announcing his intention to develop a 10 year vision strategy for France, Hollande explained that “certainly, not everything can be anticipated; conflicts, natural disaster, crises. Still, it is France’s responsibility to help to prevent these.”¹⁴⁴

The third type of national initiative represents a whole of government approach to long-term planning, often driven by strategic priorities in economic development. Of these approaches, National Planning Commissions (NPCs) are the most widely applied. China’s and India’s are the best known, with South Africa’s – headed by Commissioner Trevor Manuel – among the most recent. NPCs vary in terms of authority, coordination, and representation. Some are skewed towards planning without comparable attention to implementation; others have been unable to insulate themselves from short-term demands. The rate and success of implementation varies per country. In China, our Commissioner Minister Liu He is also Vice Chairman of the National Development and Reform Commission, an institution many regard as one of the most significant and effective modern planning organisations. Within the Chinese system, the planning process is central to all key elements of decision-making and

investment and sets the stage for China’s long-term development. Other NPCs have been described as an “exercise in wish fulfilment as much as anything”,¹⁴⁵ but many remain vital trendsetters in long-term planning. Intergenerational reporting¹⁴⁶, sovereign wealth funds¹⁴⁷ and long-term budgeting and fiscal planning¹⁴⁸ are other significant reflections of a whole of government approach to thinking and governing long-term.¹⁴⁹ Research embedded within the broader structures of government is also valuable. Foresight, established by the United Kingdom government in 1994, supplies a useful template. It takes a cross-departmental approach to “thinking systemically about the future” and conducts detailed studies of long-term issues, drawing on expert networks of academics and practitioners.¹⁵⁰

The different models outlined above have a mixed record in terms of providing an effective means to advance the interests of future generations. The more successful models empower through a combination of centralised and more decentralised approaches, whilst also providing appropriate incentives and institutional structures to ensure accountability. Appropriate safeguards that allow these arms of government to thrive without being drawn into day-to-day politics improve the chance of success. Openness and transparency help mobilise long-term support. The World Future Council has proposed that domestic action on future generations would ideally combine the best elements of the Israel, New Zealand and Hungary models, thus ensuring integrative coverage of relevant issues (Israel), independence (New Zealand), and a shadow of enforcement (Hungary). Our review suggests successful mechanisms are integrated and cross-cutting; possess a degree of independence from government and other bodies with short-term goals; have enforcement power; provide clear incentives for long-term thinking; ensure horizontal and vertical consistency; prioritise inclusiveness and transparency; delegate where possible to countries, cities and local governments; seek external advice, including by working with the private sector; and are aligned with global reform efforts.

3. Political Engagement and Public Trust

Limited opportunities for constructive engagement and declining trust in politics and institutions undermine citizens' involvement in policy. Yet new online tools and methods of participation are potentially widening opportunities for discussion and debate.

Partied out

The end of the era of tight affiliation to political parties appears to be approaching. Many democracies are grappling with declining political party membership, reduced opportunities for political engagement, and increasing political indifference. Political party membership across 13 European democracies declined by 40 percent between the late 1970s and the late 1990s.¹⁵¹ In 1951, the United Kingdom Conservative Party's membership stood at 2.9 million; by 2011, it had fallen to less than 180,000, despite the United Kingdom population growing by more than ten million over the same period.¹⁵² The members that do remain are less active and typically older members of society. Whilst it is true that small parties and independents are growing – albeit from a limited base – and new political parties and informal political street movements have emerged in the wake of the Arab Spring and recession in Europe, the long-term viability of these groupings is questionable.

Some analysis suggests less partisanship can result in more political volatility, with recent elections in Britain, Pakistan, India and New Zealand all resulting in hung parliaments.¹⁵³ Several countries that were led by single party majority governments for generations, have recently seen the installation of ruling coalitions, notably in the United Kingdom and Greece, where single-party leadership has dominated the past six decades of politics. Like political parties, trade unions have experienced a considerable decline in membership in many countries.¹⁵⁴ For example, in 2012 the union membership rate amongst workers in the United States was 11.3 percent, compared to 20.1 percent in 1983.¹⁵⁵

Engaging young people in politics is vital to solving the great challenges of this and future generations. Yet the evidence suggests that young people are less and less interested in both party politics and politics more generally. In the United Kingdom, the proportion of young people who supported or felt close to a particular party, or who wanted a particular party to win a general election, fell from 68 to 39 percent between 1994 and 2003¹⁵⁶; and while 88.6 percent of 18–25 year olds in the United Kingdom voted in the general election of 1964, in 2005 the figure was only 44.3 percent.¹⁵⁷ Japanese people in their 20s cast ballots less than half as often as those citizens in their 60s.¹⁵⁸ Elsewhere, voter turnout rates for those in their 20s – 63 percent in Latin America, 59 percent in East Asia, and 58

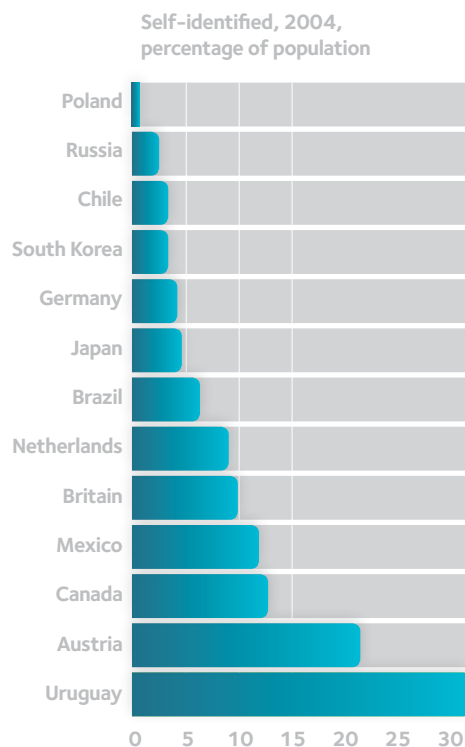


Figure 23: Political party membership across the world, 2004

Source: *The Economist*, "The Party's (Largely) Over", 21 October 2010.

percent in Africa – are also lower than for those in their 50s and above (with rates of 88 percent in Latin America and 89 percent in East Asia and Africa for those between 51 and 60 years old).¹⁵⁹

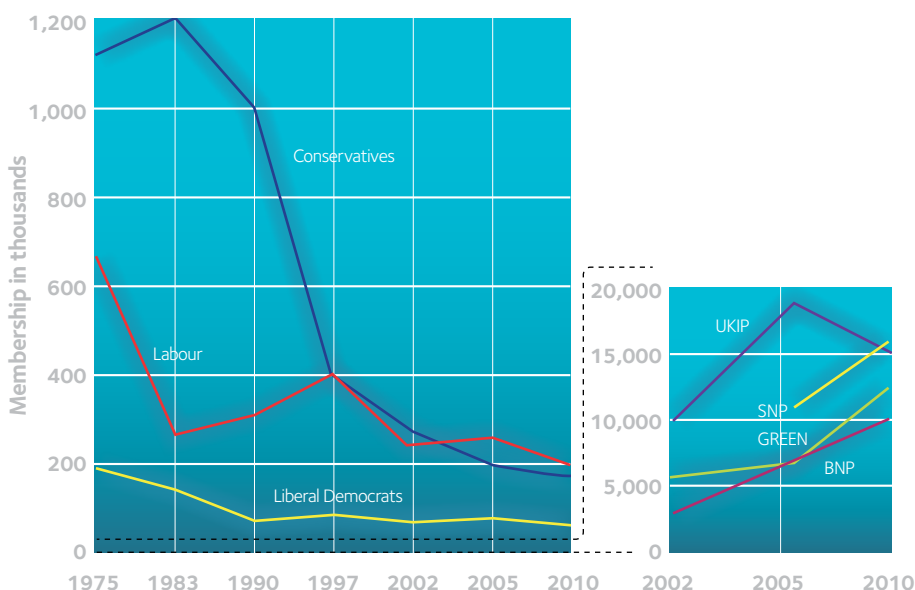


Figure 22: Changes in UK political party membership 1975–2010

Source: Feargal McGuinness and Rob Clements, *Membership of UK Political Parties* (London: Commons Library, 2012), pp. 12–13.

Young people are increasingly disillusioned with "politics as usual". The perception gap between those in power and the wider citizenry appears to be widening, with polls suggesting a growing mistrust of leadership. Yet rather than simply being looked upon as the passive subjects of policy formation, young people "should be recognised as social actors with skills and capacities to bring about constructive solutions to societal issues that directly affect them".¹⁶⁰ This makes sense, not only because young people know the most about the realities of their own lives, but because such engagement also encourages young people to become active members of society and may foster a greater sense of belonging.¹⁶¹ In today's climate where tough decisions are required on issues of inter-generational equity, particularly in relation to employment, greater emphasis on public discussion and engagement

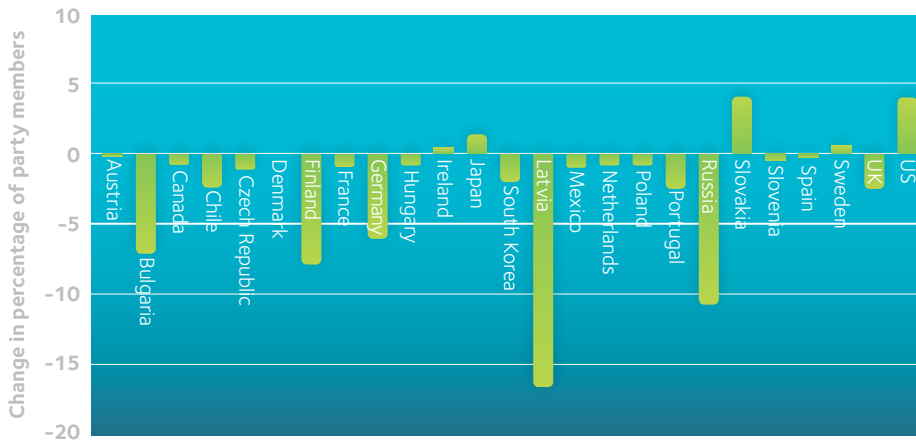


Figure 24: Changes in party membership in 25 countries 1989–1999 to 1999–2004

Source: Paul Whiteley, "Is the Party Over? The Decline of Party Activism and Membership across the Democratic World", *Party Politics*, 17 (2011), p. 6.

with younger generations is much needed. In this regard, initiatives such as One Young World, established in 2009, play a critical role in empowering youth. The organisation brings together young people from around the world in an annual summit to debate and formulate solutions to pressing global challenges. Since its establishment, One Young World Ambassadors have set up over 130 projects and initiatives in over 100 countries, from campaigns to raise awareness of disability rights in Nepal to raising funds for the UN World Food Programme.¹⁶²

Lack of trust and engagement

A Democratic Party poster deployed in the 1960 United States presidential campaign memorably featured an image of Republican candidate Richard Nixon alongside the words: "Would you buy a used car from this man?"¹⁶³ Rightly or wrongly, politicians have long been "synonymous with sleaze, corruption and duplicity, greed, self-interest and self-importance, interference, inefficiency and intransigence", yet public distrust of our leaders and our institutions seems to have grown visibly in recent years.¹⁶⁴ Some scholars argue that as a society, our healthy scepticism is fast becoming a rather more corrosive cynicism.¹⁶⁵ According to a Guardian/ICM poll conducted across France, Britain, Germany, Poland and Spain in 2011, only 9 percent of Europeans thought their politicians – either in opposition or in power – acted with honesty and integrity.¹⁶⁶ In Britain, the proportion of the public who said they trust governments "just about always"

or "most of the time" fell from 40 percent in 1986 to just 16 percent in 2009, whilst the proportion saying they "almost never" trusted government rose from 12 percent to 40 percent.¹⁶⁷ Faith in government institutions, too, has declined. Trust in Congress amongst United States citizens dropped from 42 percent in 1973 to just 10 percent in 2013.¹⁶⁸ Similarly, the European Commission reports that the view that "my voice counts in (my country)" received overwhelming support in Denmark (96 percent) and Sweden (89 percent) but fewer than one in five citizens in Greece (15 percent), Lithuania (16 percent) and Italy (18 percent) agreed.¹⁶⁹

Trust is viewed as an essential component of effective policymaking because trust bestows legitimacy, and thus facilitates greater public willingness to abide by decisions and proposals made by politicians.¹⁷⁰ This, in turn, "creates a fiduciary relationship between government and the governed, allowing the former to make decisions that provide long-term benefits to citizens even if those decisions are unpopular in the short run".¹⁷¹ The absence of public trust therefore implies decreased likelihood of governments taking difficult but necessary decisions. A further potential consequence of public distrust in government is decreased engagement in political participation; Robert Putnam says it is "not coincidental" that a decline in Americans' engagement in politics, via public meetings, rallies, and political parties, has emerged at the same time as rising distrust of government.¹⁷² As citizens become increasingly disillusioned with politics, the fear is that their interest in key issues and challenges will

diminish. This disillusionment and scepticism coincides with the increasing difficulty of governments to engage in conversations about values based principles which transcend more populist, day-to-day political agendas and strive to articulate a broader vision for society.

Another consequence of reduced trust in the state is a reluctance to heed governmental advice. A good example is anxiety surrounding the consequences and motivations of large-scale vaccination programmes. In the United Kingdom, concern over a (discredited) link between autism and the measles, mumps, and rubella (MMR) vaccine meant low vaccination uptake in the late 1990s and early 2000s, and a subsequent rise in the number of reported measles cases.¹⁷³ In northern Nigeria, political and religious leaders halted a polio immunisation campaign in 2003, citing spurious claims that the vaccines could be contaminated by anti-fertility agents, HIV and cancerous elements.¹⁷⁴ In Pakistan, the United States Central Intelligence Agency admitted a ruse whereby it sponsored a hepatitis vaccination campaign in order to secure Osama Bin Laden's DNA profile¹⁷⁵; it has been reported that local aid workers and public health officials consider that this undermined Pakistan's efforts to eradicate polio.¹⁷⁶

Modernising political conversations

Whilst political party membership may have slumped, there is some encouragement to be found in the way single issue campaigns are thriving in today's political landscape. This suggests some appetite remains for political activism which might be harnessed through new and alternative means. From grassroots campaigns against new airport runways and mass protests in India about the treatment of women, to bottom-up campaigns to keep a female face on British currency, single issue groups can prove highly effective in assembling coalitions of active organisations to block particular policies, or draw attention to government inaction or damaging company behaviour. Campaigning on single issues emphasises individual choice over ideology, and enables people to build a portfolio of political engagement without being tied to any one party. The increasing availability of the necessary technology, low costs of data and smart phones have all helped to mobilise people and make coordination easier. With most platforms now free and open sourced, more ad hoc groups are expected to start up across the world.¹⁷⁷



Helping to facilitate this shift are organisations such as the online global campaigning platform, Avaaz, as well as more local initiatives like MoveOn and Change.org in the United States and GetUp! in Australia. These groups provide platforms for multiple campaigns and the know-how required to coordinate campaigns and campaigners online. Avaaz was established with the lofty goal of closing the gap between “the world we have and the world most people everywhere want”. After only six years, it purports to have 20 million followers who receive weekly emails asking them to support campaigns ranging from protecting tigers and saving Russian girl band Pussy Riot to stopping Rupert Murdoch’s quest to gain full control of BSKyB.¹⁷⁸ “Support” can range from signing online petitions to calling for submissions, to, more controversially, fundraising for on the ground activism. Similarly, GetUp! describes itself as “a ground-up movement of real people who are putting participation back into our democracy”. Established in 2005, it has over half a million members in Australia and has campaigned on issues such as civil liberties, freedom of the press, mental health reform and corporate responsibility.¹⁷⁹

Given their declining memberships, political parties are envious of the capacity of issue driven groups to foster public support, and are trying to enlist them on particular issues for political gain. Meanwhile, there is increasing competition for attention as the number of single issue campaigns rises and groups use celebrities and the media to champion their cause. These changes have important implications for how people are engaging with politics. Single issue campaigns provide a more fluid, often softer, engagement where people move from one cause to another or lend their support to a campaign by signing a petition, instead of getting actively involved and committed over a longer period.

Old and new media

Newspapers, and journalism more broadly, have typically served as an important check on governments and other powerful interests in business and the broader community. Yet with the decline in newspaper readership, increasing closed “paywalls” online, and reduced numbers of trained, independent journalists, many fear that a key pillar of political accountability is at risk. Whilst newspaper circulation only reduced by 2.2 percent globally between 2008 and 2012, across Western Europe and North

America there were far steeper declines of 25 percent and 13 percent respectively.¹⁸⁰ In the United Kingdom, circulation fell in all national daily newspapers in 2011, with over 30 regional weekly papers forced to shut down.¹⁸¹ In South Africa, 16 out of 19 daily newspapers recorded declines in their circulation between 2006 and 2011, with newspapers suffering circulation drops ranging from 8 percent to 31 percent.¹⁸² Newspapers are not in terminal decline across the globe; in Asia, circulation increased by 1.2 percent in 2012.¹⁸³ Yet as more providers have turned to online content, access is now increasingly restricted, either to subscribers only or via complicated paywalls. In 2012, nearly one in three United States national daily papers began charging for online content or announced plans to do so.¹⁸⁴ Meanwhile, newsroom staff and reporting resources are shrinking, as newspapers grapple with declining readership, increasingly tighter advertising revenue, and competition from online sources.¹⁸⁵

Although it is a positive development that more information is available to citizens online via social media tools and blogs, the lack of reportage and often sub-optimal use of reliable sources, objectivity, and editorial control are a cause for concern. The role of the news media is not simply the dissemination of information, but the filtering and interpreting of that information. Industry experts question the value of some online alternatives which “indiscriminately mix press releases and genuine reporting without any standards of significance or trustworthiness”, and worry about the increasing gap “between the small minority who take an intense interest in public life and the considerably larger number who drop out of the public sphere all together”.¹⁸⁶ With the decreasing prominence of newspapers, the fear is that only those who are particularly motivated will still seek out news; many other citizens may leave the sphere of political engagement, increasing the gap between knowledge of key challenges and societal action to overcome them. Another concern is that people may increasingly seek out the news that fits in with their existing opinions and interests without gaining exposure to a deeper array of ideas and information, leading to a growing inability to see alternative perspectives and a climate of decreased consensus and increased gridlock.

In an environment of declining newspaper readership, we are also reminded of the importance of artists, film-makers, authors, musicians and other cultural leaders in building

public awareness and mobilising the public on critical issues. The arts are instrumental for challenging commonly held perspectives, whilst also raising awareness about social issues, breaking down barriers to cross-cultural understanding, and inspiring creative solutions.¹⁸⁷

The potential of new social media

Beyond the impact on news reporting, there is much broader debate about what new online social media networks mean for power, the state, and the citizen. Cyber-optimists like Clay Shirky claim that a “denser, more complex and more participatory” communications landscape provides the networked population with “greater access to information, more opportunities to engage in public speech, and an enhanced ability to undertake collective action”.¹⁸⁸ Cyber-pessimists like Malcolm Gladwell argue that social media can never act as a catalyst to lasting change in the way that direct action has in the past. He contends that its “weak ties” mean that while levels of participation might rise, this is only because of a decrease in the motivation that participation requires.¹⁸⁹ Evgeny Morozov argues that binary classifications and debates of cyber pessimism and optimism are deeply unhelpful, smothering meaningful critique of the Internet beyond populist analysis and hype.¹⁹⁰

As these debates rage on, the reality is that social media is now a permanent fixture of our political discourse. While there are many limitations, a range of new or emerging social media examples provide some useful inspiration of the potential of social media to engage, empower, alert and amplify often unheard voices. Examples include Ushahidi.com, a collaboration of Kenyan citizen journalists who created this online platform to map incidents of violence as well as peace efforts that followed the Kenyan election of 2008.¹⁹¹ With over 45,000 users in Kenya, the site collated vital information which was then used by the media and other groups to uncover and stop violence. Ushahidi, which means “testimony” in Swahili, has provided the inspiration for similar platforms elsewhere. Today, this non-profit tech platform has been adapted for use in monitoring elections or disaster situations in the Congo, Haiti and Chile.¹⁹² In Zambia, for example, BantuWatch is a crowdsourcing platform which allowed citizens to monitor and report concerns around the 2011 elections regarding the electoral process, such as intimidation, vote buying, voting misinformation and violence.¹⁹³

4. Growing Complexity

In 2008, Barack Obama led the first political campaign in history to effectively harness the power of social media. Promoting the man dubbed the first “Facebook President”, Team Obama used up to fifteen different social networking tools in a grassroots campaign designed to mobilise volunteers, target new voters quickly and efficiently, and build a broader base of financial contributors. By the end of the campaign, Obama had attracted over 2.5 million Facebook supporters, 115,000 Twitter followers, and more than 50 million views on his YouTube channel.¹⁹⁴ Governments, more broadly, are increasingly realising the significance of social media as a potent communications tool; when Egypt’s president Mohamed Morsi was toppled in July 2013 his acknowledgment and condemnation of the “military coup” was delivered via Facebook and Twitter. In countries like Egypt, Yemen, and Tunisia, social media has been widely credited for its role in the downfall of dictatorships during the Arab Spring. One must be careful, however, not to overstate the power of social media: it was less significant in the campaign against Muammar Gaddafi in Libya and has had little traction during Syria’s civil war. Furthermore, an asymmetry has begun to emerge between the ease of identifying problems and the difficulty of solving them. Citizens are now able to raise issues and mobilise in protest more quickly and easily than ever before, yet the complexity and plethora of issues has weakened the capacity of governments to solve problems. With the speed of protest accelerating ahead of the speed of problem solving, the demands on leaders have shifted. New capabilities of leadership are required, able to manage public expectations, uncertainty, rapid change and an increasing complexity of issues.

Social media’s strength lies in its capacity to organise interested individuals and groups to coalesce around specific issues. The March 2013 #standwithRand Twitter hashtag garnered thousands of tweets supporting United States Senator Rand Paul’s 13-hour filibuster protesting the potential use of drones against American citizens on American soil; the #everydaysexism Twitter hashtag and website act as a database of misogynistic incidents across the globe, gaining 50,000 Twitter followers and 30,000 posts in its first year of operation.¹⁹⁵ The speed at which information, incidents and ideas can be spread is also transformative. The killing of 26-year-old Iranian Neda Agha-Soltan during street protests

in 2009 was captured on video by bystanders and gained global exposure on the Internet, becoming “probably the most widely witnessed death in human history”.¹⁹⁶

Online platforms are also proving increasingly powerful in response to global emergencies, providing rapidly updated information for the benefit of the public and first-responders alike. The use of Twitter increased by 500 percent following the 2011 Japan earthquake and tsunami, as individuals sought to reach out to loved ones.¹⁹⁷ Pioneered during Hurricane Katrina in 2005, Google’s “Crisis Response Centre” has been instrumental in disseminating critical information during disasters including earthquakes in Turkey and New Zealand, floods in Thailand and hurricanes in the United States.¹⁹⁸

The causes and issues being addressed might not be new, but social media networks can be game changing tools of communication. The new networks and participants have, at the very least, more potential power than ever before, constituting “the most active, outspoken and globalised civil society the world has ever known”.¹⁹⁹ Whether this translates to more effective government and engagement of citizens in meeting the challenges outlined in this report remains to be seen.

Issues are becoming more complex and the evidence base can be uncertain, whilst an emphasis on consensus undermines our ability to act.

Scale, speed and spread

If aliens had been watching our planet for its entire 4.5 billion years, they would have seen remarkably little change in the Earth’s appearance for the vast majority of that time. Yet, as our Commissioner Martin Rees has reflected, in just a tiny sliver of its history – the last few thousand years – aliens would have started to witness an accelerated pace of change as human populations rose and agriculture began. Fast forward to just the last 50 years – little more than one hundredth of a millionth of the Earth’s age – and the changes have been far more dramatic and abrupt. Levels of CO₂ rising anomalously in the atmosphere; radio waves emitting from televisions, cell phone and radar transmissions; and almost every aspect of the earth’s system – from the surface temperature, to sea and CO₂ levels, to arctic ice depletion – changing dramatically as populations continued to grow, energy demand skyrocketed and pressures on our natural eco-systems rose exponentially.

Rees ponders what our hypothetical aliens might see 20, 50 or 100 years from now. Just as the pace of change has accelerated significantly in the last 50 years, the scale, speed and spread of change going forward is likely to be even more extraordinary. We know that humans are the primary cause of this change, having significantly altered the Earth’s biological, chemical and physical processes. Many argue that our activities are putting our planet at unprecedented risk, increasingly driving the Earth’s system towards dangerous thresholds or tipping points.²⁰⁰ Yet there is remarkably limited comprehension or acknowledgement of the scale, urgency and connectivity of the problems. All of the megatrends and challenges outlined in Part A are interconnected. Understanding the connections between food, water and energy security; poverty alleviation; climate change; population growth; economic inequality; pandemic preparedness; and pollution control is crucial for tackling today’s challenges and improving the well-being of all societies.

This interconnection does, however, compound the difficulties in addressing these challenges. No one challenge can be seen in isolation and

5. Cultural Biases

solutions for one issue can exacerbate negative effects in another. Nations, regions and the global community lack the capacity, knowledge, resources and institutional frameworks to respond to, manage, and resolve all of these competing interlocked challenges. Yet even though today's challenges know no borders, international cooperation and coherence is often undermined by fears of diminished domestic control, and can be difficult to justify due to fiscal pressures at home. Science is occurring in more and more places than ever before²⁰¹, yet the ability of international collaboration to enable local solutions and empower individuals is currently under-utilised and poorly understood. It should also be recognised that, whilst scientific research is increasingly a global activity, occurring in more and more places than ever before, concerns remain that certain parts of the world, not least many countries in Africa, are largely excluded from today's global knowledge society.

Grappling with uncertainty

In a toast to Albert Einstein, George Bernard Shaw once claimed that “science is always wrong. It never solves a problem without creating ten more”.²⁰² Compared to Einstein's day, our collective breadth of scientific knowledge has grown extraordinarily, yet the depths of what we do not know remain immeasurable. Scholars such as Stuart Firestein argue that “somewhere along the superhighway of progress, we seem to have developed a kind of fact-fetishism that shackles us to the allure of the known” and makes us uncomfortable with what is uncertain and unknown.²⁰³ The reality is, however, that from fracking to famine, climate change to cybersecurity, poverty to pandemics, scientific advice has never been in greater demand, nor has it been more uncertain and contested,²⁰⁴ not least due to a growing recognition of the interconnections and complexities involved. Yet scientific uncertainty, an absence of consensus, and unclear relations between cause and effect too often are excuses for inaction.

Effective action to confront global challenges requires “not only a greater knowledge about the state of the planet and its resources, but also awareness that many aspects will remain unknown”.²⁰⁵ This necessity is in contradiction with increasing political pressures to identify an often artificially unambiguous evidence base for policy decisions today. Whilst reasoned scepticism and open disagreement about uncertainties are amongst the most crucial distinguishing qualities of science, Andy

Stirling argues that “when science comes into contact with economic and political power, there develops a strange kind of uncertainty denial”.²⁰⁶ In meeting global challenges and considering the prospects for future generations, we necessarily must be tolerant of uncertainties. It is the balance of evidence, not least on the implications of inaction, rather than the certainty of outcomes, which should inform our judgements. Yet governments and citizens increasingly clamour for certainty.

Ironically, our discomfort with uncertainty does not apply in relation to other aspects of our lives. People insure their houses, cars and other assets against fire, flood, robbery and other incidents of low probability. For those that can afford it, and where it is available, insurance is commonly taken to cover health needs, travel, accidents, unemployment, and even weddings. Yet on other risks, like climate change, uncertainty is used as an excuse not to act. This is despite estimates, outlined in the Stern Review, that the probability of an abrupt climate catastrophe increases by 10 percent for every additional degree of warming, once the threshold temperature is reached (which our Commissioner Nicholas Stern argues averages five degrees above pre-industrial temperatures).²⁰⁷

No consensus on consensus

Coupled with this discomfort with uncertainty is a growing focus on consensus. Some scholars argue that the IPCC's emphasis on building consensus amongst climate scientists has had the unintended consequences of distorting the science, failing to reflect the complexity and inherent uncertainties of the problem, elevating the voices of scientists that dispute the consensus and undermining people's trust in the IPCC.²⁰⁸ The concern about this consensus approach relates to the oversimplification of what is a very complex and uncertain issue, even if the fundamental principle of climate change is well accepted.

Expectation of a linear relationship between expertise and power – whereby, first, science or the broader research community has to “get it right” and then policy comes into play – is unhelpful in relation to many of today's global challenges, given the inherent uncertainty embedded within.²⁰⁹ Though undoubtedly politically inconvenient, we need to accept and identify new ways to cope with uncertainty in tackling global challenges, whilst strictly upholding scientific rigour and accountability.

Entrenched barriers shut many women and young people out of critical conversations and activities, whilst cultural differences provide barriers to change.

Cultural differences

In 2011, Nobel Prize winner Daniel Kahneman published the bestseller, *Thinking, Fast and Slow*. Kahneman's insights into how psychology shapes judgment and decision-making – how individual thinking is impacted by cognitive biases – highlight the relevance of cognitive and cultural influences on the collaborative decisions required for action on the challenges introduced in Part A.²¹⁰ The attention given to Kahneman's work is encouraging as a richer understanding of how societal and cultural factors in decision-making may prove critical in helping us to overcome the current failure to meet critical global challenges. As our Chair, Pascal Lamy, argues, countries lack the capacity to speak to each other openly, and explain their views on critical challenges, such as development, social justice, sovereignty and environmental sustainability. What is lacking, Lamy argues, “is a bedrock of common values capable of bringing about a shared ambition for civilization”.²¹¹

“Hyperglobalisation”²¹² has transformed the core of modern societies, resulting in new interactions that create both opportunities and tensions between individual and collective cultures and identities at local, national and global levels.²¹³ Yet simply because greater numbers of people are living in the “contact zones”²¹⁴ of other cultures and societies does not mean their thinking on the big issues is shared. In many instances, local cultures and ways of life have been asserted and in some cases strengthened.²¹⁵ One of Kahneman's contemporaries, Dan Kahan, has compiled useful evidence on the way individuals and groups think, paying special attention to the importance of culture. While some have touted the “end of ideology” and the arrival of greater homogeneity,²¹⁶ Kahan and others suggest cultural commitments still impact how people process information, including on public policy matters. Their research revealed that cultural worldviews predicted individual beliefs about the seriousness of environmental and technological risks *more powerfully than any other factor*, including gender, race, income, education, and political ideology.²¹⁷ Of course, culture does not explain everything. It may directly explain very little and must be contextualised; still, culture often orients the

prism through which individuals and groups interpret and formulate beliefs around means and ends.²¹⁸

Developing a deeper appreciation of how political, religious and moral intuitions similarly bias our thinking, thus influencing our ability to be objective, is necessary if we are to overcome the obstacles to a shared understanding of the problems and solutions. Jonathan Haidt, for example, has recently argued conservatives and liberals have equal sincerity in wanting the best for society, but fail to uncover mutual agendas because they do not understand each other's motivations.²¹⁹ Academic disciplines, particularly from the natural and social sciences, are now increasingly encouraged to work across boundaries to draw new insights and alternative ways of framing questions. Given the multi-faceted complexity of global challenges, this is encouraging news. An enhanced understanding on subjects straddling multiple academic areas is also needed, along with renewed interdisciplinary efforts to avoid disciplinary bias from obscuring common and productive research agendas.²²⁰

Same, same but different

A "precedence of difference over sameness" has important, and perhaps misunderstood, consequences for the pace of cooperation within diverse and networked societies.²²¹ Individual tendencies to identify points of difference rather than sameness may intensify in a globalised operating environment, heightening one's sense of uncertainty.²²² Perceived challenges to existing cultures and identities brought on by exposure to a multiplicity of other cultures and audiences can motivate "individuals and groups to maintain, defend, and even expand their local values and practices".²²³ This raises the importance of focusing on mutual interests, not just between people but also among cities, nations and countries. It also suggests more attention should be focused on the power of ideas, networks and agents, the role of socialisation, and the inherent path-dependency of existing structures.²²⁴ Academics and decision-makers are now considering whether current notions of "global" and "local"²²⁵ provide "sufficient purchase to understand the complex and rapid set of interconnections, processes and aspirations through which meanings, goods and people flow, coalesce and diverge".²²⁶

Responding to individual and collective predispositions requires careful attention on the part of policymakers (and researchers

working on policy challenges) to how facts are presented and how policy instruments might unite differently-motivated but ultimately shared interests. Although we need to take peoples' ideals and perspectives seriously, alternative worldviews need not be "static and relentlessly oppositional"²²⁷. As Henrietta Moore has shown in relation to the feminist movement, difference can be creative.²²⁸ New strategies to frame information and policy ideas more appropriately are enabling those devoted to "competing ways of life" and different worldviews to "converge on shared understandings of societal risk and the most effective means for abating them".²²⁹ Presenting information "in forms that affirm rather their denigrate" values is just one emerging way of responding positively to cultural and other biases that impact the way we think, in order to progress collective action.²³⁰ The Commission recognises the depth and breadth of different cultures and traditions, and the extent of the vital contribution to humanity arising from this diversity of histories and perspectives. It is concerned, however, by the lack of common values that bind members of the international system together.

The glass ceiling

Beyond cultural differences, entrenched and conservative barriers against women and other disadvantaged groups also impede more open conversations. IMF Managing Director Christine Lagarde claimed "If Lehman Brothers had been a bit more Lehman Sisters, we would not have had the degree of tragedy that we had."²³¹ It is impossible to know if more women in senior financial positions would have avoided the risk-taking that contributed to the Financial Crisis. What is clear, however, is that too often people are shut out of critical conversations and key decision-making roles based on their gender, ethnicity, background, and age, increasing the risk of group-think by leaders possessing very similar characteristics.

Gender equality is not simply a moral imperative but a policy priority that makes sense. According to UN Women, which until recently was led by our Commissioner Michelle Bachelet, "the evidence is overwhelming and unambiguous: women's empowerment and gender equality drive development progress".²³² There is a direct correlation between gender parity and a country's level of competitiveness, GDP per capita and human development.²³³ Sidelining women from senior roles, paying them less for equal work, and barring them from property

ownership not only damages society's commitment to fundamental human equality, it also diminishes the contribution that could be made by half of the world's human capital. Only 20.9 percent of national parliamentarians across the globe are female.²³⁴ Women have never occupied the top job at the United Nations, the World Trade Organization, the African Development Bank, the World Bank or the European Commission. As of March 2013, only 17.3 percent of directorships of FTSE 100 companies were headed by females.²³⁵ Ethnic minorities fare little better in business; it was 2009 when the first black head of a FTSE 100 company was appointed.²³⁶ In the current French National Assembly, there are only nine MPs of ethnic minority origin, out of a total of 577.²³⁷ Such figures demonstrate that entrenched barriers to participation – including discrimination, socio-economic disadvantage, and inflexible working practices – are far from overcome.

Today's professionalised political sphere provides another example of the shutting out of alternative voices; a Smith Institute survey found that 24 percent of the United Kingdom's 2010 intake of MPs had an occupational background of "politics", a higher percentage than those from any other field.²³⁸ Between 1979 and 2010 the number of Labour MPs who had done manual or clerical work dropped from 40 percent to just 9 percent.²³⁹ Today it seems increasingly difficult to imagine a United Kingdom politician emerging from a shop floor background in the mould of towering political figures from the past, such as Welsh miner Aneurin Bevan, who spearheaded the creation of the NHS or, outside the United Kingdom, electrician turned Nobel Prize-winning Polish President Lech Walesa.

It is not only certain citizens, communities and classes that are left out of debates and decision-making, but countries too. The G7 stands as a powerful example of a "club" that has been reluctant to expand its membership, while pronouncing on global responsibilities to be shared by every region.²⁴⁰ This is despite recent pronounced shifts in the global economic order which have seen G7 countries increasingly replaced by G20 countries as the group tackling the world's major political and economic issues. Smaller and poorer countries have little say in these decision-making processes. Leadership of international institutions, too, has often been restricted, exemplified by the tacit agreement that ensures that the World Bank is led by a United States citizen and the IMF by a European.

By giving voice to the voiceless and sharing best practice, alternative perspectives and solutions could help address the world's key challenges.

What next?

Part B, *Responsible Futures*, of our report has outlined the Commission's diagnosis of lessons from success and failure in addressing vital global challenges. We identified a number of shaping factors which we believe are impeding the capacity to generate change and close the gap between knowledge and action. To achieve this, a logical sequence of steps is required. We need to consolidate a strong knowledge base of the issue or challenge; we need to translate this knowledge into awareness of the problem, and its implications; from awareness, we need to mobilise energy to seek change; and, finally, we need to shift from mobilisation to action- and enforcement of action- in order to achieve the necessary change. To assist in this transition, we now turn to Part C, *Practical Futures*. Our aim is to provide practical recommendations that draw on the lessons above to suggest productive pathways for action. Part C provides illustrative responses to the challenges identified in Part A, *Possible Futures* by drawing on the insights in Part B of what works and what does not. We offer design principles and recommendations for action which we believe will contribute to a more inclusive and resilient future.



Part C:
Practical Futures:
Principles and Recommendations

1. Creative Coalitions

Invest in multi-stakeholder partnerships to prompt deeper change, learning and practical action.

The world is slowly emerging from the devastating Financial Crisis. While the recovery is fragile, with painfully high costs in many societies, the commitment to reform appears solid. In this section, we step back to reflect on the lessons of this turbulent period and suggest ways that we might manage our global connectivity more effectively in the future. The Commission believes fresh thinking is urgently required in order to address critical global challenges and prevent future crises. By outlining a number of principles for action and providing thematic and practical recommendations, we aim to contribute meaningfully to the necessary strategic and institutional renewal.

The Commission's recommendations aim to assist policymakers, business leaders and other decision influencers to overcome the current gridlock in meeting a number of today's global challenges, and focus on the bigger picture. Our recommendations emphasise the importance of innovative partnerships, openness and accountability, and underline the need to step beyond crisis management to invest in the longer-term needs of our societies. Five key principles are used to organise our recommendations, which we believe can guide action and institutional change. Within each, we provide illustrative examples of recommendations. Some are directed at immediate policy debates and offer pragmatic ways forward. Others seek to address deeper political and cultural dynamics obstructing the shift to a longer-term focus. These recommendations are not necessarily new, and our examples are inevitably selective rather than comprehensive. Our aim is to add direction and weight to the momentum for action and, in so doing, contribute to a better world for current and future generations.

C20- C30-C40:

- A Coalition of the Working between countries, companies and cities to counteract climate change

The Commission is convinced the fight against climate change requires renewed vigour in the wake of repeatedly stalled multilateral efforts. To help kick-start the process, and as a building block towards the multilateral negotiations in Paris in 2015, we recommend the creation of a new multi-stakeholder coalition. The C20-C30-C40 Coalition would bring the main constituencies together, namely countries (utilising the G20), companies (selecting 30 companies affiliated to the World Business Council for Sustainable Development), and cities (working through the existing C40 Cities initiative). Embracing "inclusive multilateralism" and reporting to the United Nations Framework Convention on Climate Change, the Coalition could inspire countries, companies and cities to undertake meaningful and practical action on climate change.¹ The Coalition could develop targets on areas including: increased LED street lighting; decreased commercial energy usage; promotion of more energy efficient buildings, transport systems and housing improvements; increased recycling rates; and reduced wastage in both commercial and public facilities. The Coalition could also work to ensure accelerated market penetration of highly efficient vehicles and biofuels, as recommended by the International Climate Taskforce in 2005.² Members could be required to track their greenhouse gas emissions via a carbon calculator, with appropriate benchmarks identified depending on the industry sector, country or city size. Membership could be contingent on performance and an annual disclosure process, with an accreditation system put in place to reward the strongest performers.

CyberEx:

- A new early cyber warning platform, aimed at promoting a better understanding of common threats for the shared benefit of government, corporate and individual interests

At a time when citizens are becoming increasingly sceptical of the ability of governments, businesses, banks and other service providers to protect their data security, the development of more robust, independent and trusted systems is required. Too many decisions regarding cyber security rely on an inadequate evidence base, due to inconsistent data and deficient reporting, along with fragmented and inconsistent cyber rules across different networks and systems. To respond, the Commission recommends the establishment of an early warning platform for the shared benefit of government, corporate and individual interests. CyberEx would act as a trusted analyst of select data to identify emerging common threats and help to coordinate appropriately targeted and accessible responses. This initiative could build on existing national response systems, whilst also helping to provide support in developing countries where cyber infrastructure is weakest.³

CyberEx could be an independent exchange, funded by participating stakeholders. It could work to develop complete, consistent and comparable metrics of common threats, enabling a more transparent and deeper understanding to inform better policies over the longer term.⁴ The platform could share information on global cyber system weaknesses, suspicious internet traffic and malicious software, whilst also helping countries and businesses identify and implement minimal technical and policy standards of cybersecurity.⁵ It could seek to minimise common vulnerabilities that enable the theft of sensitive information and the distribution of spam through systems, and work closely with international and domestic agencies to prevent common system attacks. The platform could also provide a useful mechanism for stakeholders to agree responses to collective concerns, such as privacy protection. By providing an accessible, open platform for information exchange, CyberEx could help governments, businesses and individuals to understand common threat patterns better, identify preventative measures, and minimise future attacks. Multi-stakeholder governance and transparency will be critical to ensure CyberEx is a trusted platform.

2. Innovative, Open and Reinvigorated Institutions

Ensure 21st century institutions and measurements are open, fit for purpose and steered towards long-term resilience.

Fit Cities:

- A city-based network to fight the rise of NCDs and share practices to minimise the costs they inflict on health systems

The Commission recommends the creation of an action-focused global network centred on cities and dedicated to fighting the rise of NCDs. The *WHO Draft Action Plan for the Prevention and Control of NCDs 2013–2020* was endorsed earlier this year by the World Health Assembly, along with the associated proposed UN Interagency Task Force.⁶ The “Fit Cities” Network could build on this momentum, cognisant of the fact that both developed and developing economies face a dual burden of communicable and non-communicable disease. Fit Cities could focus on cities with populations over five million and bring food, beverage, and alcohol producers to the table in collaboration with public health authorities, the UN Task Force, and the civil society coalition, The NCD Alliance. In addition to encouraging the enforcement of health promotion regulation, Fit Cities could focus on the availability of healthy food, quality of health education, and effective mechanisms to enhance healthy lifestyles. The Network could draw inspiration from other public health initiatives: the “Move-to-Improve” scheme recently instituted in New York City to help teachers integrate physical activity into all areas of the classroom is one such example. Participating cities could set measurable targets based on the WHO’s Draft Action Plan; the most successful city could be awarded a prize funded by modest subscriptions from all members of the network.

Decades, not Days:

- Develop independent institutions accountable to governments but able to operate across longer-term time horizons

To enable governments to “focus more on steering rather than rowing”,⁷ the Commission recommends they invest in innovative institutions. Such institutions should be independent of the short-term pressures facing governments of the day but appropriately accountable to the political system in question. The pressures of day-to-day governing and the 24/7 media cycle need not prejudice these institutions; rather, they should be charged with conducting systematic reviews and analysis of longer-term issues impacting their country and region. Essential areas of policy formulation, evaluation and implementation could benefit from more devolved authority and decentralised public service delivery. Useful models include infrastructure and urban planning authorities like those in Australia⁸ and Singapore,⁹ and the Tennessee Valley Authority in the United States.¹⁰ The United Kingdom’s National Institute for Health and Care Excellence¹¹ and Office of Budget Responsibility¹² apply similar principles in health and fiscal policy. Institutional design must naturally respond to the fundamental imperatives of legitimacy, accountability and effectiveness. Creating institutions that are somewhat insulated from short-term political agendas or electoral terms may safeguard such imperatives,¹³ particularly if the individuals appointed to such institutions are suitably protected from short-term biases.¹⁴ Political debate and decision-making processes also benefit from transparent and independent expert advice, provided it remains subject to appropriate accountability and oversight by parliaments or other bodies.¹⁵ Regional bodies, such as the European Union and the African Union, as well as international professional bodies, can contribute significantly in advancing and upholding standards. Cross-party consensus and support of the agenda and objective of such independent agencies is vital in order to secure their stability, longevity, impartiality and effectiveness.¹⁶

Fit for Purpose:

- Build sunset clauses into all publicly-funded international institutions and require a review of accomplishments and mandates to ensure they are fit for 21st century purposes

The Commission has identified a number of areas where new institutions will be valuable, and has also recommended reform of existing institutions. At the same time, the Commission acknowledges the importance of regular review of institutional arrangements to ensure they are fit for purpose. Since the establishment of the UN and the Bretton Woods institutions over 60 years ago, the number of international agencies has steadily grown, with “a spaghetti bowl of overlapping mandates”.¹⁷ The UN itself has over twenty independent agencies and funds, each with varying degrees of independence. Whilst the mandates of many agencies have changed or sprawled¹⁸ in different directions, not one agency has been closed down.

The Commission recommends the inclusion of sunset clauses into the governance structures of the majority of international institutions, where appropriate. This is to ensure there is regular reflection and analysis of organisational performance and purpose. Such analysis must be transparent and inclusive, and inspire institutions to be more innovative and adaptive within their mandates in response to 21st century demands. Where institutions are shown to have fulfilled their mandate and are no longer appropriate or adapted to the demands in question, their functions should cease, with resources and activities redirected to more appropriate institutions and challenges. In the absence of such constructive review, global governance institutions in many cases have failed to evolve in pace with the changing nature of the challenges, leading to a widening governance gap and compounding questions of legitimacy and effectiveness. Sunset clauses will not fully address these concerns, but will be an important step towards a more streamlined, effective, and reinvigorated global governance system.

Open up Politics:

- Optimise new forms of political participation, transparency and accountability, whilst amplifying the voices of global citizens

The Commission recommends renewed commitment to transparent government and deeper political engagement. Open government has been described as an “essential foundation for economic, social and political progress, by strengthening the transparency of institutions” and enabling more informed decisions based on more collaborative conversations.¹⁹ Momentum is building: commitment to “open data” is increasingly seen as a powerful force for public accountability and scrutiny, particularly in making existing information “easier to analyse, process and combine than ever before”.²⁰ More needs to be done to enable civil engagement, influence, monitoring and participation on longer-term issues. Governments should maximise the potential of new social media tools to act as an arena to galvanise political discussion and debate. Other “experiments” in more inclusive government should also be tested, such as deliberative tools that empower citizens in decision-making.²¹

The Open Government Partnership (OGP) is a particularly welcome development. Initiated by Brazil, and now boasting over 50 participating countries, this multilateral initiative works to “secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance”.²² The OGP collaborates with individual countries to develop action plans on citizen participation, “access-to-information” laws, and anti-corruption disclosures, together with measures to improve services, promote innovation and appropriately manage resources. The OGP publicly tracks progress and provides independent reports and assessments in order to promote accountability between member governments and citizens. The Commission calls for the OGP platform to be adopted by other institutions and governments, and for the platform’s work to be expanded to strengthen coordination between citizens across countries. Such coordination would enable a stronger voice amongst global citizens on policies to address longer-term global challenges. As the Center for Global Development’s Nancy Birdsall has argued, global society needs better channels through which to influence global

polity,²³ and OGP is well placed to act as this platform. Global governance agencies could, for example, be required to commit to OGP’s independently assessed “openness” action plans, whilst more bottom-up techniques to harness global voices could be a powerful addition to the multilateral negotiations which are currently stymied. Individual leaders and decision-makers also need to be held to account. To this end, the Commission commends initiatives like the one recently announced by the World Economic Forum and the University of Oxford’s Blavatnik School of Government to develop a metric for measuring the performance of heads of international organisations.²⁴

Make the Numbers Count:

- Establish Worldstat, a specialist agency charged with putting confidence into our statistics over the long term

Statistics underpin almost all key government and business decisions, yet there are legitimate questions about the rigour of the numbers on which we rely. To address this shortcoming, the Commission calls for the creation of “Worldstat” to undertake quality control of global statistics, assess domestic practices, regulate misuse, and improve data collection. Worldstat would not be a substitute for existing institutions such as the United Nations Statistical Commission or the United Nations Statistics Division (both of which sit within the UN’s Economic and Social Council). These UN agencies would continue to focus on agreeing international statistical methodologies and standards suitable for the developed and developing worlds, which are adapted to the contemporary environment and facilitate international comparisons.

Worldstat, as a specialised agency or a separate entity, would ideally possess budgetary and resource capabilities on a scale comparable with Eurostat, and could focus its attention on the implementation of agreed standards and capacity building for the accumulation and interpretation of data, particularly in the developing world. Worldstat could also fast-track work done at the international level on new or emerging indicators for sustainable development, and direct its attention to capacity building on this front. This might include investing in deficient or absent civil registration systems so that the progress of sustainable development policies can be properly tracked. Another key task for Worldstat could be to hasten the implementation of the recommendations of the 2009 Commission on the Measurement of Economic Performance and Social Progress²⁵, reinforcing the work being done to take forward those recommendations by the International Statistical Institute and the International Economic Association. These efforts would also heed recommendations made by the World Bank on the measurement of employment and “linking information on a household’s income or consumption with information on the employment of its members”.²⁶ Worldstat could also strive for

greater quality control by benchmarking states and regions against best practice and fostering greater sharing of data collection technology and expertise, interpretive know-how, and the training of local actors. Worldstat would seek to work closely with sector specific global initiatives such as the Global Burden of Disease project, a collaborative study led by the Institute of Health Metrics and Evaluation which measures the impact of hundreds of diseases, injuries and risk factors across more than 20 regions. Worldstat would also utilise and invest in new technological tools and partner with businesses and universities for the purposes of generating, collecting, aggregating and interpreting data.

Transparent Taxation:

- Establish a Voluntary World Taxation and Regulatory Exchange

In order to help harmonise company taxation arrangements, promote information sharing, and enhance transparency, the Commission recommends the establishment of a Voluntary World Taxation and Regulatory Exchange. The aim of the Exchange would be to encourage multinational corporations to disclose their tax planning and transfer pricing arrangements (either confidentially or on the record) and for governments to reveal rulings on preferential tax regimes, including the percentage of activity required for preferential treatment. The Fiscal Affairs Department of the IMF could be considered as a possible site for the Exchange, which would enhance information sharing between tax administrations internationally, and raise public pressure on tax abuse and avoidance schemes. The Exchange is intended to reinforce the overall framework of the OECD/G20 Base Erosion and Profit Shifting Action Plan (“BEPS Project”) to ensure that multinationals pay their fair share of tax and that profits generated in the digital economy are not unfairly and artificially shifted to other jurisdictions. The Exchange is intended to be voluntary, such that collective pressure is generated by increased transparency and by companies electing to set an example. As anticipated by the OECD/G20 BEPS Project, such commitments could be formalised in due course by a multilateral instrument.²⁷

3. Revalue the Future

Adjust political, legal and economic structures in favour of future generations.

Focus Business on the Long Term:

- Financial institutions and businesses should look beyond the next reporting cycle

The Commission urges that priority be given to implementing the recommendations made by the Group of 30 on Long-term Finance, particularly the proposals surrounding long-term accounting frameworks, development of infrastructure for capital markets in developing countries, and the redirection of structural surpluses in national savings to diversified sovereign wealth funds with a long-term investment mandate.²⁸ In particular, the Commission believes the G30’s call for the creation of dedicated long-term financial institutions should be prioritised. This requires the public and private sectors to work together to establish lending institutions and investment intermediaries with long-term mandates. Such institutions could include infrastructure banks, green finance, small business banks and innovation funds, whereby funding is provided directly through a public sector institution or indirectly through guarantees to the private sector. On a related front, the International Accounting Standards Board of the IFRS, in conjunction with the World Business Council for Sustainable Development, UN Global Compact, the new B-Team initiative, and other forward-looking business initiatives and private-public partnerships, could work together to promote longer-term business horizons and potentially develop a “health” assessment for listed companies. This assessment would concentrate on long-term value creation and absolute performance, taking into account portfolio churn, remuneration incentives, length of investments, shareholder voting rights, organisational talent and tenure, time dedicated to long-term strategy deliberations, and innovative capacity. A specific spotlight on the long-term health of companies could help to “build long-termism into companies’ DNA”. This would reinforce proposals in the Kay Review of United Kingdom Equity Markets and Long-Term Decision Making to “reduce the pressures for short-term decision-making that arise from excessively frequent reporting of financial and investment performance (including quarterly reporting by companies), and from excessive reliance on particular metrics and models for measuring performance, assessing risk and valuing assets”.²⁹

Discounting:

- End discrimination against future generations

The Commission does not believe that future generations should be discriminated against simply because they are born tomorrow and not today. Discounting is an essential tool used to calculate the future value of something today. It plays a central task, for example, in weighing up the costs of taking action now to avoid climate disasters later this century. Governments frequently make decisions, such as in infrastructure investment or climate change policy, which have significant implications for future generations. In doing so, they weigh up costs and benefits that will occur at different points in time. Too often, these calculations give less weight to the worth of future generations, and to the implications of certain decisions on them, in large measure because of a casual, mechanical, and partially-understood approach to discounting. The Commission believes future generations should not be discriminated against simply because they exist in the future and do not currently have political or economic influence. Any discounting of impacts on future generations of today's decisions should be made in relation to the expected change in their well-being, which may be positive or negative, not simply because these generations are born at a later date. We wish to emphasise that unless strong action is taken on climate, the environment and resources, there is a real risk that they will be worse off.

The Commission believes greater attention should be given to the considerable implications generated by assumptions in current discounting models and their bias against future generations. The Commission believes short-term market rates of return on interest in imperfect markets are of limited relevance to collective decisions concerning ethics for the long term. These considerations imply that in a world of considerable uncertainty about future levels of well-being it would be wise to work with discounts that rely less heavily on extrapolation, including for infrastructure and resources issues. Whilst it is recognised that discounting is used for different purposes and under different circumstances, it is the Commission's belief that the rate used should be lower, rather than higher. When evaluating the costs of action and inaction, policymakers need to ensure discounting embraces a more sophisticated appreciation of the role of ethics, risk, and the scale of possible damages in the future.

Invest in People:

- Remove price-distorting perverse subsidies on hydrocarbons and agriculture, with support redirected to targeted pro-poor transfer

Our Commissioner Kishore Mahbubani describes price-distorting subsidies on hydrocarbons and agriculture as "the dragon that needs to be slayed for a better world". The Commission agrees. Creating a more level playing field is essential for the restoration of economic growth, the reduction of global inequalities, and for sustainable development. In matters related to trade, the Commission believes that the successful conclusion of the Doha Trade Round should be given greater priority. Alongside these efforts, concerted effort must be directed towards price-distorting subsidies. Perverse subsidies on activities and industries that cause climate change result in a loss of forests, damage our biodiversity and waste natural resources, and are estimated to cost over a trillion United States dollars per year globally.³⁰ Efforts such as the 2009 G20 pledge to phase out hydrocarbon subsidies in the "medium-term" are encouraging, but tangible action is required immediately. In reducing global dependency on agricultural and hydrocarbon subsidies, the savings made by removing subsidies could at least in part be redirected to targeted, pro-poor transfers. Such transfers, if properly designed and implemented, could contribute both to long-term poverty reduction and environmental sustainability. Several countries have already taken the lead in reducing fossil fuel subsidies; India has implemented *Aadhar* (unique identification number) based Direct Benefit Transfer for LPG consumers with the aim of improving subsidy administration of LPG across the country; Ghana cut subsidies in February 2013; Indonesia announced policies to reduce subsidy expenditure in May 2012; and Iran substantially reduced energy subsidies in December 2010 as part of a wider five-year programme to gradually increase prices of oil products, natural gas and electricity to full cost prices.³¹

In agriculture, pro-poor transfers could include: subsidising fertilisers for the poorest farmers in low-income countries and encouraging "evergreen" agricultural practices (as used in Malawi)³²; monetary incentives for more sustainable land-use practices such as crop diversification and recycling; and support for

rights-based land tenure and agrarian reform. As is the case in agriculture, hydrocarbon subsidies are currently highly regressive, so it is vital to alleviate their undue burden on the poorest whilst ultimately shifting investment towards more renewable energy sources. The Commission also suggests these policy changes should, wherever possible, be considered alongside a reduction of subsidies on harmful crops such as tobacco, palm oil and sugar. Reducing subsidies can be politically difficult, as evidenced by the reactions to the removal of subsidies in Nigeria in 2012³³ and recent similar controversies over rice in Thailand.³⁴ To overcome this, governments should analyse and articulate the regressive disadvantages and waste associated with current subsidies, and highlight the benefits of a well-targeted, more sustainable social programme.³⁵ Clear, transparent data and communication is critical, as is providing a realistic time frame and notice period to assist in the transition and adaptation to the elimination of perverse subsidies.

4. Invest in Younger Generations

Foster a more inclusive and empowered society by prioritising and accelerating efforts to address child poverty and create new employment and training opportunities for young people.

Measure Long-term Impact:

- Success in governance and anti-corruption efforts should spur the creation of an index focused on long-term impact

Building on the advances of the World Bank, the Mo Ibrahim Foundation, Transparency International and other agencies in measuring governance, the Commission recommends the development of a Long-Term Impact Index (“the Index”). The Index would highlight the importance of investing in appropriate infrastructure and decision-making processes that enhance longer-term resilience and inclusiveness. The Index would rate the effectiveness of leaders of countries, companies and international organisations in addressing longer-term challenges. Given its focus on long-term goals, the Index would primarily assess processes and policies, rather than deliverables. A small, manageable number of indicators and a select group of countries, companies and organisations would be included in the first instance to test and develop the Index. The indicators might include tracking of median (rather than average) household income; biodiversity protection; quality of civil registration systems; the nature and scope of long-term institutions, committees and infrastructure; planning and budgeting horizons; company “health” metrics; transparency of tenure and selection of leaders; openness of decision-making processes; measures to enhance female and youth participation; rule of law deference and stability; carbon neutrality; and change in inequality over time. To complement the Index, the Commission suggests the establishment of a prize that recognises contributions to posterity and a commitment to practices and procedures oriented towards the long term. The prize would be supported by a range of partners in business, civil society and academia, and be based on data drawn from Worldstat and other collaborators. It would be awarded every two years, alternating between best performer and most improved.

Attack Poverty at its Source:

- Break the inter-generational persistence of poverty through social protection measures such as conditional cash transfer programmes

As demonstrated in Part B, crisis can be an essential element in inspiring transformative policy change. In the 1930s, the Great Depression led to new forms of social protection through the New Deal, which was credited with raising living standards and domestic demand in the United States. As we slowly emerge from the current Financial Crisis, now is a historic opportunity to “rethink the relationship between growth, public intervention and social protection”.³⁶ The Commission believes it is time to address the inter-generational persistence of poverty through social assistance measures, such as conditional cash transfers. Such measures should complement sustained investment in health and education infrastructure to ensure that children are able to reach their full potential throughout all stages of life. Support for research and innovation is also critical to drive economic growth and provide opportunities for younger generations, not least if local knowledge and expertise can be enabled and applied to addressing local issues and priorities.

Falling into poverty during childhood can last a lifetime. Missed opportunities in education or inadequate nutrition can have devastating impacts on a child’s long-term development, leaving them vulnerable to life-threatening diseases, and more likely to underperform as adults. As UNICEF argues, “child poverty threatens not only the individual child, but is likely to be passed on to future generations, entrenching and even exacerbating inequality in society”.³⁷ The Commission calls for more countries to consider protective, preventative, and transformative measures, such as conditional cash transfers, as a critical part of a strategy to address inter-generational poverty. Experience from countries such as Brazil, South Africa, Mexico, Malawi and Zambia suggests that cash transfers can have positive impacts on reducing children’s poverty, either through measures directly targeted at children or indirectly through raising household income.³⁸ Poor families use cash transfers

to invest in their children, often paying for education and health care, which can have multiplier effects through boosting funding into the local economy. In resource-rich countries, such initiatives can help redistribute resource revenues to the less advantaged in society. Investment in such social interventions must be accompanied by appropriate infrastructure and oversight mechanisms to ensure funds are used most effectively and reach those most in need. The Commission is encouraged by evidence that in middle and higher income countries approximately 25 percent of fiscal stimulus measures post-crisis have been targeted at social protection measures: this momentum must not be lost.³⁹

5. Establish a Common Platform of Understanding

A Future for Youth:

- Invest in youth guarantees to reduce “scars” of long-term unemployment and disconnection

The Commission calls for urgent priority to be given to the dual global challenges of unemployment and underemployment. We accept there are no easy, one-size-fits-all solutions to these problems, but identifying initiatives to facilitate a more inclusive, productive and flexible workforce must be a higher priority for government and business leaders. Of greatest urgency is the need to address the youth employment crisis. Approximately 75 million young people are out of work globally, of whom 6 million have given up looking for a job, whilst more than 200 million young people work in informal, low productivity or insecure jobs.⁴⁰

The social and economic characteristics of youth unemployment vary amongst countries and regions. Nevertheless, young people need to be assigned higher priority within broader macroeconomic and labour market policies which aim to foster pro-employment growth and decent job creation. To assist in this endeavour, the Commission calls for sustained investment in youth guarantee programmes. Youth guarantees typically include a combination of education and training (general education, vocational education and training); employment services and programmes (employment planning, job-search assistance, workshops or rehabilitation); and active labour market measures (on-the-job training and apprenticeships, community services, business start-up programmes). Collectively, these guarantees aim to promote a smooth transition from education to work and prevent long-term unemployment for young people. The Commission believes youth guarantees should be available to all who fit a pre-defined criteria related to age (typically between 15 and 29 years old) and duration of unemployment (ideally between one and six months of inactivity). Modelled on successful programmes in Sweden, Norway, Denmark, Austria, Germany, the Netherlands and Poland, the ILO estimates youth guarantees can be implemented at an annual cost of between 0.5 and 1.5 percent of GDP (depending on existing infrastructure capacity to deliver the programme, and the size of the eligible population).⁴¹ Whilst this

is a significant investment, which needs to be tailored to each country’s needs and resources, not least in developing countries, the Commission believes the benefits of investing in an active and inclusive workforce for young people outweigh the costs. To be truly successful, however, youth guarantee schemes require a broader partnership of government agencies, employers, youth and student organisations, education and training providers, and young people themselves.⁴² Involving these different groups in the formation of such policies will ensure they are appropriately adapted to the national context and contribute to the overall success of the schemes. This is especially important in developing countries where governments face greater financial or institutional constraints. Nevertheless, recent policy innovations in countries like Kenya and Sri Lanka reveal how some of these constraints can be tackled.⁴³

Build Shared Global Values:

- Articulate a common global vision and ambition

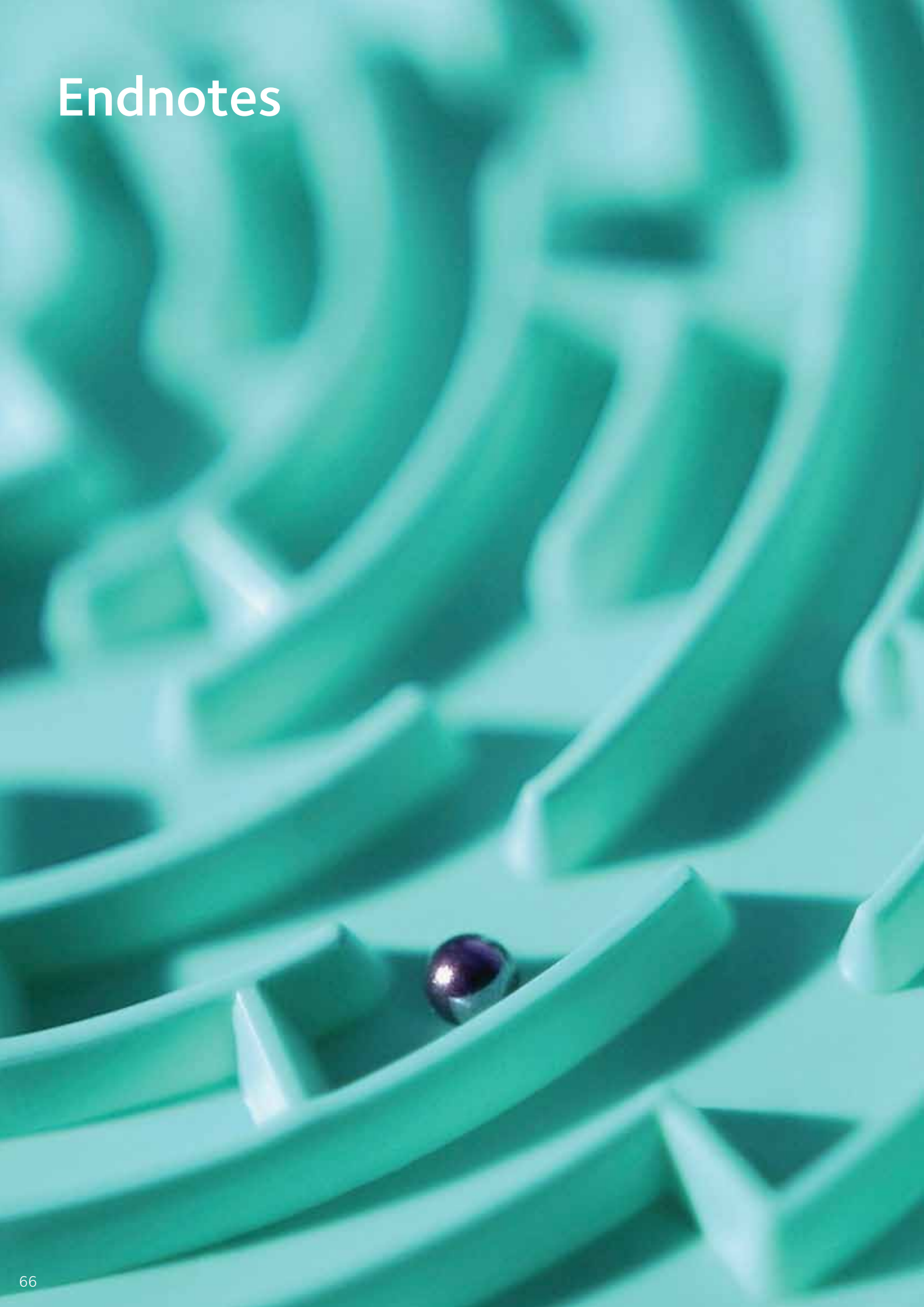
It is the Commission’s view that efforts to address today’s global challenges are undermined by the absence of shared global values and a shared vision for global civilisation. As Commission Chair Pascal Lamy has stated, global governance and cooperation will remain an alien concept as long as there is no feeling of global belonging amongst citizens.⁴⁴ Too many countries feel that current global models and methods are embedded in a historical, “Western” framework. In today’s interconnected world, we need a common platform for dialogue that speaks to all cultures and countries and seeks to advance common understanding and build a better world for future generations. It is the Commission’s view that the pressures of a deeply interconnected world require a stronger collective vision regarding our future and the longer-term needs of our societies, including mutual respect and adherence to a set of universal norms which have been collectively developed and agreed.⁴⁵ The Commission supports an incremental commitment to a platform of common values, building on the aspirations of the United Nations Charter and work that has already been undertaken by the United Nations Alliance of Civilizations, as well as by civil society initiatives such as the Earth Charter⁴⁶ and the InterAction Council’s proposed Universal Declaration of Human Responsibilities.⁴⁷ Such a shared platform, developed through a wide-ranging dialogue between different political leaders, faiths, scholars and citizens, would elucidate a shared set of goals for humanity. By seeking to support and add momentum to existing initiatives, the process of creating such a shared understanding of our key interests could also help foster reconciliation between different countries and groups of countries. The United Nations Charter, with its inspiring preamble (“We the peoples of the United Nations...”), remains a vital cornerstone of shared global norms and values. Yet our world requires a renewed pledge for the future. If we care about the prospects for our children and future generations, as well as our planet, articulating an updated set of broad concerns and shared principles could provide a useful foundation for action.

What Next?

In Part A of this report – *Possible Futures* – the Commission identified some of the key megatrends and challenges that are likely to shape our future and introduced possible responses to them. In Part B – *Responsible Futures* – we sought to draw lessons from examples of where global action was successful, and where it had failed, identifying the shaping factors that undermine our collective ability to act today. In Part C – *Practical Futures* – we have outlined a number of broad principles and more practical recommendations, aimed at providing impetus to overcome obstacles and inspire action. Our hope is that readers will be spurred to explore these ideas further, and will find them helpful as they seek to improve the lives of current and future generations. As a Commission, we will continue to engage with governments, businesses, NGOs and civil society in order to take our recommendations forward. We hope our readers will find ways to contribute to raising awareness of the challenges we face and through their actions bridge the current gap between our knowledge of the challenges and the associated actions. By so doing, we hope that together we can contribute to the construction of a sustainable world for current and future generations.

We invite you to engage with us on these issues at www.oxfordmartin.ox.ac.uk/commission

Endnotes



Introduction

- 1 Daron Acemoglu, "The World our Grandchildren will Inherit: The Rights Revolution and Beyond", *NBER Working Paper 17994* (Cambridge, MA: National Bureau of Economic Research, 2012), pp. 4–5.
- 2 See World Bank "An Update to the World Bank's Estimates of Consumption Poverty in the Developing World", Global Poverty Update, 2012. http://siteresources.worldbank.org/INTPOVCALNET/Resources/GlobalPoverty_Update_2012_02-29-12.pdf (accessed 17 September 2013); and *The Economist*, "Towards the End of Poverty", (1 June 2013).
- 3 Kishore Mahbubani, *The Great Convergence: Asia, the West, and the Logic of One World* (New York: PublicAffairs, 2013), pp. 1–3, 10–12.
- 4 Geoff Mulgan, *Good and Bad Power: The Ideals and Betrayals of Government* (London: Penguin, 2006), p. 306.
- 5 *Ibid.*, p. 307.
- 6 This point has been enriched by a conversation between Professor Ian Goldin and Strobe Talbott, to whom the Commission is grateful.
- 7 The *Gabcikovo-Nagymaros* Case (Slovakia/Hungary), International Court of Justice, 1997 at 107.
- 8 *Ibid.*, at 110.
- 9 See Thomas Princen, "Long-Term Decision-Making: Biological and Psychological Evidence", *Global Environmental Politics*, 9(3), (2009): 9–19, p. 10.
- 10 George Ritzer, *The McDonaldisation of Society: An Investigation into the Changing Character of Contemporary Social Life* (London: Pine Forge Press, 1992), cited in Toon van Meijl, "Culture and Identity in Anthropology: Reflections on 'Unity' and 'Uncertainty' in the Dialogical Self", *International Journal for Dialogical Science*, 3(1), (2008): 165–90, p. 166.
- 11 Hubert Hermans and Giancarlo Dimaggio, *The Dialogical Self in Psychotherapy: An Introduction* (London: Routledge, 2004), p. 34.
- 12 Mary Watkins, "Dialogue, Development, and Liberation", in Ingrid E. Josephs (ed), *Dialogicality in Development* (Westport, CT: Praeger, 2003), pp. 87–109, cited in Hubert Hermans and Giancarlo Dimaggio, *The Dialogical Self in Psychotherapy: An Introduction* (London: Routledge, 2004), p. 35.
- 13 Andrew Hurrell, "One World? Many Worlds? The Place of Regions in the Study of International Society", *International Affairs*, 83(1), (2007): 127–46, p. 136.
- 14 Kathryn Woodward, *Identity and Difference* (London: Sage/Open Press, 1997), cited in Toon van Meijl, "Culture and Identity in Anthropology: Reflections on 'Unity' and 'Uncertainty' in the Dialogical Self", *International Journal for Dialogical Science*,

- 3(1), (2008): 165–90, pp. 172–3.
- 15 See Hubert Hermans and Giancarlo Dimaggio, *The Dialogical Self in Psychotherapy: An Introduction* (London: Routledge, 2004), pp. 32–3, 46.
- 16 *Ibid.*, p. 32.

Part A

- 17 A megatrend is "an important shift in the progress of a society or of any other particular field or activity; any major movement". See *Oxford English Dictionary*, "Megatrend", online, 2013, <http://www.oed.com/>
- 18 Emile Simpson, *War From the Ground Up* (London: Hurst, 2012), p. 242.
- 19 UNFPA, *The State of World Population, 2011* (New York: United Nations Population Fund), p. 5.
- 20 Aric Bendolf, "World Population Trends Towards 2050 and Beyond", *Strategic Analysis Paper*, 24 February (Perth, WA: Future Directions International, 2010), <http://www.futuredirections.org.au/files/1269848200-FDI%20Strategic%20Analysis%20Paper%2024%20February%202010.pdf>
- 21 UN-DESA, *World Population Prospects: The 2012 Revision – Key Findings and Advance Tables* (New York: United Nations, Department of Economic and Social Affairs, 2013), p. 3.
- 22 UN-DESA, *World Population to 2300* (New York: United Nations, Department of Economic and Social Affairs, 2004), p. 21; and WHO, "World Health Day 2012 – Toolkit for Event Organizers", World Health Organization, <http://www.who.int/world-health-day/2012/toolkit/background/en/index.html>
- 23 José Manuel Salazar-Xirinachs, "The World at a Crossroads: The Employment Challenge Facing the World Today", Keynote Speech (Osaka, Japan: *Rokin-ILO International Symposium*, 25 November 2012), p. 7. http://www.ilo.org/wcmsp5/groups/public/--ed_emp/--ed_emp_msu/documents/statement/wcms_193611.pdf
- 24 Sarah Harper, "Going Grey: The Mediation of Politics in an Ageing Society by Scott Davidson", *Times Higher Education*, (14 March 2013), <http://www.timeshighereducation.co.uk/books/going-grey-the-mediation-of-politics-in-an-ageing-society-by-scott-davidson/2002447.article>; See also *The Economist*, "China's Achilles Heel", (21 April 2012), which notes the median age in China is predicted to rise by 14 years to almost 49 by 2050, whereas the rise in the United States is projected to be three years, to 40.
- 25 See Christophe Guilmo, "Sex-ratio imbalance in Asia: Trends, Consequences and Policy Responses", Gender Equality Study (United Nations Population Fund, 2007), p. 1. http://www.unfpa.org/gender/docs/studies/summaries/regional_analysis.pdf
- 26 ILO, *International Labour Migration: A Rights-Based Approach* (Geneva: International Labour Office, 2010), pp. 15, 21.
- 27 See World Bank, "Developing Countries to Receive Over \$400 Billion in Remittances

Part A *continued*

- in 2012, says World Bank Report”, *Press Release*, 20 November 2012. <http://www.worldbank.org/en/news/press-release/2012/11/20/developing-countries-to-receive-over-400-billion-remittances-2012-world-bank-report> (accessed 22 July 2013). Around 10 percent of the Filipino population, for example, works or lives abroad; their remittances make up between 10–15 percent of the Philippines’ GDP. See Veronica Bayangos and Karel Jansen, “Remittances and Competitiveness: the Case of the Philippines”, *ISS Working Paper 492* (The Hague: International Institute of Social Studies, 2010), p. 10.
- 28 UN-DESA, *World Urbanization Prospects: The 2011 Revision* (New York: United Nations, Department for Economic and Social Affairs, 2012).
- 29 UN Habitat, *The Challenge of Slums: Global Report on Human Settlements* (London: Earthscan and United Nations Human Settlements Programme 2003). See also Pietro Garau, Elliot Sclar and Gabriella Caroloni, *Improving the Lives of Slum Dwellers*, UN Millennium Project (London: Earthscan, 2005), pp. 11–21.
- 30 See Foresight, *Migration and Global Environmental Change*, Final Project Report (London: Government Office for Science, 2011), p. 13.
- 31 As defined on the basis of absolute household income of USD\$3,000–15,000. See Karen Ward and Frederic Neumann, “Consumer in 2050: The Rise of the EM Middle Class”, *HSBC Global Research, Global Economics Report* (London: HSBC Bank, October 2012), pp. 20–21, http://www.hsbc.com.vn/1/PA_ES_Content_Mgmt/content/vietnam/abouthsbc/newsroom/attached_files/HSBC_report_Consumer_in_2050_EN.pdf
- 32 *Ibid.*, See also the graph in ILO, “Rise of Middle-Class Jobs in the Developing World Could Spur Growth”, *Global Employment Trends 2013*, News, 23 January 2013. http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_202481/lang--en/index.htm
- 33 Richard Dobbs, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit and Fabian Schaer, *Urban World: Cities and the Rise of the Consuming Class* (McKinsey Global Institute, 2012), http://www.mckinsey.com/insights/urbanization/urban_world_cities_and_the_rise_of_the_consuming_class
- 34 ILO, “Global Unemployment Rising Again but with Significant Differences Across Regions”, *Global Employment Trends 2013*, News, 22 January 2013. http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_202320/lang--en/index.htm. See also Deloitte “Deloitte on Africa: The Rise and Rise of the African Middle Class” (Johannesburg: Deloitte & Touche, 2013), http://www.deloitte.com/assets/Dcom-SouthAfrica/Local%20Assets/Documents/rise_and_rise.pdf; and Richard Dobbs, Jaana Remes, James Manyika, Charles Roxburgh, Sven Smit and Fabian Schaer, *Urban World: Cities and the Rise of the Consuming Class* (McKinsey Global Institute, 2012), http://www.mckinsey.com/insights/urbanization/urban_world_cities_and_the_rise_of_the_consuming_class
- 35 EFA, *Youth and Skills: Putting Education to Work*, Education for All, Global Monitoring Report (Paris: UNESCO, 2012), p. 8, <http://unesdoc.unesco.org/images/0021/002175/217509E.pdf>
- 36 OECD, *Education at a Glance* (Paris: OECD Publishing, 2012), <http://www.oecd.org/edu/highlights.pdf>
- 37 EFA, *Youth and Skills: Putting Education to Work*, Education for All, Global Monitoring Report (Paris: UNESCO, 2012), pp. 11–12, <http://unesdoc.unesco.org/images/0021/002175/217509E.pdf>
- 38 UNESCO, “Education: Goal 2, Achieve Universal Primary Education”, 2013. <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/education-and-the-mdgs/goal-2/>
- 39 World Bank, “Energy – The Facts”, 2011, <http://go.worldbank.org/6ITD8WA1A0>
- 40 OECD, *Divided We Stand: Why Inequality Keeps Rising* (OECD: Paris, 2011), p. 49.
- 41 ILO, *World of Work Report 2013: Repairing the Economic and Social Fabric* (Geneva: International Labour Organization, 2013), p. 1.
- 42 ILO, “Global Unemployment Rising Again but with Significant Differences Across Regions”, *Global Employment Trends 2013*, News, 22 January 2013. http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_202320/lang--en/index.htm
- 43 Uri Dadush and Bennett Stancil, “The World Order in 2050”, *Policy Outlook* (Carnegie Endowment for International Peace, April 2010); *The Economist*, “A Fall to Cheer”, 3 March 2012.
- 44 See World Bank “An Update to the World Bank’s Estimates of Consumption Poverty in the Developing World”, *Global Poverty Update*, 2012, http://siteresources.worldbank.org/INTPOVCALNET/Resources/Global_Poverty_Update_2012_02-29-12.pdf (accessed 17 September 2013)
- 45 UNDP, “Gender Equality and UNDP”, *Fast Facts*, July. (New York: United Nations Development Programme, 2011), <http://www.undp.org/content/dam/undp/library/corporate/fast-facts/english/FF-Gender-Equality-and-UNDP.pdf>
- 46 See Matthew O’Brien, “Emerging Power: Developing Nations Now Claim the Majority of World GDP”, *The Atlantic*, 4 June 2013; and Chris Giles and Kate Allen, “Southeastern Shift: The New Leaders of Global Economic Growth”, *Financial Times*, (4 June 2013).
- 47 Pascal Lamy, “Multilateralism is at a Crossroads”, Speech at the Humboldt-Viadrina School of Governance, Berlin, (26 June 2012), http://www.wto.org/english/news_e/sppl_e/sppl_e.htm
- 48 Karen Ward, “The World in 2050: From the Top 30 to the Top 100”, *HSBC Global Research, Global Economics Report*, January (London: HSBC Bank, 2012); and Jose Manuel Salazar-Xirinachs, “The World at a Crossroads: The Employment Challenge Facing the World Today”, Keynote Speech (Osaka, Japan: *Rokin-ILO International Symposium*, 25 November 2012), p. 6., http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ed_emp_msu/documents/statement/wcms_193611.pdf
- 49 NIC, *Global Trends 2025: A Transformed World* (Washington DC: United States National Intelligence Council, November 2008), p. 7, <http://www.fas.org/irp/nic/2025.pdf>
- 50 Brookings Global Economy and Development, *Top 10 Global Economic Challenges: An Assessment of Global Risks and Priorities* (Washington DC: The Brookings Institution, 2007), p. 13.
- 51 The Royal Society, *Knowledge, Networks and Nations* (London: The Royal Society, 28 March 2011).
- 52 WTO, *World Trade Report 2008: Trade in a Globalizing World* (World Trade Organization, 2008), p. 15, http://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report08_e.pdf
- 53 WTO, “Trade Growth to Slow in 2012 After Strong Deceleration in 2011”, *WTO Press Release 658*, 12 April 2012, http://www.wto.org/english/news_e/pres12_e/pr658_e.htm
- 54 Pascal Lamy, “Women Entrepreneurs as Engine of Growth: Challenges, Financial Access and Global Trade”, *Speech to Geneva International Women Entrepreneurs’ Forum*, 5 July 2013.
- 55 For further details of the OECD-WTO joint initiative on Measuring Trade in Value Added see OECD, “Measuring Trade in Value Added: An OECD-WTO Joint Initiative”, <http://www.oecd.org/industry/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm>; and OECD-WTO, “OECD-WTO Database on Trade in Value added: First Estimates: 16 January 2013”, http://www.oecd.org/sti/industryandglobalisation/TIVA_stats%20flyer_ENG.pdf
- 57 See WEF, *Enabling Trade: Valuing Growth Opportunities* (Geneva: World Economic Forum, 2012).
- 58 Daron Acemoglu, “The World our Grandchildren will Inherit: The Rights Revolution and Beyond”, *NBER Working Paper 17994* (Cambridge, MA: National

Part A *continued*

- Bureau of Economic Research, 2012), p. 9.
- 59 Steven Pinker, *The Better Angels of Our Nature* (London: Penguin, 2011), p. 836; and Kishore Mahbubani, *The Great Convergence: Asia, the West, and the Logic of One World* (New York: PublicAffairs, 2013), p. 17.
- 60 See the “Correlates of War Index”, www.correlatesofwar.org
- 61 See Henry Kissinger, *Diplomacy* (London: Simon & Schuster, 1995), pp. 202–206.
- 62 See Sir John Beddington, “Food, Energy, Water and the Climate: A Perfect Storm of Global Events?”, mimeo (London: Government Office for Science, 2009), <http://www.bis.gov.uk/assets/goscience/docs/p/perfect-storm-paper.pdf>
- 63 See Ebrahim Azarpour, Maral Moraditochae and Hamid Reza Bozorgi, “Evaluating Energy Balance and Energy Indices of Wheat Production in Rain-Fed Farming in Northern Iran”, *African Journal of Agricultural Research*, 7(16), (2012): 2569–74; UN, “World Water Day: FAQ”, (2012), <http://www.unwater.org/worldwaterday/faqs.html>; Vaclav Smil, *Energy in Nature and Society: General Energetics of Complex Systems* (Cambridge, MA: MIT Press, 2008).
- 64 See Bernice Lee, Felix Preston, Jaakko Kooroshy, Rob Bailey and Glada Lahn, *Resource Futures: A Chatham House Report* (London: Royal Institute of International Affairs, December 2012). “While global water withdrawals have tripled in the last 50 years, the reliable supply of water has stayed relatively constant during the same period” (Ibid., p. xii).
- 65 Our Finite World, “World Energy Consumption Since 1820 in Charts”, (12 March 2012), <http://ourfiniteworld.com/2012/03/12/world-energy-consumption-since-1820-in-charts/>
- 66 FAO, “Road to Rio: Improving Energy Use Key Challenge For World’s Food Systems” (Food and Agricultural Organization, 14 June 2012), <http://www.fao.org/news/story/en/item/146971/icode/>
- 67 UNESCO, *UN World Water Development Report 4 – Managing Water under Uncertainty and Risk* (Paris: UNESCO, 2012, vol. 1), p. 3.
- 68 See NIC, *Global Trends 2030: Alternative Worlds* (Washington DC: United States National Intelligence Council, November 2012), p. 1, http://www.fas.org/irp/nic/global_trends_2030.pdf; see also Karen Ward, Zoe Knight, Nick Robins, Paul Spedding and Charanjit Singh, “Energy in 2050: Will Fuel Constraints Thwart our Growth Projections?” *HSBC Global Research, Global Economics & Climate Change Report* (London: HSBC Bank, March 2011), which suggests the figure is around 30 percent.
- 69 See IEA, *Redrawing the Energy-Climate Map: World Energy Outlook Special Report* (Paris: International Energy Association, 2013), pp. 26–8.
- 70 See Jerome Glenn, Theodore Gordon and Elizabeth Florescu, *2008 State of the Future*, Millennium Development Project (Washington DC: United Nations University), p. 16.
- 71 Karen Ward, Zoe Knight, Nick Robins, Paul Spedding and Charanjit Singh, “Energy in 2050: Will Fuel Constraints Thwart our Growth Projections?” *HSBC Global Research, Global Economics & Climate Change Report* (London: HSBC Bank, March 2011), p. 21.
- 72 See Erik Mielke, Laura Diaz Anadon and Venkatesh Narayanamurti, “Water Consumption of Energy Resource Extraction, Processing, and Conversion”, *Energy Technology Innovation Policy Discussion Paper 2010–15* (Cambridge, MA: Belfer Center for Science and International Affairs, Harvard Kennedy School, October 2010), pp. 5–6.
- 73 UN, *Millennium Development Goals Report 2012* (New York: United Nations, 2012), p. 52. Compared with 20 years ago, over 670 million more people in East Asia and the Pacific can access improved drinking water, but progress has been uneven. See UNICEF, “A Snapshot – 2012 Update: Water Supply in East Asia and the Pacific”, (Bangkok: UNICEF, East Asia and Pacific Regional Office, 2012), p. 1, http://www.unicef.org/eapro/EAPRO_Water_Snapshot_2012.pdf
- 74 See UN, *The Millennium Development Goals Report 2010*, p. 52; UNICEF and WHO, *Progress on Drinking Water and Sanitation: 2012 Update* (New York: UNICEF and WHO, 2012), pp. 5, 9, and 15, <http://www.unicef.org/media/files/JMPReport2012.pdf>
- 75 See FAO, “How to Feed the World in 2050”, FAO High-Level Expert Forum, 2009, <http://www.fao.org/wsfs/forum2050/en/>
- 76 World Bank, “Water: At a Glance”, April 2013, <http://go.worldbank.org/B54EGVXLPO>
- 77 Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press and London: UK Cabinet Office and HM Treasury, 2006), p. xi.
- 78 IPCC, *Fifth Assessment Report Summary for Policymakers* (Geneva: IPCC, September 2013), pp. 3, 7.
- 79 Ibid., p. 6.
- 80 See Climate Commission, *Off the Charts: Extreme Australian Summer Heat* (Canberra: Australian Climate Commission, 2013), http://climatecommission.gov.au/wp-content/uploads/CC_Jan_2013_Heatwave4.pdf; and Bernice Lee, Felix Preston, Jaakko Kooroshy, Rob Bailey and Glada Lahn, *Resource Futures: A Chatham House Report* (London: Royal Institute of International Affairs, December 2012). p. xii. See also The White House, “President Obama’s Plan to Fight Climate Change”, (25 June 2012), <http://www.whitehouse.gov/share/climate-action-plan>
- 81 Foresight, *Migration and Global Environmental Change*, Final Project Report (London: Government Office for Science, 2011), pp. 56–7.
- 82 See CBD, *Global Biodiversity Outlook 3* (Montréal: Secretariat of the Convention on Biological Diversity, 2010), pp. 9–10.
- 83 Kathy Willis and Shonil Bhagwat, “Biodiversity and Climate Change”, *Science*, 326(5954), (2009): 806–807.
- 84 Julian Hunt and Yulia Timonshkina, “Growing Challenges of Megacities and Climate Change”, in Policy and Public Affairs (ed.), *Future Risk: Climate Change and Energy Security – Global Challenges and Implications. Centenary Future Risk Series: Report 3* (London: The Chartered Insurance Institute, 2012), pp. 31–8, p. 31.
- 85 Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press and London: UK Cabinet Office and HM Treasury, 2006), p. vii.
- 86 Joshua Salomon, Haidong Wang, Michael Freeman, Theo Vos, Abraham Flaxman, Alan Lopez, and Christopher Murray, “Healthy Life Expectancy for 187 Countries, 1990–2010: A Systematic Analysis for the Global Burden Disease Study 2010”, *Lancet*, 380(9859), (2012): 2144–62, p. 2147.
- 87 Barry Popkin, “The Nutrition Transition and Obesity in the Developing World”, *Journal of Nutrition*, 131(3): 871S–873S. For specific country data see IHME, *The Global Burden of Disease: Generating Evidence, Guiding Policy* (Seattle: Institute for Health Metrics and Evaluation, 2013), p. 32.
- 88 WHO, “Noncommunicable Diseases (NCD)” Global Health Observatory, (2013), <http://www.who.int/gho/ncd/en/index.html>
- 89 WHO, *Global Status Report on Non-Communicable Diseases* (Geneva: World Health Organization, 2011), p. 3.
- 90 D. Bloom, E. Cafiero, E. Jané-Llopis, S. Abrahams-Gessel, L. Bloom, S. Fathima, A. Feigl, T. Gaziano, M. Mowafi, A. Pandya, K. Prettnner, L. Rosenberg, B. Seligman, A. Stein, and C. Weinstein, *The Global Economic Burden of Noncommunicable Diseases* (Geneva: World Economic Forum, 2011), p. 5.
- 91 Ibid.
- 92 Abdesslam Boutayeb, “The Burden of Non-communicable Diseases in Developing Countries”, *International Journal for Equity in Health*, 4(2), (2005). Recent data from over 3,100 counties in the United States revealed “that counties where the poverty rate was over 35 percent had obesity rates 145 percent

Part A *continued*

- higher than wealthy counties". See James Levine, "Poverty and Obesity in the U.S.", *Diabetes*, 60, (2011): 2667–8, p. 2667. The burden of NCDs is increasingly a problem in developing countries too, see Robyn Norton, "Safe, Effective and Affordable Health Care for a Bulging Population", in Ian Goldin, *Is the Planet Full?* (Oxford: Oxford University Press, forthcoming 2014).
- 93 See, for example, Michael Marmot, "Social Determinants of Health Inequalities", *Lancet*, 365, (2005): 1099–104. For information on the WHO's commission and work on social determinants of health, see WHO, "Social Determinants", http://www.who.int/social_determinants/en/
- 94 On income, see WHO, *World Health Statistics, 2013* (Geneva: World Health Organization, 2013), p. 78. On education and obesity, see Marion Devaux, Franco Sassi, Jody Church, Michele Cecchini, and Francesca Borgonovi, "Exploring the Relationship between Education and Obesity", *OECD Journal: Economic Studies*, 5(1), (2011): 121–59, <http://www.oecd.org/eco/growth/relationship%20education%20and%20obesity.pdf>
- 95 WHO, *Preventing Chronic Diseases: A Vital Investment* (Geneva: World Health Organization, 2005).
- 96 WHO, *World Health Statistics, 2013* (Geneva: World Health Organization, 2013), p.14.
- 97 *Ibid.*, The absolute gap between the world's top and bottom countries was 171 deaths for every 1,000 live births in 1990. By 2011 that figure had fallen to 107. *Ibid.*, p. 37.
- 98 See also John Tierney "Can Humanity Survive? Want to Bet on It?", *The New York Times*, 30 January 2007; and Martin Rees, *Our Final Century: The 50/50 Threat to Humanity's Survival. Will the Human Race Survive the Twenty-First Century?* (London: Arrow, 2003).
- 99 Burke Cunha, "Influenza: Historical Aspects of Epidemics and Pandemics", *Infectious Disease Clinic of North America*, 18 (2004): 141–55, pp. 141, 154.
- 100 See Thomas Levenson, "A New Life for a Deadly Disease", *New Yorker*, 25 April 2013; and "The ongoing Problem of Tuberculosis in the UK", *Lancet*, 381, (2013): 1431.
- 101 "Science and Engineering Beyond Moore's Law", (US National Science Foundation, 2012), http://www.nsf.gov/about/budget/fy2012/pdf/41_fy2012.pdf
- 102 See Jerome Glenn, Theodore Gordon and Elizabeth Florescu, *2008 State of the Future*, Millennium Development Project (Washington DC: United Nations University), p. 22.
- 103 See Eric Schmidt and Jared Cohen, *The New Digital Age* (London: John Murray, 2013), p. 253.
- 104 See UN, "Deputy UN Chief Calls for Urgent Action to Tackle Global Sanitation Crisis", *UN News Centre*, (21 March 2013), <http://www.un.org/apps/news/story.asp?NewsID=44452&Cr=sanitation&Cr1=#.UeUUsRYoKoV>
- 105 Bright Simons, "Africa's True Mobile Revolution Has Yet to Start", *Harvard Business Review*, Blog Network, (4 July 2012), http://blogs.hbr.org/cs/2012/07/africas_true_mobile_revolution.html; ITU, *Information Society Statistical Profiles Africa* (Geneva: International Telecommunication Union, 2009), pp. 1, 5.
- 106 *The Economist*, "The Bank of SMS", 24 April 2012, quoting a survey conducted by the Gates Foundation, the World Bank and Gallup.
- 107 ITU, "Key Statistical Highlights: ITU Data Release". International Telecommunication Union, (June 2012), http://www.itu.int/ITU-D/ict/statistics/material/pdf/2011%20Statistical%20highlights_June_2012.pdf
- 108 Tim Fernholz (2013). "Why Only 3% of India Has Home Internet Access", *Quartz* (22 March 2013), <http://qz.com/66146/why-only-3-of-india-has-home-internet-access/>
- 109 Ian Goldin and Kenneth Reinert, *Globalization for Development: Meeting New Challenges* (Oxford: Oxford University Press, 2012), p. 278.
- 110 Cisco, "Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017", *White Paper*, (2013), http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf
- 111 Timothy Foxon, "Technological and Institutional 'Lock-In' as a Barrier to Sustainable Innovation", *Imperial College Centre for Policy and Technology Working Paper* (London: Imperial College, November 2002).
- 112 EEA, *The European Environment – State and Outlook 2010: Assessment of Global Megatrends* (Copenhagen: European Environmental Agency, 2011), p. 41.
- 113 IDC, "ICT Outlook: Recovering into a New World", International Data Corporation (March 2010).
- 114 See Michael Spence, "The Impact of Globalization on Income and Employment: The Downside of Integrating Markets", *Foreign Affairs*, 90(4), (2011): 28–41, p. 30.
- 115 See Eric Linton, "Technology Rapidly Making Clerical Jobs Obsolete, Driving Inequality, US Reports", *International Business Times*, (2 April 2013), <http://www.ibtimes.com/technology-rapidly-making-clerical-jobs-obsolete-driving-inequality-us-reports-1164631>; BLS, "Occupational Employment and Wages", United States Bureau of Labor Statistics (May 2012), www.bls.gov/oes (accessed 20 September 2013).
- 116 McKinsey Global Institute, *The World at Work: Jobs, Pay and Skills for 3.5 Billion People* (San Francisco: McKinsey & Company, 2012) p. 7.
- 117 BLS, "Employment and Wages for Newly Defined Occupations, May 2012" United States Bureau of Labor Statistics, (4 April 2013), http://www.bls.gov/opub/ted/2013/ted_20130404.htm
- 118 See Carl Frey and Michael Osborne, "The Future of Employment: How Susceptible are Jobs to Computerisation?", (2013, forthcoming), which suggests that up to 45 percent of total United States employment could be vulnerable to substitution; and James Manyika, Michael Chui, Jacques Bughin, Richard Dobbs, Peter Bisson and Alex Marrs, *Disruptive Technologies: Advances that Will Transform Life, Business and the Global Economy* (McKinsey Global Institute, May 2013).
- 119 See Michael Spence, "The Impact of Globalization on Income and Employment: The Downside of Integrating Markets", *Foreign Affairs*, 90(4), (2011): 28–41, pp. 37–8; and McKinsey Global Institute, *The World at Work: Jobs, Pay and Skills for 3.5 Billion People* (San Francisco: McKinsey & Company, 2012), p. 8, 10–12.
- 120 World Bank, *World Development Report 2013 – Jobs* (Washington, DC: World Bank, 2013), pp. 17–19, 29–34, 126–127, and 312.
- 121 See ILO, *Global Employment Trends for Women* (Geneva: International Labour Organization, 2012), p. v.
- 122 *Ibid.*, See also GS Strategy Group, *Protecting Older Workers Against Discrimination Act National Public Opinion Report* (Washington, DC: American Association of Retired Persons, June 2012).
- 123 World Bank, *World Development Report 2013 – Jobs* (Washington, DC: World Bank, 2013), pp. 5–6.
- 124 John Hawksworth and Rachel Lund, *How Will the Wealth of the Baby Bust Generation Compare with that of the Baby Boomers?* (London: PWC, October 2011), <http://www.pwc.co.uk/economic-services/publications/how-will-the-wealth-of-the-baby-bust-generation-compare-with-that-of-the-baby-boomers.jhtml> (accessed 22 September 2013).
- 125 ILO, *Global Employment Trends: Recovering from a Second Job Dip* (Geneva: International Labour Organization, 2013), pp. 58–9.
- 126 UN-ECOSOC, "Rethinking Policies Toward Youth Unemployment: What Have We Learned?", *Background Note*, Economic and Social Council, United Nations, (24

Part A continued

- May 2012), p. 5, http://www.un.org/en/ecosoc/newfunct/pdf/amr_background_paper_24_may_2012.pdf. See also ILO, *Global Employment Trends: Recovering from a Second Job Dip* (Geneva: International Labour Organization, 2013), pp. 45–6.
- 127 World Bank, *World Development Report 2013 – Jobs* (Washington, DC: World Bank, 2013), p. 6.
- 128 Anthony Atkinson, “Ensuring Social Inclusion in Changing Labour and Capital Markets”, *European Economy Economic Papers 481* (Brussels: European Commission, April 2013), p. 12.
- 129 See Joseph Stiglitz, *The Price of Inequality* (New York: W. W. Norton & Co, 2012).
- 130 See “Joint Appeal to Address the Problem of Inequality in the Post-2015 Framework”, IDEAs, (March 2013), http://www.networkideas.org/news/mar2013/pdf/Inequality_Letter.pdf; Branko Milanović, *Haves and the Have Nots* (New York: Basic Books, 2010); and Branko Milanović, “Global Inequality Recalculated and Updated: The Effect of New PPP Estimates on Global Inequality and 2005 Estimates”, *Journal of Economic Inequality*, 10(1), (2010): 1–18.
- 131 See Credit Suisse, “Credit Suisse: Global Wealth is Expected to Increase 61% by 2015; Middle Segment of Wealth Pyramid Holds One-Sixth of Global Wealth, to Become Emerging Consumers and Drive Economic Growth”, *Press Release*, (8 October 2010), https://www.credit-suisse.com/news/en/media_release.jsp?ns=41610; and Inequality.org, “World/ Global Inequality”, <http://inequality.org/global-inequality/> (accessed 22 September 2013). See also Anthony Atkinson and Salvatore Morelli, “Economic Crises and Inequality”, *Human Development Research Paper 2011/06* (New York: UNDP, June 2011).
- 132 Carmen DeNavas-Walt, Bernadette Proctor and Jessica Smith, *Income, Poverty, and Health Insurance Coverage in the United States: 2012*, (Washington DC: US Department of Commerce, 2013).
- 133 See Branko Milanović, “Global Income Inequality by the Numbers: in History and Now”, *Policy Research Working Paper 6259* (Washington, DC: World Bank, November 2012), pp. 17–18.
- 134 Ibid.
- 135 ETUI, “Sir Tony Atkinson: Where is Inequality Headed?”, *ETUI Conference Report*, ETUI Conference Cycle: The Crisis and Inequality (Brussels: European Trade Union Institute, 25 January 2013), p. 4; ETUI, “Tony Atkinson Paints a Complex Picture of Inequality”, *ETUI News* (4 February 2013), <http://www.etui.org/News/Tony-Atkinson-paints-complex-picture-of-inequality>; and Anthony Atkinson, “On the Measurement of Inequality”, *Journal of Economic Theory*, 2, (1970): 244–63.
- 136 See Branko Milanović, “Global Income Inequality by the Numbers: in History and Now”, *Policy Research Working Paper 6259* (Washington, DC: World Bank, November 2012), pp. 5, 10.
- 137 Ibid., pp. 8–9.
- 138 Ibid., pp. 12–13.
- 139 See Anthony Atkinson, “Putting People First and Macro-Economic Policy”, unpublished (Oxford: Institute of New Economic Thinking at Oxford Martin School, University of Oxford, March 2013); and Anthony Atkinson, “Ensuring Social Inclusion in Changing Labour and Capital Markets”, *European Economy Economic Papers 481* (Brussels: European Commission, April 2013), p. 36.
- 140 See ILO, “Youth Guarantees: A Response to the Youth Employment Crisis?” *ILO Employment Policy Brief* (International Labour Organization, 4 April 2013).
- 141 The Royal Society, *People and the Planet* (London: Royal Society, 2012), pp. 11–12, 62.
- 142 See David Hughes, “A Reality Check on the Shale Revolution”, *Nature*, 494, (2013): 307–8; Helmut Haberl, Tim Beringer, Sribas Bhattacharya, Karl-Heinz Erb and Monique Hoogwijk, “The Global Technical Potential of Bioenergy in 2050 Considering Sustainability Constraints”, *Current Opinion in Environmental Sustainability*, 2(6), (2010): 394–403; and James Hagerty, “Shale-Gas Boom Alone Won’t Proposal U.S. Industry”, *Wall Street Journal*, (18 March 2013). See also Barack Obama, “State of the Union, February 2013”, The White House, <http://www.whitehouse.gov/state-of-the-union-2013>; Wang Shu, “China: Final Market Readiness Proposal” Speech to World Bank’s PMR Partnership Assembly, Washington, DC (11–13 March 2013); and Jeffrey Sachs, “An Industrial Policy for Climate Change”, in McKinsey & Co, *What Matters: 10 Questions that Will Shape Our Future* (McKinsey Publishing, 2009), p. 28.
- 143 See, for example, Alex Morales, “Sulzon’s Tanti Predicts ‘Flat’ Wind Turbine Markets in 2013”, *Bloomberg*, (28 January 2013).
- 144 See IMF, “Reforming Energy Subsidies”, *IMF Policy Advice* (27 March 2013), <http://www.imf.org/external/np/fad/subsidies/index.htm>; and Benedict Clements et al., “Energy Subsidy Reform: Lessons and Implications”, International Monetary Fund, (28 January 2013), <http://www.imf.org/external/np/pp/eng/2013/012813.pdf>
- 145 See Foresight, *The Future of Food and Farming*, Final Project Report (London: The Government Office for Science, 2011), p. 18.
- 146 See Pavel Kabat [interview], “Water at a Crossroads”, *Nature Climate Change*, 3 (25 November 2012): 11–12. One attempt to bridge the gap between these silos is Ian Goldin (ed.), *Is The Planet Full?* (Oxford: Oxford University Press, forthcoming 2014).
- 147 The recommendations made by the United Kingdom Commission on Sustainable Agriculture and Climate Change should also be underlined here. See John Beddington and commissioners, *Achieving Food Security in the Face of Climate Change: Final Report of the Commission on Sustainable Agriculture and Climate Change* (Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security, March 2012). The report includes specific regional examples of threats arising from climate change, population growth and unsustainable resource use (Ibid., p. 5).
- 148 World Bank. “Climate-Smart Agriculture and the World Bank: The Facts”, (2012), <http://climatechange.worldbank.org/content/climatesmart-agriculture-and-world-bank-facts>
- 149 See Tara Garnett, et al., “Sustainable Intensification in Agriculture: Premises and Policies”, *Science* 341(6141), (2013): 33–34; and Foresight, *The Future of Food and Farming*, Final Project Report (London: The Government Office for Science, 2011).
- 150 It should be noted that from 1979 to 2009, the proportion of total official development assistance from developed to developing countries going to agriculture dropped from 18 percent to 6 percent; government investment in agriculture fell by a third in Africa and as much as two-thirds in Asia and Latin America over the same period. See IFAD, “The Future of World Food and Nutrition Security” (Rome: International Fund for Agricultural Development, May 2012), http://www.ifad.org/pub/factsheet/food/foodsecurity_e.pdf
- 151 Garnett, et al., “Sustainable Intensification in Agriculture: Premises and Policies”.
- 152 See Charles Godfray, John Beddington, Ian Crute, Lawrence Haddad, David Lawrence, James Muir, Jules Pretty, Sherman Robinson, Sandy Thomas and Camilla Toulmin, “Food Security: The Challenge of Feeding 9 Billion People”, *Science*, 327(12), (2012): 812–8, pp. 815–6.
- 153 See Georgina Mace, Ken Norris and Alastair Fitter, “Biodiversity and Ecosystem Services: A Multilayered Relationship”, *Trends in Ecology and Evolution*, 27(1), (2012): 19–26; R. de Groot, R. Alkemade, L. Braat, L. Hein and L. Willemsen, “Challenges in Integrating the Concept of Ecosystem Services and Values in Landscape Planning, Management and Decision-Making”, *Ecological Complexity*, 7(3),

Part A continued

- (2010): 260–72; and Royal Society, “Communiqué of the InterAcademy Panel Biodiversity Conference”, (13–14 January 2010).
- 154 For further information relating to the Millennium Ecosystem Assessment Reports, see: <http://www.unep.org/maweb/en/index.aspx>
- 155 See the IUCN website, <http://www.iucnredlist.org/>
- 156 See, for example, Craig Hanson, Cornis Van Der Lugt and Suzanne Ozment, *Nature in Performance: Initial Recommendations for Integrating Ecosystem Services into Business Performance Systems*, WRI Report (Washington, DC: World Resource Institute, 2011); and WRI, “Business and Ecosystems Leadership Group” World Resource Institute Brochure, http://pdf.wri.org/business_and_ecosystems_leadership_group_brochure.pdf
- 157 See UN-REDD, “Faq’s” (2009), <http://www.un-redd.org/FAQs/tabid/586/Default.aspx>; and Ecoagriculture.org, “Nairobi Declaration”, (1 October 2004), <http://www.ecoagriculture.org/page.php?id=71&name=Nairobi%20Declaration>
- 158 Yu Kosaka, and Shang-Ping Xie, “Recent Global Warming Hiatus Tied to Equatorial Pacific Surface Cooling”, *Nature*, 501, (2013): 403–7.
- 159 William Anderegg, James Prallb, Jacob Haroldc, and Stephen Schneidera, “Expert Credibility in Climate Change”, *Proceedings of the National Academy of Sciences of the United States of America*, 107(27), (2010): 12107–9.
- 160 IPCC, *Fifth Assessment Report* (International Panel on Climate Change, forthcoming). See also IPCC, “Fifth Assessment Report (AR5)”, <http://www.ipcc.ch/report/ar5/#.Uj8JlPlwa1s>
- 161 Agence France-Presse, “Climate at 5 Minutes to Midnight – IPCC Head”, *Science & Nature* (3 September 2013), <http://www.rappler.com/science-nature/37974-climate-change-ipcc-pachauri>
- 162 See, for example, EPA, “Climate Impacts on Global Issues”, United States Environmental Protection Agency, <http://www.epa.gov/climatechange/impacts-adaptation/international.html> (accessed 22 September).
- 163 See Solomon Hsiang, Marshall Burke and Edward Miguel, “Quantifying the Influence of Climate on Human Conflict”, *Science*, 341(6151), (2013).
- 164 Tim Palmer, “A CERN for Climate Change”, *Physics World*, 24, (2011): 14–15.
- 165 Royal Society, *Geoengineering the Climate: Science, Governance and Uncertainty* (London: Royal Society, September, 2009).
- 166 IEA, *Redrawing the Energy-Climate Map: World Energy Outlook Special Report* (Paris: International Energy Association, 2013), pp. 19–20, 24, and 68.
- 167 Liu He, “Increasing the Proportion of Middle-Income Earners and Expanding the Country’s Domestic Market: the Basic Logic Behind the 12th Five-Year Plan”, p. 9.
- 168 See Jim Yong Kim, “China: A Vital Partner in Combating Climate Change”, *China Daily*, (17 September 2013). Similarly, the Twelfth Indian Five Year Plan explicitly calls for more attention on sustainability issues to ensure India achieves its objective of reducing the emissions intensity of its GDP by up to 25 percent by 2020. See Planning Commission of India, *Faster, More Inclusive and Sustainable Growth: India’s Twelfth Five Year Plan*, Volume I (December 2012).
- 169 IEA, *Redrawing the Energy-Climate Map: World Energy Outlook Special Report* (Paris: International Energy Association, 2013), p. 24.
- 170 See White House, “President Obama’s Plan to Fight Climate Change”, (25 June 2013), <http://www.whitehouse.gov/share/climate-action-plan>; see also Grantham Research Institute on Climate Change and the Environment, “Statement by Nicholas Stern on President Obama’s Speech on Climate Change”, (25 June 2013), <http://www.ise.ac.uk/GranthamInstitute/Media/Releases/2013/MR250613-statement-nicholas-stern-president-obama-climate-change.aspx>; and Gina McCarthy, “Administrator Gina McCarthy Remarks on Carbon Pollution Standards for New Power Plants – As Prepared”, Speech at the United States National Press Club (20 September 2013), <http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/348694303a67e3c685257bec004bec8d!opendocument>
- 171 See also Jennifer Burney, Charles Kennel, and David Victor, “Getting Serious About the New Realities of Global Climate Change”, *Bulletin of the Atomic Scientists*, 69(4), (2013): 49–57.
- 172 Benedict Clements et al., “Energy Subsidy Reform: Lessons and Implications”, International Monetary Fund, (28 January 2013), <http://www.imf.org/external/np/pp/eng/2013/012813.pdf>
- 173 See, for example, the Extractive Industries Transparency Initiative’s website, <http://eiti.org>; and the Natural Resource Charter website, <http://naturalresourcecharter.org/>
- 174 See Bloomberg Report, *Renewable Reserves: Testing the Concept for the U.S. and Brazil* (Bloomberg New Energy Finance for BP, 19 March 2013), <http://about.bnef.com/white-papers/renewable-reserves-testing-the-concept-for-the-us-and-brazil/>
- 175 See, for example, Bronwyn Hall and Christian Helmers, “The Role of Patent Protection in (Clean) Technology Transfer”, *Santa Clara Computer and High Technology Law Journal*, 26, (2010): 487–532.
- 176 Lila Finney Rutten, Amy Yaroch, Heather Patrick, and Mary Story, “Obesity Prevention and National Food Security: A Food Systems Approach”, *ISRN Public Health Volume*, International Scholarly Work Network, (2012).
- 177 See also the updated conclusions of the Garnaut Review in Australia. Ross Garnaut, “Australia in the Global Response to Climate Change. Summary”, (31 May 2011), <http://www.garnautreview.org.au/update-2011/garnaut-review-2011/summary-20June.pdf>
- 178 See Kenneth Lieberthal and David Sandalow, *Overcoming Obstacles to U.S.-China Cooperation on Climate Change* (Brookings Institute, 2009).
- 179 See also Jennifer Burney, Charles Kennel, and David Victor, “Getting Serious About the New Realities of Global Climate Change”, *Bulletin of the Atomic Scientists*, 69(4), (2013): 49–57.
- 180 See Mark Roth, “U.S. Health Care Costs for the Aged are Sky High”, *Pittsburgh Post-Gazette*, (13 December 2009); and Dan Munro, “2012 – The Year in Healthcare Charts”, *Forbes*, (30 December 2012), <http://www.forbes.com/sites/danmunro/2012/12/30/2012-the-year-in-healthcare-charts/>
- 181 See, also B. Burns, J. Bell, N. Bosanquet and T. Lonngren, “Healthcare in the 21st Century Will Be Different – Will We Seize the Opportunity” (2013, forthcoming).
- 182 Climate change could push over 20 million children into hunger by 2050, with potentially half of those in sub-Saharan Africa. See World Food Programme, “10 Things You Need to Know about Hunger in 2013”, (2 January 2013), <http://www.wfp.org/stories/10-things-you-need-know-about-hunger-2013>
- 183 The Royal Society, *People and the Planet*, (London: Royal Society, 2012), p. 7.
- 184 Kim Stanley Robinson, “Time to End the Multigenerational Ponzi Scheme”, in McKinsey & Co, *What Matters: 10 Questions that Will Shape Our Future* (McKinsey Publishing, 2009), p. 43.
- 185 See Richard Doll and A. Bradford Hill, “The Mortality of Doctors in Relation to Their Smoking Habits”, *British Medical Journal*, 1(4877), (1954): 1451–5.
- 186 For more information, see FCTC “UN Treaty Event 2013 – An Opportunity to Sign and Ratify the Protocol”, WHO Framework Convention on Tobacco Control, www.who.int/fctc/en/ (accessed 22 September 2013). UN, “Global Efforts to Promote Health Face Serious Challenges from ‘Big Business – UN Official’”, *UN News Centre*,

Part A continued

- (10 June 2013), http://www.un.org/apps/news/story.asp?NewsID=45129&Cr=communicable&Cr1=disease&Kw1=health&Kw2=&Kw3=#.Uj_vDPlwa1s
- 187 World Bank, *Regional Highlights – World Development Indicators* (Washington, DC: World Bank, 2012), p. 2, <http://data.worldbank.org/sites/default/files/wdi-regional-highlights2012-web.pdf>
- 188 WHO, “Noncommunicable Diseases (NCD)” Global Health Observatory, (2013), <http://www.who.int/gho/ncd/en/index.html>
- 189 WHO, “Tobacco”, *Fact Sheet No. 339*, (July 2013), <http://www.who.int/mediacentre/factsheets/fs339/en/>. See Academy of Royal Medical Colleges, *Measuring Up: The Medical Profession’s Prescription for the Nation’s Obesity Crisis* (London: Academy of Royal Medical Colleges, February 2013); and James Levine, “Poverty and Obesity in the U.S.”, *Diabetes*, 60(11), (2011): 2667–8, p. 2667.
- 190 For further information see CDC, “Adult Obesity Facts”, Centers for Disease Control, www.cdc.gov/obesity/data/adult.html (accessed 23 September); and Aff Finkelstein, Justine Trogon, Joel Cohen and William Dietz, “Annual Medical Spending Attributable to Obesity”, *Health Affairs*, 28(5), (2009): w822–w831.
- 191 Ian Anderson, *The Economic Costs of Noncommunicable Diseases in the Pacific Islands*, Final Report (World Bank, November 2012).
- 192 Harvard School of Public Health, “Adult Obesity”, (2013), <http://www.hsph.harvard.edu/obesity-prevention-source/obesity-trends/obesity-rates-worldwide/>; see also WHO, “Obesity and Overweight”, *Fact Sheet No 331*, (March 2013), <http://www.who.int/mediacentre/factsheets/fs311/en/>
- 193 See Michael Mudd, “How to Force Ethics on the Food Industry”, *New York Times*, (16 March 2013); and *The Economist*, “Nanny States Biggest Test: Should Governments Make their Citizen’s Exercise More and Eat Less?”, (7 December 2012), <http://www.economist.com/news/special-report/21568074-should-governments-make-their-citizens-exercise-more-and-eat-less-nanny-states>
- 194 See also Duff Wilson and Adam Kerlin, “Special Report: Food, Beverage Industry Pays for Seat at Health–Policy Table”, *Reuters*, (19 October 2012), <http://www.reuters.com/article/2012/10/19/us-obesity-who-industry-idUSBRE89I0K620121019>
- 195 Margaret Chan, “WHO Director–General Addresses Health Promotion Conference”, *Opening Address at the 8th Global Conference on Health Promotion*, Helsinki, Finland (10 June 2013), http://www.who.int/dg/speeches/2013/health-promotion_20130610/en/
- 196 See also New York City Government, *Reversing the Epidemic: The New York City Obesity Task Force Plan to Prevent and Control Obesity*, (31 May 2012), http://www.nyc.gov/html/om/pdf/2012/otf_report.pdf
- 197 See George Alleyne, Agnes Binagwaho, Andy Haines, Selim Jahan, Rachel Nugent, Ariella Rojhani, David Stuckler, on behalf of The Lancet NCD Action Group, “Embedding Non–Communicable Diseases in the Post–2015 Development Agenda”, *Lancet*, 381: (2013): 566–74. They remark that “[s]ome drivers of unsustainable development, such as the transport, food and agriculture, and energy sectors, also increase the risk of NCDs”. (Ibid., p. 566).
- 198 WHO, *The Evolving Threat of Antimicrobial Resistance* (Geneva: World Health Organization, 2012), http://whqlibdoc.who.int/publications/2012/9789241503181_eng.pdf
- 199 See Jerome Glenn, Theodore Gordon and Elizabeth Florescu, *2008 State of the Future*, Millennium Development Project (Washington DC: United Nations University), p. 16.
- 200 Merrill Singer, *Introduction to Syndemics: A Critical Systems Approach to Public and Community Health* (John Wiley and Sons, 2009).
- 201 World Health Organisation, *International Health Regulations* (2005) (Geneva: WHO Press, 2008, 2nd Edition), p. 1.
- 202 Jong–Wha Lee and Warwick McKibbin, “Estimating the Global Economic Costs of SARS”, in National Institute of Medicine (eds), *Learning from SARS: Preparing for the Next Disease Outbreak: Workshop Summary* (Washington, DC: National Academies Press, 2004), <http://www.ncbi.nlm.nih.gov/books/NBK92473/>; and Vanessa Rossi and John Walker, *Assessing the Economic Impact and Costs of Flu Pandemics Originating in Asia* (Oxford: Oxford Economic Forecasting Group, May 2005), http://www.l2o.org/publications/13_xZ_pandemic_rossi.pdf. See also, ECDC, *Pandemic Influenza Preparedness Report in the EU/EEA: Status Report as at Autumn 2007*, Technical Report (Stockholm: European Centre for Disease Control, December 2007), http://ec.europa.eu/health/preparedness_response/docs/0712_ter_pandemic_influenza_preparedness_in_eu_eea.pdf; *The Economist*, “Coming, Ready or Not: Despite Progress, the World is Still Unprepared for a New Pandemic Disease”, (20 April 2013); and *The Economist*, “An Ounce of Prevention: As New Viruses Emerge in China and the Middle East, the World is Poorly Prepared for a Global Pandemic”, (20 April 2013).
- 203 See Ian Goldin and Mike Mariathan, *The Butterfly Defect* (Princeton: Princeton University Press, forthcoming 2014).
- 204 See Tiffany Bogich, Rumi Chunara, David Scales, Emily Chan, Laura Pinheiro, Aleksei Chmura, Dennis Carroll, Peter Daszak and John Brownstein, “Preventing Pandemics via International Development: A Systems Approach”, *PLOS Medicine*, 9(12), (2012).
- 205 See Thomas Levenson, “A New Life for a Deadly Disease”, *New Yorker*, (25 April 2013).
- 206 Mariana Mazzucato, *The Entrepreneurial State* (London: Demos, 2011).
- 207 Stephen Duckett, “Time to Address Sickening Waste by Cutting Pharmaceutical Prices”, *Australian Financial Review*, (18 March 2013), p. 47.
- 208 See also Mônica Rosina and Lea Shaver, “Why Are Generic Drugs Being Held Up In Transit? Intellectual Property Rights, International Trade, and the Right to Health in Brazil and Beyond”, *Journal of Law, Medicine and Ethics*, 40(2), (2012): 197–205; The Brazil Business, “The Brazilian Market for Generic Drugs”, (29 February 2012), <http://thebrazilbusiness.com/article/the-brazilian-market-for-generic-drugs>; and IMS Institute for Healthcare Informatics, *The Global Use of Medicines: Outlook Through 2016* (Parsippany, NJ: IMS Institute for Healthcare Informatics, July 2012).
- 209 See Donald McNeil, “Indonesia May Sell, Not Give, Bird Flu Virus to Scientists”, *New York Times* (7 February 2007); and Kenan Mullis, “Playing Chicken with Bird Flu: ‘Viral Sovereignty,’ the Right to Exploit Natural Genetic Resources, and the Potential Human Rights Ramifications”, *American University International Law Review*, 24(5), (2009): 943–67, pp. 947–949.
- 210 See the GAVI Alliance website, <http://www.gavialliance.org/>; and President’s Emergency Plan for AIDS Relief, “About PEPFAR”, (2013), www.pepfar.gov/about/index.htm
- 211 See WHO, WTO and WIPO, *Promoting Access to Medical Technologies and Innovation: Intersections between public health, intellectual property and Trade* (2012), http://www.wto.org/english/res_e/booksp_e/pamtiwhowipowtoweb13_e.pdf. For the text of the TRIPS agreement see WTO, “Agreement on Trade–Related Aspects of Intellectual Property Rights”, http://www.wto.org/english/tratop_e/trips_e/t_agm0_e.htm (accessed 23 September 2013).
- 212 See, for example, The White House “Fact Sheet: White House Task Force on High–Tech Patent Issues”, (4 June 2013), <http://www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent->

Part A *continued*

- [issues](#). See also Christopher Mims, “Why Patent Trolls will Laugh in the Face of the US Government’s Weak Attempts to Fight Them”, *Quartz*, (4 June 2013), www.qz.com/90902/why-patent-trolls-will-laugh-in-the-face-of-the-us-governments-weak-attempts-to-fight-them
- 213 See Dyna Arhin-Tenkorang and Pedro Conceição, “Beyond Communicable Disease Control: Health in the Age of Globalisation” in Inge Kaul (ed.), *Providing Global Public Goods* (Oxford: Oxford University Press, 2003), p. 484.
- 214 UN, *A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development*, Report of the Secretary-General’s High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (United Nations, 30 May 2013).
- 215 See George Alleyne, Agnes Binagwaho, Andy Haines, Selim Jahan, Rachel Nugent, Ariella Rohhani, David Stuckler, on behalf of The Lancet NCD Action Group, “Embedding Non-Communicable Diseases in the Post-2015 Development Agenda”, *Lancet*, 381: (2013): 566–74.
- 216 See, for example, “A Framework Convention on Alcohol Control”, *The Lancet*, 370(9593), (2007): 2101–2 and Allyn Taylor and Ibadat Dhillon, “An International Legal Strategy for Alcohol Control: Not a Framework Convention – At Least Not Yet”. *Addiction*, 108, (2012): 450–62.
- 217 See James Levine, “Poverty and Obesity in the U.S.”, *Diabetes*, 60(11), (2011): 2667–8, p. 2667.
- 218 UN, *A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development*, Report of the Secretary-General’s High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (United Nations, 30 May 2013).
- 219 The long-term systems approach advocated in *PLOS Medicine* provides a three-pronged approach to do this. See Tiffany Bogich, Rumi Chunara, David Scales, Emily Chan, Laura Pinheiro, Aleksei Chmura, Dennis Carroll, Peter Daszak and John Brownstein, “Preventing Pandemics Via International Development: A Systems Approach”, *PLOS Medicine*, 9(12), (2012). pp. 1–4.
- 220 Frances Pearson, Celia McNeilly, Michael Crichton, Clare Primiero, Sally Yukiko, Germain Fernando, Xianfeng Chen, Sarah Gilbert, Adrian Hill and Mark Kendall, “Dry-Coated Live Viral Vector Vaccines Delivered by Nanopatch Microprojections Retain Long-Term Thermostability and Induce Transgene-Specific T Cell Responses in Mice”. *PLoS ONE* 8(7), (2012).
- 221 See *Association for Molecular Pathology v Myriad Genetics*, Supreme Court of the United States, 13 June 2013; Technet21.org “Gates Foundation Awards 1.7 Million to Inspire Supply Chain Innovation”, <http://www.vaccinationcouncil.org/wp-content/uploads/2012/08/Gates-Foundation-awards-1.7-million-to-inspire-supply-chain-innovation-Issue-1.pdf>
- 222 See *The Economist*, “Coming, Ready or Not: Despite Progress, the World is Still Unprepared for a New Pandemic Disease”, (20 April 2013).
- 223 See Henry Kissinger, “The Future of U.S.–China Relations”, *Foreign Affairs*, (March/April 2012): 44–55.
- 224 Joseph Nye, “The Twenty-First Century Will Not Be a ‘Post-American’ World.” *International Studies Quarterly*, 56(1), (2012): 215–7; and Joseph Nye “The Misleading Metaphor of Decline”, *Wall Street Journal*, (14 February 2011).
- 225 See Robert Zoellick, “Whither China: From Membership to Responsibility?”, Remarks to the National Committee on U.S.–China Relations, United States Department of State (25 November 2005); and Jonathan Pollack, “China’s Rise and U.S. Strategy in Asia”, *Brookings Paper*, (18 December 2012). Compare Mlada Bukovansky et al., *Special Responsibilities: Global Problems and American Power* (Cambridge: Cambridge University Press, 2012).
- 226 See Kishore Mahbubani, *The Great Convergence: Asia, the West, and the Logic of One World* (New York: PublicAffairs, 2013).
- 227 Norton, “Norton Cybercrime Report”, (2011), <http://uk.norton.com/cybercrimereport>
- 228 Alison Smith, “Top UK Companies Lacking Vigilance in Preventing Cyber Crime”, *Financial Times*, (1 July 2013). See also BIS, *10 Steps to Cyber Security* (Department for Business Innovation and Skills, Centre for the Protection of National Infrastructure and UK Cabinet Office 2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/73128/12-1120-10-steps-to-cyber-security-executive.pdf
- 229 See Robert Zoellick, “Why We Still Need the World Bank”, *Foreign Affairs*, (March/April 2012): 66–78.
- 230 See Gary Hufbauer, Jeffrey Schott and Woan Foong Wong, “Figuring Out the Doha Round”, in Brief, *Policy Analysis in International Economics* 91 (Peterson Institute for International Economics, 2010).
- 231 See Jagdish Bhagwati, *Termites in the Trading System: How Preferential Systems Undermine Free Trade*, (Oxford: Oxford University Press, 2008).
- 232 Consider “International Trade and Investment Policy: Where Do We Go From Here?”, *Ditchley Conference Director’s Note*, 2013/01, (17–19 January 2013), <http://www.ditchley.co.uk/conferences/past-programme/2010-2019/2013/international-trade-and-investment>
- 233 Shawn Donnan, “World Trade Organisation’s Pascal Lamy Defends Doha Talks Round”, *Financial Times*, (18 July 2013).
- 234 See Ian Goldin, Geoffrey Cameron and Meera Balarajan, *Exceptional People: How Migration Shaped Our World and Will Define Our Future* (Princeton: Princeton University Press, 2011), pp. 215–9.
- 235 See Chris Giles, “G20 Reform: Time to Take Action – or Risk Irrelevance”, *Financial Times*, (18 June 2012).
- 236 See Mike Callaghan, “Relaunching the G20”, *Analysis* series, (G20 Studies Centre, Lowy Institute for Policy Studies, January 2013), http://www.lowyinstitute.org/files/callaghan_relaunching_the_g20_web_0.pdf
- 237 See Dick Nanto, *Global Financial Crises: Analysis and Policy Implications* (U.S. Congressional Research Service Paper, July 2009), p. 18, <http://www.fas.org/sgp/crs/misc/RL34742.pdf> (accessed 24 September 2013).
- 238 See Jen Psaki, “Statement on Consensus Achieved by the UN Group of Governmental Experts On Cyber Issues”, Press Statement (Washington, DC: U.S. Department of State, 7 June 2013), <http://www.state.gov/r/pa/prs/ps/2013/06/210418.htm>. See also, for example, CCDCOE, *The Tallinn Manual on the International Law Applicable to Cyber Warfare* (Tallinn, Estonia: NATO Co-operative Cyber Defence Centre of Excellence, March 2013); and UNODC, *Comprehensive Study on Cybercrime* (New York: UN Office on Drugs and Crime, Draft February 2013).
- 239 Ashley Deeks, “The Geography of Cyber Conflict: Through a Glass Darkly”, *International Law Studies*, 89(1), (2013).
- 240 Ian Hargreaves, *Digital Opportunity: A Review of Intellectual Property and Growth*, Independent Report (Newport: Intellectual Property Office, May 2011), <http://www.ipo.gov.uk/ipreview-finalreport.pdf>
- 241 Jason Nurse, Sadie Creese, Michael Goldsmith and Koen Lamberts “Trustworthy and Effective Communication of Cybersecurity Risk: A Review”, *STAST*, (2011), pp. 60–8.
- 242 See Daniel Kaufman, “10 Myths About Governance and Corruption”, *Finance and Development*, 42(3): 2005: 41–3 p. 41.
- 243 See Daniel Kaufman, “Governance and the Arab World Transition: Reflections, Empirics and Implications for the International Community”, *Brookings Blum Roundtable Policy Briefs* (Washington, DC: Brookings Institute, 2011), p. 35.
- 244 See Revenue Watch Institute, “Resource Governance Index”, (2013), <http://www.revenuewatch.org/rgi>
- 245 Ibid.

Part A continued

- 246 World Bank, "Despite Global Slowdown, African Economies Growing Strongly— New Oil, Gas, and Mineral Wealth an Opportunity for Inclusive Development", Press Release, (4 October 2012), <http://www.worldbank.org/en/news/press-release/2012/10/04/despite-global-slowdown-african-economies-growing-strongly-world-bank-urges-countries-spend-new-oil-gas-mineral-wealth-wisely>
- 247 See Nadejda Komendantova and Anthony Patt, "Could Corruption Pose a Barrier to the Roll-Out of Renewable Energy in North Africa?", in Transparency International, *Global Corruption Report: Climate Change* (London: Earthscan, 2011), pp. 187–93; and Nadejda Komendantova and Anthony Patt, "Barriers to Renewable Energy Investment", *Options Magazine*, (International Institute for Applied Systems Analysis, Summer 2011), p. 22.
- 248 See Melissa Thomas, "What Do the Worldwide Governance Indicators Measure?" *European Journal of Development Research*, 22, (2010): 31–54.
- 249 See Trevor Manuel, Carlos Arruda, Jihad Azour, Chong-en Bai, Timothy Besley, Dong-Sung Cho, Sergei Guriev, Huguette Labelle, Jean Pierre Landau, Arun Maira and Hendrik Wolff, *Independent Panel Review of the Doing Business Report* (2013), p. 50, <http://www.dbrpanel.org/sites/dbrpanel/files/doing-business-review-panel-report.pdf> (accessed 24 September 2013). See also the Independent Panel website, <http://www.dbrpanel.org>
- 250 G8. "Lough Erne Declaration," Lough Erne Summit, Northern Ireland, (18 June 2013), http://www.g8.utoronto.ca/summit/2013lougherne/LoughErne_Declaration_130618.pdf; and G20, "OECD Presents its Action Plan on Base Erosion and Profit Shifting," (19 July 2013), <http://www.g20.org/news/20130719/781655012.html>
- 251 Dominic Barton, "Capitalism for the Long Term", *Harvard Business Review*, (March 2011), <http://hbr.org/2011/03/capitalism-for-the-long-term/ar/1#>
- 252 World Bank, *World Development Report 2013 – Jobs* (Washington, DC: World Bank, 2013), 2013, p. xiii.
- 253 See *The Telegraph*, "Bluefin Tuna Sells for Record £1 Million", *The Telegraph*, (5 January 2013), <http://www.telegraph.co.uk/news/worldnews/asia/japan/9782074/Bluefin-tuna-sells-for-record-1-million.html>; and Charles Glover, "Bluefin Tuna – Magnificent Fish too Valuable to Save", *The Telegraph*, (27 November 2008).
- 254 Deborah Zabarenko, "Unilever Swaps Earnings Rat Race for Sustainability", *Reuters*, (2 November 2012), <http://www.reuters.com/article/2012/11/02/us-sustainability-unilever-ceo-idUSBRE8A11FH20121102>
- 255 See Eric Beinhocker, and Tony Dolphin, "Fixing Finance: The Missing Piece in Banking Reform", *Public Policy Research*, 19(3): 166–73. p. 172.
- 256 See also Ian Goldin, Geoffrey Cameron and Meera Balarajan, *Exceptional People: How Migration Shaped Our World and Will Define Our Future* (Princeton: Princeton University Press, 2011), pp. 265–80; Dovelyn Agunias and Kathleen Newlands, "Circular Migration and Development: Trends, Policy Routes and Ways Forward", *Policy Brief*, (Washington, DC: Migration Policy Institute, April 2007), http://www.migrationpolicy.org/pubs/migdevpb_041807.pdf; and Sheena McLoughlin and Rainer Münz, "Conclusions and Recommendations" in "Temporary and Circular Migration: Opportunities and Challenges", *Working Paper 35* (European Policy Centre, March 2011), pp. 65–76.
- 257 See, for example, Cass Sunstein, *Simpler: The Future of Government* (New York: Simon & Schuster, 2013); and Cass Sunstein, *Laws of Fear* (Cambridge: Cambridge University Press, 2005).
- 258 See Daniel Kaufman, *Governance and the Arab World Transition: Reflections, Empirics and Implications for the International Community*, *Brookings Blum Roundtable Policy Briefs* (Washington, DC: Brookings Institute, 2011), p. 41.
- 259 See Natural Resource Charter, "The Natural Resource Charter", (2013), <http://naturalresourcecharter.org/>
- 260 G20, "Finale Communiqué, G20 Meeting of Finance Ministers and Central Bank Governors", Moscow, (19–20 July 2013), http://www.g20.org/events/financial_track/20130719/780961553.html
- 261 See The Group of Thirty, *Long-term Finance and Economic Growth* (Washington DC, Working Group on Long Term Finance, The Group of Thirty, 2013), pp. 51–58.
- 262 See, for example, OECD, "Institutional Investors and Long-Term Investment", (June 2013), <http://www.oecd.org/insurance/private-pensions/institutionalinvestorsandlong-terminvestment.htm>
- 263 See Robert Kaplan and David Norton, "Using the Balanced Scorecard as a Strategic Management System", *Harvard Business Review*, (July–August 2007).
- 264 See Gillian Lees and Roger Malone, *Building World-Class Businesses for the Long-Term: Challenges and Opportunities* (London: Chartered Institute of Management Accountants, 2011), http://www.cimaglobal.com/Documents/World_conference_2011/Reports/World_Conference_report.pdf

Part B

- 1 See Geoff Mulgan, *The Locust and the Bee: Predators and Creators in Capitalism's Future* (Princeton: Princeton University Press, 2013).
- 2 Andrew Cooper, "The G20 and its Regional Critics", *Global Policy*, 2(2), (2011): 203–9.
- 3 John Kirton, "What is the G20?" G20 Research Group, University of Toronto (30 November 1999), <http://www.g20.utoronto.ca/g20whatisit.html>
- 4 Ngaire Woods, "Global Governance After the Financial Crisis: A New Multilateralism or the Last Grasp of the Great Powers?" *Global Policy*, 1(1) (2010): 51–63, p. 52.
- 5 The FSB replaced the Financial Stability Forum by widening its membership and expanding its mandate. The FSB's agenda includes the establishment of supervisory colleges for private institutions, contingency planning for cross border crisis management, and overseeing the work of standard setting bodies to ensure their regulatory practices are coordinated. See Eric Helleiner, "What Role for the New Financial Stability Board?: The Politics of International Standards after the Crisis", *Global Policy*, 1(3), (2010): 282–90; and Robert Lavigne and Subrata Sarker, "The G-20 Framework for Strong, Sustainable and Balanced Growth: Macroeconomic Coordination Since the Crisis", *Bank of Canada Review*, Winter 2012–2013, <http://www.bankofcanada.ca/wp-content/uploads/2013/02/boc-review-winter-12-13-lavigne.pdf>
- 6 Elizabeth Ferris, *The Politics of Protection: The Limits of Humanitarian Action* (Washington DC: The Brookings Institution, 2011).
- 7 UN, "2005 World Summit Outcome," *General Assembly A/60/L.1*, 15 September (New York: United Nations), <http://www.who.int/hiv/universalaccess2010/worldsummit.pdf>
- 8 Coalition for the International Criminal Court, "Cases and Situations" (last accessed 2 August 2013), <http://www.iccnw.org/?mod=casesituations>
- 9 Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2004), pp. 135–6.
- 10 Neil Fligstein, and Iona Mara-Drita, "How to Make a Market: Reflections on the Attempt to Create a Single Market in the European Union," *American Journal of Sociology*, 102(1), (1996): 1–33, p. 3.
- 11 In its 7th Principle, the Accords enshrined "respect for human rights and fundamental freedoms, including freedom of thought, conscience, religion or belief" into relations between European states. See Helsinki Declaration, "The Final Act of the Conference on Security and Cooperation in Europe" (1 August 1975), <http://www1.umn.edu/humanrts/osce/basics/finact75.htm>
- 12 Daniel Thomas, "The Helsinki Accords

Part B *continued*

- and Political Change in Eastern Europe” in Thomas Risse-Kappen, Stephen Ropp and Kathryn Sikkink (eds.), *The Power of Human Rights: International Norms and Domestic Change* (Cambridge: Cambridge University Press, 1999), pp. 205–208.
- 13 The Royal Society, *Knowledge, Networks and Nations* (London: The Royal Society, 28 March 2011).
- 14 EPA “Ozone Layer Protection – Regulatory Programs” United States Environmental Protection Agency (accessed 5 August 2013), <http://www.epa.gov/ozone/title6/phaseout/22phaseout.html>
- 15 Scott Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making* (Oxford: Oxford University Press, 2003), p. 239. For more data on the Protocol’s impact on ozone depletion, see Guus Velders, Stephen Andersen, John Daniel, David Fahey and Mack McFarland “The Importance of the Montreal Protocol in Protecting Climate”, *Proceedings of the National Academy of Sciences of the United States of America*, 104(12), (2007): 4814–9.
- 16 The Royal Society, *Knowledge, Networks and Nations* (London: The Royal Society, 28 March 2011).
- 17 See, also Richard Benedick, *Ozone Diplomacy: New Directions in Safeguarding the Planet* (Cambridge, MA: Harvard University Press, 1998); and Scott Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making* (Oxford: Oxford University Press, 2003).
- 18 See Ian Rae, “Saving the Ozone Layer: Why the Montreal Protocol Worked”, *The Conversation* (9 September 2012), <http://theconversation.com/saving-the-ozone-layer-why-the-montreal-protocol-worked-9249> (accessed 5 August 2013); UNEP, *Montreal Protocol 20: A Success in the Making* (Nairobi: United Nations Environment Programme, 2007); Jan Fedorowicz, *The Montreal Protocol: Partnerships Changing the World* (Canada: UNDP, UNEP, UNESCO and World Bank, 2005); and Anil Markandya and Nick Dale, *The Montreal Protocol and the Green Economy* (United Nations Environment Programme, 2012).
- 19 Neil Fligstein and Iona Mara-Drita, “How to Make a Market: Reflections on the Attempt to Create a Single Market in the European Union”, *American Journal of Sociology*, 102(1), (1996): 1–33, p. 11.
- 20 Ibid., p. 12. Delors worked with Narjes’ successor, Lord Cockfield, to deliver the SMP and advertise its benefits through the “Europe 1992” framework. See also Craig Parsons, “Revisiting the Single European Act (and the Common Wisdom on Globalization)”, *Comparative Political Studies*, 43(6), (2010): 706–34.
- 21 Commission of the European Communities, “Programme of the Commission for 1985: Statement by Jacques Delors, President of the Commission, to the European Parliament and his Reply to the Ensuing Debate”, *Bulletin of the European Communities suppl.* 4/85 (Strasbourg: Office for Official Publications of the European Communities, 1985), p.11.
- 22 Ruth Roemer, Allyn Taylor and Jean LaRiviere, “Origins of the WHO Framework Convention on Tobacco Control”, *American Journal of Public Health*, 95(6), (2005): 936–8.
- 23 See, for example, The Framework Convention Alliance for Tobacco Control website, www.fctc.org
- 24 FCTC, “Global Progress in Implementation of the WHO FCTC: Key Findings,” *Conference of the Parties to the WHO Framework Convention on Tobacco Control*, Fifth Session, Seoul, Republic of Korea (12–17 November, 2012), http://apps.who.int/gb/fctc/PDF/cop5/FCTC_COP5_5-en.pdf
- 25 Ibid., p. 17.
- 26 The G7, first convened in 1975, included France, Germany, Italy, Japan, Canada, the United States and the United Kingdom. Russia joined the G7 nations in 1994 to form the G8.
- 27 Nancy Alexander, “Introduction to the G20”, The Heinrich Böll Foundation, http://www.boell.org/web/group_of_20-651.html (accessed 5 August 2013). Andrew Cooper has argued that China is not taking on a leadership role, as its position as a rising and developing nation has limited the amount of leadership activity that it is willing to take on. See Andrew Cooper, “The G20 as an Improvised Crisis Committee and/or a Contested ‘Steering Committee’ for the World”, *International Affairs*, 86(3), (2010): 741–57.
- 28 Lisa Evans, “G20 Meeting: Key Data for Each Country”, *The Guardian* (2 November 2011), <http://www.guardian.co.uk/news/datablog/2011/nov/02/g20-cannes-summit> (accessed 5 August 2013).
- 29 Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984; reprinted 2005), p. 246.
- 30 See Joseph Nye, *Soft Power* (New York: PublicAffairs, 2004); and Michael Barnett and Raymond Duvall, “Power in International Politics”, *International Organization*, 59, (2005): 39–75.
- 31 Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2004), p. 8.
- 32 Ngairé Woods and Leonardo Martínez-Díaz (eds.), *Networks of Influence? Developing Countries in a Networked Global Order* (Oxford: Oxford University Press, 2009).
- 33 Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2004), and Joel Podolny and Karen Page, “Networks Forms of Organization”, *Annual Review of Sociology*, 24, (1998): 57–76, p. 81.
- 34 Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2004), p. 141.
- 35 Yuen Khong, “The Elusiveness of Regional Order: Leifer, the English School and Southeast Asia,” *The Pacific Review*, 18(1), (2005): 23–41, p. 28.
- 36 Helen Nesadurai, “Finance Ministers and Central Bankers in East Asian Financial Cooperation” in Ngairé Woods and Leonardo Martínez-Díaz (eds.), *Networks of Influence? Developing Countries in a Networked Global Order* (Oxford: Oxford University Press, 2009).
- 37 Kishore Mahbubani, *The Great Convergence: Asia, the West, and the Logic of One World* (New York: PublicAffairs, 2013), p. 43.
- 38 Yuen Khong and Helen Nesadurai, “Hanging Together, Institutional Design, and Cooperation in Southeast Asia: AFTA and the ARF” in Amitav Acharya and Alistair Johnstone (eds.), *Crafting Cooperation: Regional International Institutions in Global Politics* (New York: Cambridge University Press, 2007), p. 78.
- 39 Ibid., p. 39.
- 40 Jochen Prantl, “Voice for the Weak: ECOSOC Ad Hoc Advisory Groups on African Countries Emerging from Conflict,” in Ngairé Woods and Leonardo Martínez-Díaz (eds.), *Networks of Influence? Developing Countries in a Networked Global Order* (Oxford: Oxford University Press, 2009).
- 41 Chun Wei Choo, “The World Health Organization Smallpox Eradication Programme”, University of Toronto (September 2007), <http://choo.fis.utoronto.ca/fis/courses/lis2102/ko.who.case.html> (accessed August 5 2013).
- 42 Paul Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (Cambridge: Massachusetts Institute of Technology Press, 2010), p. 399.
- 43 See for example, The GAVI Alliance’s online “mission statement”, <http://www.gavialliance.org/about/mission/what/> (accessed 5 August 2013).
- 44 Devi Sridhar and Ngairé Woods “Trojan Multilateralism: Global Cooperation in Health”, *GEG Working Paper 2013/72* (Oxford: Global Economic Governance Programme, University of Oxford, 2013), p. 7.
- 45 Ibid., pp. 6–7.
- 46 The GAVI Alliance, “Disbursement by Country”, <http://www.gavialliance.org/results/disbursements/> (accessed 5 August 2013); and The Global Fund, “One Million Lives are Saved Every

Part B continued

- Year”, <http://onemillion.theglobalfund.org/pages/mission> (accessed 5 August 2013).
- 47 UNAIDS, “‘Three Ones’ Key Principles”, *UNAIDS Conference Paper 1*, Washington Consultation (25 April 2004), http://www.unaids.org/en/media/unaids/contentassets/dataimport/una-docs/three-ones_keyprinciples_en.pdf
- 48 UNAIDS, *UNAIDS World AIDS Day Report* (Geneva: UNAIDS, 2012), p. 2.
- 49 Ibid., p.12
- 50 Michele Acuto, “Are Mayors the New Diplomats?”, *Diplomatic Courier*, 31 May (May/June 2012).
- 51 Howard White, “Millennium Development Goals” in David Clark (ed.), *The Elgar Companion to Development Studies* (Cheltenham: Edward Elgar, 2006), pp. 382–9, p. 382.
- 52 High-Level Panel, “The Post-2015 Development Agenda,” United Nations, <http://www.post2015hlp.org/about/> (accessed 16 September 2013).
- 53 See, for example, the United Nations Sustainable Development Platform, “Post-2015 process”, <http://sustainabledevelopment.un.org/index.php?menu=1561> (accessed 16 September 2013)
- 54 Mo Ibrahim Foundation, “The Ibrahim Prize for Achievement in African Leadership”, <http://www.moibrahimfoundation.org/ibrahim-prize/> (accessed 30 August 2013).
- 55 Ibid.
- 56 Nesta, *Challenge Prizes Landscape Review* (London: Nesta, Centre for Challenge Prize, April 2012), p. 2, http://www.nesta.org.uk/library/documents/CPL_Webv5.pdf (accessed August 30 2013).
- 57 The Google Lunar XPrize will reward a private company that lands safely on the moon by December 31 2015. See Google Lunar XPrize, “Prize Details”, <http://www.googlelunarxprize.org/prize-details> (accessed 30 August 2013).
- 58 Nesta, *Challenge Prizes Landscape Review* (London: Nesta, Centre for Challenge Prize, April 2012), p. 3, http://www.nesta.org.uk/library/documents/CPL_Webv5.pdf (accessed August 30 2013).
- 59 Ibid., p. 6.
- 60 The Shell Springboard awards look for the United Kingdom’s next big ideas in low carbon enterprise. See Shell Springboard, “The Awards”, <http://www.shellspringboard.com/programme/awards> (accessed 30 August 2013).
- 61 The Virgin Earth Challenge will reward whoever finds an environmentally sustainable and economically viable way to remove greenhouse gases from the atmosphere. See Virgin Earth Challenge, “The Prize”, <http://www.virginearth.com/the-prize/> (accessed 30 August 2013).
- 62 The Microsoft BlueHat Prize asks contestants to design security defence technology to prevent the exploitation of memory safety vulnerabilities. See Microsoft, “BlueHat Prize”, <http://www.microsoft.com/security/bluehatprize/> (accessed August 30 2013).
- 63 Nesta, *Challenge Prizes Landscape Review* (London: Nesta, Centre for Challenge Prize, April 2012), p. 2, http://www.nesta.org.uk/library/documents/CPL_Webv5.pdf (accessed August 30 2013).
- 64 Ibid., p. 2.
- 65 Transparency International, “Corruption Perceptions Index 2012”, <http://cpi.transparency.org/cpi2012/results/> (5 September 2013).
- 66 See Mo Ibrahim Foundation “The Ibrahim Index of African Governance”, <http://www.moibrahimfoundation.org/iiaig/> (accessed 30 August 2013).
- 67 Ibid.
- 68 Klaus Schwab (ed.), *The Global Competitiveness Report 2012–2013* (Geneva: World Economic Forum, 2012).
- 69 Jelle Bosch, *The European Union and the Republic of Korea: A Statistical Portrait* (Luxembourg: Publications Office of the European Union for Eurostat and Statistics Korea, 2012), p.11.
- 70 Lee Byeong-cheon (ed.), *Developmental Dictatorship and the Park Chung-Hee Era* (Paramus, NJ: Homa & Sekey Books, 2003), p. 24.
- 71 Anthony Hall, “Brazil’s Bolsa Família: A Double-Edged Sword?”, *Development and Change*, 39(5), (2008): 799–822, p. 809; and Fabio Soares, Sergei Soares, Marcelo Medeiros, and Rafael Guerreiro Osório, “Cash Transfer Programmes in Brazil: Impacts on Inequality and Poverty”, *IPC Working Paper 21* (Brazil: UNDP/ International Poverty Centre, 2006), p. 20. For additional evidence that *Bolsa Família* has contributed to poverty reduction, see Tracy Fenwick, “Avoiding Governors: The Success of Bolsa Família”, *Latin American Research Review*, 44(1) (2009): 102–31, p. 116.
- 72 Sudhanshu Handa and Benjamin Davis, “The Experience of Conditional Cash Transfers in Latin America and the Caribbean”, *Development Policy Review*, 24(5), (2006): 513–36, p. 527. See also Anthony Hall, “Brazil’s Bolsa Família: A Double-Edged Sword?”. Evaluations of the education scheme *Bolsa Escola* have found that the programme boosted student enrollment by 5.5 percent in grades 1–4 and by 6.5 percent in grades 5–8. Given that only a third of children participate in the *Bolsa Escola* programme, the impact of the initiative on participants is likely about three times higher than these figures suggest. See Paul Glewwe and Ana Kassouf, “The Impact of the Bolsa Escola/Familia Conditional Cash Transfer Program on Enrollment, Drop Out Rates and Grade Promotion in Brazil”, *Journal of Development Economics*, 97(2), (2012): 505–17.
- 73 Frances Zelazny, “The Evolution of India’s UID Program: Lessons Learned and the Implications for Other Developing Countries”, *CGD Policy Paper 008* (Washington, DC: Centre for Global Research, 2012).
- 74 Amol Sharma, “India Launches Project to ID 1.2 Billion People”, *The Wall Street Journal*, (29 September 2010), <http://online.wsj.com/article/SB10001424052748704652104575493490951809322.html> (accessed 5 August 2013).
- 75 UIDAI, “Unique Identification Authority of India”, <https://portal.uidai.gov.in/uidwebportal/dashboard.do> (accessed 5 August 2013).
- 76 See Amartya Sen and Jean Drèze, *An Uncertain Glory: India and its Contradictions* (London: Allen Lane, 2013).
- 77 Alexei Barrionuevo, “Argentina Approves Gay Marriage, in a First for Region”, *New York Times* (16 July 2010).
- 78 B. M. U. Berlin, “Renewable Energy Sources Act of 25 October 2008 (Federal Law Gazette I p. 2074) as last amended by the Act of 11 August 2010 (Federal Law Gazette I p. 1170)” (Germany: Federal Ministry for the Environment Nature Conservation and Nuclear Safety, 25 October 2008).
- 79 Germany Trade & Invest, “Germany’s Wind Energy Industry” (2013), p. 1. Thirty-eight percent of this renewable energy was produced by wind power, and 16 percent from solar. This increase in renewable energy led to a 26.5 percent reduction in carbon emissions in 2011, as compared to 1990 levels. See Louise Osborne, “German Renewable Energy Drive Brings Emissions Cuts Success”, *The Guardian* (26 November 2012), <http://www.guardian.co.uk/environment/2012/nov/26/german-renewable-energy-emission-co2> (accessed 5 August 2013).
- 80 Wilson Rickerson, Florian Bennhold and James Bradbury, “If the Shoe FITs: Using Feed-in Tariffs to Meet US Renewable Electricity Targets”, *The Electricity Journal*, 20(4), (2007): 73–86, p. 75.
- 81 Thomas Hale, David Held and Kevin Young, *Gridlock: Why Global Cooperation is Failing When we Need it Most* (Cambridge: Polity Press, 2013).
- 82 Philip Whish-Wilson, “The Aral Sea Environmental Health Crisis”, *Journal of Rural and Remote Environmental Health*, 1(2), (2002): 29–34, p. 29.
- 83 Ibid., p. 30.
- 84 Philip Micklin and Mikolay Aladin, “Reclaiming the Aral Sea”, *Scientific American* (16 March 2008).
- 85 Ibid.
- 86 The true economic impact is estimated to be much higher, with some analysis suggesting it could be around USD\$240 billion per year. See PEW, “Marine Fisheries and the World Economy”, *Ocean Science Series Research Summary*

Part B *continued*

- (Washington DC: PEW Environment Group, September 2010).
- 87 National Geographic, "Overfishing: Plenty of Fish in the Sea? Not Always", <http://ocean.nationalgeographic.com/ocean/critical-issues-overfishing/> (accessed 8 August 2013).
- 88 About 35 million people are directly employed in the fishing industry, meaning that, with the inclusion of their dependents, about 120 million people rely on fishing for their livelihood, and that about 500 million people are indirectly dependent on the fishing industry for employment through other aspects of the industry, such as packaging, freezing, and transport. See Ed Pilkington, "Saving Global Fish Stocks Would Cost 20 Million Jobs, Says UN", *The Guardian*, (17 May 2010), <http://www.guardian.co.uk/environment/2010/may/17/saving-fish-stocks-cost-jobs> (accessed August 8 2013).
- 89 Boris Worm, "Impacts of Biodiversity Loss on Ocean Ecosystem Services", *Science*, 314(5800), (2006): 787–90; and FAO, "Review of the State of World Marine Fishery Resources", *FAO Fisheries and Aquaculture Technical Paper 569* (Rome: Food and Agriculture Organization of the United Nations).
- 90 CBD, "New Vision Required to Stave off Dramatic Biodiversity Loss, Says UN Report" *Press Release*, Convention on Biological Diversity (Montreal: UNEP, 10 May 2010), www.cbd.int/doc/press/2010/pr-2010-05-10-gbo3-en.pdf (accessed 8 August 2013).
- 91 Mary Robinson, "Was Rio+20 a Failure of Political Leadership?", *CNN* (26 June 2012), <http://edition.cnn.com/2012/06/26/world/americas/rio20-mary-robinson-failure> (accessed 8 August 2013).
- 92 Bryan Walsh, "What the Failure of Rio+20 Means for the Climate", *Time* (26 June 2012), <http://www.time.com/time/health/article/0,8599,2118058,00.html> (accessed August 8 2013).
- 93 Radoslav Dimitrov, "Inside UN Climate Change Negotiations: The Copenhagen Conference", *Review of Policy Research*, 27(6), (2010): 795–821, p.796.
- 94 Ibid., p. 810.
- 95 Vesela Todorova, "Maldives Attacks World Community Over Copenhagen Climate Failure", *The National* (19 January 2010), <http://www.thenational.ae/news/uae-news/environment/maldives-attacks-world-community-over-copenhagen-climate-failure> (accessed 8 August 2013).
- 96 See Ross Garnaut, "Global Emissions Trends", *Garnaut Climate Change Review Update Paper 3* (Canberra: Commonwealth of Australia, 2011); and Tony Wood, "California Calling: Australia Isn't Alone on Climate Action", *The Conversation*, (2 August 2013), <http://theconversation.com/california-calling-australia-isnt-alone-on-carbon-action-16612> (8 August 2013).
- 97 IMF, *The Global Financial Stability Report: The Quest for Lasting Stability*, April 2012 (Washington, DC: International Monetary Fund, 2012).
- 98 Ian Goldin and Tiffany Vogel, "Global Governance and Systemic Risk in the 21st Century: Lessons from the Financial Crisis", *Global Policy*, 1(1), (2010): 6–12.
- 99 See Ian Goldin and Mike Mariathan, *The Butterfly Defect* (Princeton: Princeton University Press, forthcoming 2014).
- 100 See, for example, Naomi Oreskes and Erik Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York: Bloomsbury Press, 2010).
- 101 Rob Moodie et al., "Profits and Pandemics: Prevention of Harmful Effects of Tobacco, Alcohol, and Ultra-Processed Food and Drink Industries", *The Lancet*, 381, (2013): 673–4.
- 102 David Stuckler, Sanjay Basu and Martin McKnee, "Commentary: UN High Level Meeting on Non-Communicable Diseases – An Opportunity for Whom?", *British Medical Journal*, 343, (2011), p. 2.
- 103 BBC, "Climate Change Scientists Losing 'PR War'", *BBC News*, (11 February 2010), <http://news.bbc.co.uk/1/hi/wales/8511780.stm> (accessed 29 August 2013).
- 104 Quentin Grafton and Ross Lambie, "Australian Coal and Climate Change Mitigation", *Harvard Asia Pacific Review* (Spring 2010), p. 40.
- 105 Nate Silver, *The Signal and the Noise: Why Most Predictions Fail but Some Don't* (New York: Penguin, 2012), pp. 20–21.
- 106 Ibid., p. 22.
- 107 Bree Nordenson, "Overload!", *Columbia Journalism Review* (30 November 2008) http://www.cjr.org/feature/overload_1.php?page=all (accessed 30 August 2013).
- 108 On the latter issue of fishing, we welcome the work of the Global Oceans Commission.
- 109 British Academy, "New President Lord Stern Says UK and World are at a Historic Point of Change", *Press Release* (18 July 2013), <http://www.britac.ac.uk/news/news.cfm/newsid/956> (accessed 8 August 2013).
- 110 Ian Goldin, *Divided Nations: Why Global Governance is Failing, and What We Can Do About It*, (Oxford: Oxford University Press, 2013), p. 2.
- 111 Kishore Mahbubani, *The Great Convergence: Asia, the West, and the Logic of One World* (New York: PublicAffairs, 2013), p.7.
- 112 Consider China's insistence in the run-up to the 2011 Durban climate change talks that any binding agreement limiting greenhouse gas emissions would have to treat rich countries and major emerging economies, including China, differently. See John Broder, "At Climate Talks, A Familiar Standoff Between US and China", *New York Times* (8 December 2011).
- 113 Eugene Wittkopf, Charles Kegley and James Scott, *American Foreign Policy: Pattern and Process* (Belmont: Thomson Wadsworth, 2003), p. 360.
- 114 Aavaaz, "Urgent: Hope Transfusion Needed for Rio+20" (25 May 2012) <http://en.avaaz.org/531/rioplus20-sustainable-development> (accessed 4 July 2013).
- 115 UN, "Growth in United Nations membership, 1945–present", <http://www.un.org/en/members/growth.shtml> (accessed July 4 2013).
- 116 Global Policy Forum, "NGOs in Consultative Status with ECOSOC by Category (1948–2010)", http://www.globalpolicy.org/images/pdfs/NGOs_in_Consultative_Status_with_ECOSOC_by_Category.pdf (accessed 4 July 2013).
- 117 WEF, "Short-Term Thinking is Not Leadership, Says Italian Prime Minister Monti", *News Release* (World Economic Forum, 23 January 2013), <http://www.weforum.org/news/short-term-thinking-not-leadership-says-italian-prime-minister-monti> (accessed July 12 2013).
- 118 *The Economist*, "Why is it So Hard to Form a Government in Italy?" (24 April 2013), <http://www.economist.com/blogs/economist-explains/2013/04/economist-explains-8> (accessed 12 July 2013).
- 119 Pascal Lamy, "Farewell Statement to the General Council", World Trade Organization, 24 July (2013), http://www.wto.org/english/news_e/news13_e/gc_rpt_24jul13_e.htm
- 120 Twenty-two European Union countries have changed governments since 2008; the exceptions are Germany, Austria, Estonia, Luxembourg, Sweden, and Poland. See Bernd Riegert, "Debt Crisis Lays Waste to European Governments", *Deutsche Welle*, (27 April 2012), <http://www.dw.de/debt-crisis-lays-waste-to-european-governments/a-15915310> (accessed 8 August 2013).
- 121 See, for example, Stefan Wurster, "Comparing Ecological Sustainability in Autocracies and Democracies", *Contemporary Politics*, 19(1), (2013): pp. 76–93; Arend Lijphart, *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries* (New Haven and London: Yale University Press, 2012), pp. 10–21, 31–47, 295–7; Hugh Ward, "Liberal Democracy and Sustainability", *Environmental Politics*, 17(3) (2008): 386–409; Quan Li and Rafael Reuveny "Democracy and Environmental Degradation", *International*

Part B *continued*

- Studies Quarterly*, 50(4), (2006): 935–956; Michèle Bättig and Thomas Bernauer, “National Institutions and Global Public Goods: Are Democracies More Cooperative in Climate Change Policy?”, *International Organization*, 63(2), (2009): 281–308; and David Held and Angus Hervey, “Democracy, Climate Change and Global Governance: Democratic Agency and the Policy Menu Ahead” in David Held, Marika Theros and Angus Fane-Hervey (eds), *The Governance of Climate Change: Science, Politics and Ethics* (Cambridge: Polity, 2011).
- 122 Zhang Hong, “Xi Reassures Liberals with Reform Call”, *South China Morning Post* (25 July 2013).
- 123 Simon Rabinovitch, “China Bans Construction of Government Buildings for Five Years”, *Financial Times* (24 July 2013) <http://www.ft.com/cms/s/0/352ea1a6-f40d-11e2-942f-00144feabdc0.html#axzz2b01k2G40> (accessed 8 August 2013).
- 124 Tania Branigan, “Xi Jinping Vows to Fight ‘Tigers’ and ‘Flies’ in Anti-Corruption Drive”, *The Guardian* (22 January 2013), <http://www.theguardian.com/world/2013/jan/22/xi-jinping-tigers-flies-corruption> (accessed 1 August 2013).
- 125 Adam Nagourney and Jeff Zeleny, “Obama Formally Enters Presidential Race”, *New York Times*, (11 February 2007).
- 126 National Archives, “Statement of Senator John F. Kennedy Announcing Candidacy for President of the United States January 2, 1960, 01/02/1960”, *The United States National Archives and Records Administration*, <http://research.archives.gov/description/193166> (accessed 25 July 2013).
- 127 Michael Barone, “Polls are Part of the Air Politicians Breathe”, *The Public Perspective* (April / May 1997).
- 128 Andrew Haldane and Richard Davis, “The Short Long”, speech to the 29th Société Universitaire Européenne de Recherches Financières Colloquium, Brussels, (May 2011), <http://www.bankofengland.co.uk/publications/Documents/speeches/2011/speech495.pdf> (accessed 8 August 2013).
- 129 Jerry Adler, “Raging Bulls: How Wall Street Got Addicted to Light-Speed Trading”, *Wired* (3 August 2012), http://www.wired.com/business/2012/08/ff-wallstreet_trading/all/ (accessed 20 September 2013).
- 130 Colin Mayer, *Firm Commitment: Why the Corporation is Failing Us and How to Restore Trust in It* (Oxford: Oxford University Press, 2013), pp. 207–8.
- 131 See BIS, “Foresight Report on Computer Trading Shows Benefits to Financial Markets But Calls for Joint Action to Manage Risks”, Press Release of the Department for Business Innovation and Skills, (23 October 2012), <http://news.bis.gov.uk/Press-Releases/Foresight-report-on-computer-trading-shows-benefits-to-financial-markets-but-calls-for-joint-action-to-manage-risks-6820a.aspx> (accessed 12 August 2013).
- 132 Gillian Lees and Roger Malone, *Building World-Class Businesses for the Long-Term: Challenges and Opportunities* (London: Chartered Institute of Management Accountants, 2011), p. ii.
- 133 World Bank, “The Inspection Panel”, <http://siteresources.worldbank.org/EXTINSPECTIONPANEL/Resources/EnglishBrochure.pdf> (accessed 12 August 2013).
- 134 See, for example, Advisory Opinion on the Threat or Use of Nuclear Weapons (International Court of Justice, 8 July 1996); *Minors Oposa v Secretary of the Department of Environment and Natural Resources* (Philippines Supreme Court, 30 July 1993); and *Massachusetts et al. v Environmental Protection Agency* (United States Supreme Court, 2 April 2007).
- 135 See Nicholas Stern, “Presidential Address: Imperfections in the Economics of Public Policy, Imperfections in Markets, and Climate Change”, *Journal of the European Economic Association*, 8(2/3), (2010): 253–88; Simon Dietz and Nicholas Stern, “Why Economic Analysis Supports Strong Action on Climate Change: A Response to the Stern Review’s Critics”, *Review of Environmental Economics and Policy*, 2(1), (2008): 94–113; Mark Harrison, “Valuing the Future: The Social Discount Rate in Cost-Benefit Analysis”, *Visiting Research Paper* (Canberra: Australian Government, Productivity Commission, April 2010); and Kenneth Arrow, Maureen Cropper, Christian Gollier, Ben Groom, Geoffrey Heal, Richard Newell, William Nordhaus, Robert Pindyck, William Pizer, Paul Portney, Thomas Sterner, Richard Tol and Martin Weitzman, “How Should Benefits and Costs Be Discounted in an Intergenerational Context?” *Department of Economics Working Paper 56–2013* (Brighton: University of Sussex, 2013).
- 136 On ministerial turnover, consider Anthony King and Ivor Crewe, *The Blunders of our Governments* (Oneworld, 2013), chapter 22.
- 137 See, also Dennis Thompson, “Representing Future Generations: Political Presentism and Democratic Trusteeship”, *Critical Review of International Social and Political Philosophy*, 13(1), (2010): 17–37, p. 32; Brian Groombridge, “Parliament and the Future: Learning from Finland”, *The Political Quarterly*, 77(2), (2006): 273–80, p. 274; David Gruen and Duncan Spencer, “A Decade of Intergenerational Reports: Contributing to Long-Term Fiscal Sustainability”, Speech to InterGen+10 Workshop, (2012), <http://www.treasury.gov.au/PublicationsAndMedia/Speeches/2012/A-decade-of-IGR> (accessed 20 September 2013).
- 138 See also Mario Biggeri, Jérôme Ballet and Flavio Comim (eds), *Children and the Capability Approach* (Basingstoke, Palgrave Macmillan, 2011).
- 139 In particular note Anthony King and Ivor Crewe, *The Blunders of our Governments* (London: Oneworld, 2013), chapter 14.
- 140 Maja Göpel and Catherine Pearce, *Guarding our Future: How to Include Future Generations in Policy Making* (Hamburg: World Future Council, 2013).
- 141 UN, “Intergenerational Solidarity and the Needs of Future Generations”, *Report of the Secretary-General A/68/x* (5 August 2013), <http://sustainabledevelopment.un.org/content/documents/2006future.pdf>
- 142 Parliament of Finland, “Committee for the Future”, <http://web.eduskunta.fi/Resource.phx/parliament/committees/future.htx> (accessed 19 August 2013).
- 143 Geoff Mulgan, *Good and Bad Power: The Ideals and Betrayals of Government* (London: Penguin, 2006).
- 144 Francois Hollande “Intervention du Président de la République Lors du Séminaire Gouvernemental de Rentree”, Speech (19 August 2013), <http://www.elysee.fr/declarations/article/intervention-du-president-de-la-republique-lors-du-seminaire-gouvernemental-de-rentree/> (accessed 30 August 2013).
- 145 *The Economist*, “Tales of the Unexpected: The Glories and Agonies of India’s Central Planners”, (18 February 2012).
- 146 These reports assess the long-term sustainability of current policies over a declared time period, and are issued regularly in a number of countries, including Australia, the United States, the United Kingdom, Denmark, Canada and New Zealand, and by the OECD and the European Economic Policy Committee. For a survey of existing practices, see Pal Ulla, “Assessing Fiscal Risks through Long Term Budget Projections”, *OECD Journal on Budgeting*, 6(1), (2006): 126–87, pp. 179–81.
- 147 See, for example, *The Sovereign Wealth Fund Institute’s website*, <http://www.swfinstitute.org/> At least twenty SWFs have been created since 2005. The explicit goals of such funds often include diversification, sustainability and increased savings for future generations. It has been argued elsewhere that SWFs can be utilised “as legal instruments to promote the interests of future generations” and, in doing so, put “into action the principle of intergenerational equity”. See Gordon Clark and Eric Knight “Temptation and the Virtues of Long Term Commitment: The Governance of Sovereign Wealth

Part B *continued*

- Fund Investment”, *Asian Journal of International Law*, 1(2): 321–48, p. 321,
- 148 See also Ulla, “Assessing Fiscal Risks through Long Term Budget Projections”.
- 149 The US Office of Management and Budget, for example, has moved to a ten year window for actual policy costs instead of five, and social security is required to be costed separately over a 75 year horizon. The South African Treasury has recently prepared a long-term fiscal report, which considers the cost of current policies over the long-term against the backdrop of economic and demographic trends. This move is related to the second category of intergenerational reporting.
- 150 See the Foresight Programme website, www.foresight.gov.uk (accessed 19 August 2013).
- 151 *The Economist*, “The Party’s (Largely) Over”, (21 October 2010).
- 152 2011 population figures are from a press release of the United Kingdom Office for National Statistics, “2011 Census, Population and Household Estimates for the United Kingdom” (17 December 2012), <http://www.ons.gov.uk/ons/rel/census/2011-census/population-and-household-estimates-for-the-united-kingdom/index.html> (accessed 12 August 2013); 1951 population figures are from Office of National Statistics, “Population”, *Social Trends*, 41 (2011), p. 3.
- 153 *The Economist*, “The Party’s (Largely) Over”, (21 October 2010).
- 154 Paul Whiteley, “Is the Party Over? The Decline of Party Activism and Membership Across the Democratic World”, *Party Politics*, 17(1), (2011): 21–44, p. 26.
- 155 Bureau of Labor Statistics, “Union Members Summary” (United States Department of Labor, 23 January 2013), <http://www.bls.gov/news.release/union2.nr0.htm> (accessed 12 August 2013).
- 156 Alison Park, Miranda Phillips and Mark Johnson, *Young People in Britain: The Attitudes and Experiences of 12 to 19 Year Olds*, Research Report 564 (Annesley, Nottingham: National Centre for Social Research, 2004), p. 30.
- 157 Edward Phelps, “Young Adults and Electoral Turnout in Britain: Towards a Generational Model of Political Participation”, *SEI Working Paper 92* (Brighton, Sussex European Institute, 2006), p. 8.
- 158 Jonathan Soble, “Japanese Politicians Struggle with Online Pitch”, *The Financial Times* (19 July 2013), <http://www.ft.com/cms/s/0/6214bcb6-f05f-11e2-929c-00144feabd0c.html#axzz2ZV2cTloG> (accessed 12 August 2013).
- 159 Michael Bratton, Yun-han Chu and Marta Lagos “Who Votes? Implications for New Democracies”, *Taiwan Journal of Democracy*, 6(1), (2010): 107–36, p.117.
- 160 YEN, *Joining Forces with Young People: A Practical Guide to Collaboration for Youth Employment* (Geneva: Youth Employment Network, 2008), p.10.
- 161 Ibid., pp. 11–12.
- 162 See the *One Young World* website, www.oneyoungworld.com (accessed 15 August 2013).
- 163 Robert Friedenber (ed.), *Rhetorical Studies of National Political Debates: 1960–1992* (Westport: Praeger, 1994), p. 8.
- 164 Matthew Flinders, *Defending Politics: Why Democracy Matters in the Twenty-First Century* (Oxford: Oxford University Press, 2012).
- 165 Ibid.
- 166 See Julian Glover, “Europeans are Liberal, Anxious, and Don’t Trust Politicians, Poll Reveals”, *The Guardian*, (13 March 2011), <http://www.guardian.co.uk/world/2011/mar/13/guardian-icm-europe-poll-2011> (accessed 15 August 2013).
- 167 Alison Park, Elizabeth Clery, John Curtice, Miranda Phillips, and David Utting (eds.), *British Social Attitudes: The 29th Report*, (London: NatCen Social Research, 2012), pp. 47–8.
- 168 See Elizabeth Mendes and Joy Wilke, “Americans’ Confidence in Congress Falls to Lowest on Record”, *GALLUP Politics* (13 June 2013) <http://www.gallup.com/poll/163052/americans-confidence-congress-falls-lowest-record.aspx> (accessed 15 August 2013).
- 169 European Commission, *Future of Europe*, Special Eurobarometer, 379 (2012), p. 25, http://ec.europa.eu/public_opinion/archives/ebs/ebs_379_en.pdf (accessed 20 September 2013).
- 170 Ruth Fox, “What’s Trust Got to Do With It? Public Trust in and Expectations of Politicians and Parliament”, *Briefing Paper* (Hansard Society, Political Studies Association and Centre for Citizenship, Globalization and Governance, 2010), p. 5.
- 171 William Mishler and Richard Rose, “What are the Political Consequences of Trust? A Test of Cultural and Institutional Theories in Russia”, *Comparative Political Studies*, 38(9), (2005): 1050–78, p. 1050.
- 172 Robert Putnam, “Bowling Alone: America’s Declining Social Capital”, *Journal of Democracy*, 6(1), (1995): 65–78, p. 67.
- 173 Public Health England, “National MMR Vaccination Catch-up Programme Announced in Response to Increase in Measles Cases”, *Press Release* (25 April 2013), <https://www.gov.uk/government/news/national-mmr-vaccination-catch-up-programme-announced-in-response-to-increase-in-measles-cases> (accessed 13 September 2013).
- 174 Ayodele Jegede, “What Led to the Nigerian Boycott of the Polio Vaccination Campaign?”, *PLOS Medicine*, 4(3), (2007): 417–22.
- 175 Donald McNeil, “Getting Polio Campaigns Back on Track”, *New York Times* (25 December 2012).
- 176 Madison Park, “Taliban’s Vaccine Ban May Affect 280,000 Children”, *CNN*, (18 July 2012) <http://edition.cnn.com/2012/07/17/world/asia/pakistan-taliban-polio-vaccine/index.html> (accessed 13 September 2013).
- 177 Telephone interview with Sam McLean, National Director of GetUp!, 22 March 2013.
- 178 Robert Butler, “The Man Behind Avaaz”, *Intelligent Life* (May/June 2013).
- 179 GetUp! Action for Australia, “Faq”, www.getup.org.au/about/faq (accessed 15 August 2013).
- 180 WAN-IFRA, “World Press Trends: Increasing Audience Engagement is Future for News Media”, Press Release, World Association of Newspapers and News Publishers (2 June 2013) <http://www.wan-ifra.org/press-releases/2013/06/02/world-press-trends-increasing-audience-engagement-is-future-for-news-media> (accessed 12 August 2013).
- 181 Lucy Mair, “Inside an Industry: Stop the Press”, *The Gateway*, 48(1), (1 February 2012).
- 182 See James Myburgh, “SA’s Daily Newspapers in Decline”, *Politics Web*, (28 October 2011), <http://www.politicsweb.co.za/politicsweb/view/politicsweb/en/page71656?oid=263880&sn=Detail&id=71656> (accessed 15 August 2013).
- 183 WAN-IFRA, “World Press Trends: Increasing Audience Engagement is Future for News Media”.
- 184 PEW, “The State of the News Media 2013: An Annual Report on American Journalism”, The Pew Research Center’s Project for Excellence in Journalism, <http://stateofthemediamedia.org/2013/digital-as-mobile-grows-rapidly-the-pressures-on-news-intensify/> (accessed 15 August 2013).
- 185 *The Guardian*, “Lionel Barber’s Email to FT Staff Outlining Digital-First Strategy”, (21 January 2013), <http://www.guardian.co.uk/media/2013/jan/21/lionel-barber-email-financial-times> (accessed 15 August 2013).
- 186 Paul Starr, “Goodbye to the Age of Newspapers: (Hello to a New Era of Corruption)” in Thomas Hale (ed.), *The Newspaper Crisis* (Princeton: Princeton University, 2009).
- 187 WEF, “Global Agenda Council on the Role of the Arts in Society 2013”, World Economic Forum, <http://www.weforum.org/content/global-agenda-council-role-arts-society-2013> (accessed 20 September 2013).

Part B *continued*

- 188 Clay Shirky, "The Political Power of Social Media: Technology, the Public Sphere, and Political Change", *Foreign Affairs*, 90(1), (2011): 28–41.
- 189 See Malcolm Gladwell, "Small Change: Why the Revolution Will Not Be Tweeted", *The New Yorker* (4 October 2010), http://www.newyorker.com/reporting/2010/10/04/101004fa_fact_gladwell (accessed 16 July 2013).
- 190 Evgeny Morozov, *To Save Everything, Click Here: Technology, Solutionism, and the Urge to Fix Problems That Don't Exist* (London: Penguin, 2013), p.42.
- 191 See the Ushahidi website, www.ushahidi.com (accessed 15 August 2013).
- 192 Patrick Barkham, "Juliana Rotich", *The Guardian* (8 March 2011), <http://www.theguardian.com/technology/2011/mar/08/juliana-rotich-100-women> (accessed 15 August 2013).
- 193 See the BantuWatch website, www.bantuwatch.org (accessed 15 August 2013).
- 194 The Dragonfly Effect, "How Obama Won with Social Media" <http://www.dragonflyeffect.com/blog/dragonfly-in-action/case-studies/the-obama-campaign/> (accessed 15 August 2013).
- 195 Beth Gardiner, "Charting the Impact of Everyday Sexism Across the World", *International Herald Tribune* (1 June 2013).
- 196 Krista Mahr, "The Top 10 Everything of 2009: Top Ten Heroes – Neda Agha-Soltan", *TIME* (8 December 2009), http://www.time.com/time/specials/packages/article/0,28804,1945379_1944701_1944705_00.html (accessed 15 August 2013).
- 197 Ian Goldin, *Divided Nations: Why Global Governance is Failing, and What We Can Do About It*, (Oxford: Oxford University Press, 2013).
- 198 Google Crisis Response, "When a Disaster Strikes, the Google Crisis Response Team Assesses the Severity and Scope of the Disaster, and the Relevance of our Tools for the Situation to Determine Whether and How to Respond", <http://www.google.org/crisisresponse/response.html> (accessed 19 August 2013).
- 199 Eric Schmidt and Jared Cohen, *The New Digital Age* (London: John Murray, 2013), p.121.
- 200 Owen Gaffney, Ninad Bondre, Sybil Seitzinger, Mark Stafford Smith, Frank Biermann, Rik Leemans, John Ingram, Janos Bogardi, Anne Larigauderie, Gisbert Glaser, Sandra Diaz, Sari Kovats, Wendy Broadgate, João Morais and Will Steffen, "Interconnected Risks and Solutions for a Planet Under Pressure", *Rio+20 Policy Brief 5* (The International Geosphere-Biosphere Programme, 2012).
- 201 The Royal Society, *Knowledge, Networks and Nations* (London: The Royal Society, 28 March 2011).
- 202 See Maria Popova, "How Ignorance Fuels Science and the Evolution of Knowledge", *Brain Pickings* (2 April 2013), <http://www.brainpickings.org/index.php/2012/04/02/stuart-firestein-ignorance-science/> (accessed 15 August 2013).
- 203 Stuart Firestein, *Ignorance: How it Drives Science* (New York: Oxford University Press, 2012), p.11.
- 204 Robert Doubleday, and James Wilsdon (eds), *Future Directions for Scientific Advice in Whitehall* (University of Cambridge's Centre for Science and Policy, University of Sussex, Alliance for Useful Evidence, Institute for Government, and Sciencewise, April 2013).
- 205 EEA, *Late Lessons from Early Warnings: Science, Precaution, Innovation*, EEA Report 1 (Copenhagen: European Environmental Agency, 2013), p. 6.
- 206 Andrew Stirling, "Why the Precautionary Principle Matters", *The Guardian*, (8 July 2013), <http://www.guardian.co.uk/science/political-science/2013/jul/08/precautionary-principle-science-policy> (accessed 15 August 2013).
- 207 Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press and London: UK Cabinet Office and HM Treasury, 2006), p. 153.
- 208 Judith Curry, "The 97% 'Consensus'", *Climate Etc* (26 July 2013), <http://judithcurry.com/2013/07/26/the-97-consensus/> (accessed 15 August 2013).
- 209 Ibid.
- 210 See Daniel Kahneman, *Thinking, Fast and Slow* (London: Allen Lane, 2011), p. 9.
- 211 Pascal Lamy, "Global Governance", Speech, World Policy Conference, Cannes, (8 December 2012), <http://www.futureworldfoundation.org/Content/Article.aspx?ArticleID=5544> (accessed 21 September 2013).
- 212 See, for example, Arvind Subramanian and Martin Kessler "The Hyperglobalisation of Trade and Its Future", *Working Paper 3* (Geneva: Global Citizen Foundation, June 2013), pp. 4–8.
- 213 Toon van Meijl, "Culture and Identity in Anthropology: Reflections on 'Unity' and 'Uncertainty' in the Dialogical Self", *International Journal for Dialogical Science*, vol. 3(1), 2008: 165–90, p. 184. See also p. 166, citing Arjun Appadurai, *Globalization* (Durham: Duke University Press, 2001).
- 214 Toon van Meijl, "Culture and Identity in Anthropology: Reflections on 'Unity' and 'Uncertainty' in the Dialogical Self", *International Journal for Dialogical Science*, 3(1), (2008): 165–90, p. 168.
- 215 See Herbert Hermans and Giancarlo Dimaggio, "Self, Identity, and Globalization in Times of Uncertainty: A Dialogical Analysis", *Review of General Psychology*, 11(1): 1–36, p. 34.; and Henrietta Moore, "Global Anxieties: Concept-Metaphors and Pre-Theoretical Commitments in Anthropology", *Anthropological Theory*, 4(1), (2004): 71–88, pp. 71–2.
- 216 See, for example, Francis Fukuyama, *The End of History and the Last Man* (London: Penguin Books, 1992) and also Daniel Bell, *The End of Ideology* (Cambridge: Harvard University Press, 1988, first published 1960).
- 217 See Dan Kahan and Donald Braman, "Cultural Cognition and Public Policy", *Yale Law and Policy Review*, 24(1), (2006): 149–72, pp. 151, 158–9.
- 218 Ibid., p. 164. See also Dan Kahan, Hank Jenkins-Smith and Donald Braman, "Cultural Cognition of Scientific Consensus", *Journal of Risk Research*, 14, (2011): 14–74.
- 219 See Jonathan Haidt, *The Righteous Mind: Why Good People are Divided by Politics and Religion* (New York: Vintage, 2012); and Ian Birrell, "The Righteous Mind by Jonathan Haidt – Review", *The Guardian*, (22 April 2012), <http://www.theguardian.com/books/2012/apr/22/righteous-mind-jonathan-haidt-review> (accessed 15 August 2013). In a quite different arena, consider Scott Atran's impressions of how historical combatants negotiate with each other. Scott Atran, "Talking to the Enemy: An Alternative Approach to Ending Intractable Conflicts", *Solutions*, 3(1), (2012): 41–51.
- 220 See, for example, Nicholas Christakis, "Let's Shake Up the Social Sciences", *The New York Times*, (21 July 2013). See also Henrietta Moore, "Global Anxieties: Concept-Metaphors and Pre-Theoretical Commitments in Anthropology", *Anthropological Theory*, 4(1), (2004): 71–88, pp. 85–6.
- 221 Toon van Meijl, "Culture and Identity in Anthropology: Reflections on 'Unity' and 'Uncertainty' in the Dialogical Self", *International Journal for Dialogical Science*, 3(1), (2008): 165–90, pp. 172–3, citing Kathryn Woodward (ed.), *Identity and Difference* (London: Sage/Open Press, 1997).
- 222 See, also Herbert Hermans and Giancarlo Dimaggio, "Self, Identity, and Globalization in Times of Uncertainty: A Dialogical Analysis", *Review of General Psychology*, 11(1): 1–36, p. 34.
- 223 Ibid., pp. 34, 37–9.
- 224 See, for example, Alexander Wendt, *Social Theory of International Politics* (Cambridge: Cambridge University Press, 1999); Bruno Latour, "On Agent-Network Theory: A Few Clarifications Plus More Than a Few Complications", *Soziale Welt*, 47, (1996): 1–14; Steve Rayner, "Cultural Theory and Risk Analysis" in Sheldon Krinsky and Dominic Golding

Part B *continued*

- (eds.), *Social Theories of Risk* (Westport: Praeger, 1992), pp. 83–115; Jonathan Gross and Steve Rayner, *Measuring Culture: A Paradigm for the Analysis of Social Organization* (New York: Columbia University Press, 1985); G. J. David and T. R. McKeldin, *Ideas as Weapons: Influence and Perception in Modern Warfare* (Washington, DC: Potomac Books, 2009); and Judith Goldstein and Robert Keohane, *Ideas and Foreign Policy: Beliefs, Institutions, and Political Change* (Ithaca: Cornell University Press, 1993).
- 225 See Henrietta Moore, “Global Anxieties: Concept-Metaphors and Pre-Theoretical Commitments in Anthropology”, *Anthropological Theory*, 4(1), (2004): 71–88, p. 74.
- 226 *Ibid.*, pp. 74, 85.
- 227 See Dan Kahan, “Cultural Cognition as a Conception of the Cultural Theory of Risk”, in Sabine Roeser, Rafaela Hillerbrand, Per Sandin and Martin Peterson (eds), *Handbook of Risk Theory Epistemology, Decision Theory, Ethics and Social Implications of Risk* (London: Springer, 2012): 725–60.
- 228 See Henrietta Moore, *A Passion for Difference: Essays in Anthropology and Gender* (Cambridge: Polity Press, 1994).
- 229 See Dan Kahan, “Cultural Cognition as a Conception of the Cultural Theory of Risk”. See also the work of David Gellner on democracy in Nepal, and Mark Nichter on the reinterpretation of government messages in South India (amongst others).
- 230 See Dan Kahan and Donald Braman, “Cultural Cognition and Public Policy”, *Yale Law and Policy Review*, 24(1), (2006): 149–72, p. 168.
- 231 See *The Wall Street Journal*, “Uncommon Women” (10 March 2012), <http://online.wsj.com/article/SB10001424052970204781804577271610840898958.html> (accessed 15 August 2013).
- 232 Kristin Lewis, *The Gender Dividend: A Business Case for Gender Equality* (New York: UN Women, 2011), p. 3.
- 233 Ricardo Hausmann, Laura Tyson and Saadia Zahidi, *The Global Gender Gap Report* (Geneva: World Economic Forum, 2012), p. 29.
- 234 IPU, “Women in National Parliaments”, Inter-Parliamentary Union, <http://www.ipu.org/wmn-e/world.htm> (accessed 15 August 2013).
- 235 Ruth Sealy and Susan Vinnicombe, *The Female FTSE Board Report 2013: False Dawn of Progress for Women on Boards?* (Cranfield: Cranfield University School of Management, 2013), p. 6.
- 236 See BBC, “First Black FTSE 100 Boss at Pru”, *BBC News*, (20 March 2009) <http://news.bbc.co.uk/1/hi/business/7954550.stm> (accessed 15 August 2013).
- 237 See France 24, “Record Number of Women and Minorities in New French Parliament”, (19 June 2012), <http://www.france24.com/en/20120619-france-parliament-women-closer-reflect-french-society-ethnic-minorities> (accessed 15 August 2013).
- 238 Paul Hackett and Paul Hunter, “Who Governs Britain?: A Profile of MPs in the New Parliament”, The Smith Institute (2010), pp. 6–7, <http://www.smith-institute.org.uk/file/Who-Governs-Britain.pdf> (accessed 21 September 2013).
- 239 Policy Exchange, “The Decline of Working Class MPs”, (26 March 2012), <http://www.policyexchange.org.uk/modevents/item/the-decline-of-working-class-mps> (accessed 15 August 2013).
- 240 Rosemary Foot and Andrew Walter, *China, the United States, and Global Order* (Cambridge: Cambridge University Press, 2010), p. 89.

Part C

- 1 On “inclusive multilateralism”, see Robyn Eckersley, “Moving Forward in the Climate Negotiations: Multilateralism or Multilateralism?”, *Global Environmental Politics*, 12(2), (2012): 24–42.
- 2 ICCT, *Meeting the Climate Challenge: Recommendations of the International Climate Change Taskforce* (London: The Institute for Public Policy Research, January 2005), p. 8.
- 3 The United States, for example, has an Early Warning Alert Network (EWAN), funded by stakeholders and the Department of Homeland Security.
- 4 This draws on recommendations outlined in Ross Anderson, Rainer Böehme, Richard Clayton and Tyler Moore, *Security Economics and the Internal Market* (European Network and Information Security Agency, 2007).
- 5 Tobias Feakin, “Collaborating for a Stronger Region – Cybersecurity Capacity Building with the ARF” <http://www.aspistrategist.org.au/collaborating-for-a-stronger-region-cyber-security-capacity-building-within-the-arf/> (Accessed 19 September 2013).
- 6 See WHO, “Sixty-Sixth World Health Assembly: Daily Notes on Proceedings”, Press Release (World Health Organization, 27 May 2013) <http://www.who.int/mediacentre/events/2013/wha66/journal/en/> (accessed August 20 2013); and WHO, “United Nations to Establish WHO-led Interagency Task Force on the Prevention and Control of Noncommunicable Diseases” (22 July 2013), http://www.who.int/mediacentre/news/notes/2013/ncds_ecosoc_20130722/en/ (accessed 26 September 2013).
- 7 Guy Peters and John Pierre, “Governance without Government? Rethinking Public Administration”, *Journal of Public Administration Research and Theory*, 8(2), (1998): 29–62.
- 8 See Infrastructure Australia, “About Infrastructure Australia”, <http://www.infrastructureaustralia.gov.au/about/> (accessed 23 August 2013).
- 9 See the Urban Redevelopment Authority website, <http://www.ura.gov.sg/uol/>
- 10 See Tennessee Valley Authority, “From the New Deal to a New Century”, <http://www.tva.com/abouttva/history.htm> (accessed 23 August 2013).
- 11 NICE, “What We Do”, National Institute for Health and Care Excellence, http://www.nice.org.uk/aboutnice/about_nice.jsp (accessed 23 August 2013).
- 12 OBR, “What We Do”, Office for Budget Responsibility, <http://budgetresponsibility.independent.gov.uk/about-the-obr/what-we-do/> (accessed 13 August 2013).
- 13 Chris Skelcher, “Fishing in Muddy Waters: Principals, Agents and Democratic Governance in Europe”, *Journal of Public*

Part C *continued*

- Administration Research and Theory*, 20(1) (2010): 161–75.
- 14 See also Christopher Adolph, *Bankers, Bureaucrats, and Central Bank Politics* (Cambridge: Cambridge University Press, 2013).
- 15 Timothy Besley, Miguel Coelho and John Van Reenen, “Investing for Prosperity: Skills, Infrastructure and Innovation”, *National Institute Economic Review*, 224(1), (2013).
- 16 Philippe Aghion, Tim Besley, John Browne, Francesco Caselli, Richard Lambert, Rachel Lomax, Chris Pissarides, Nick Stern and John Van Reenen, *Investing for Prosperity: Skills, Infrastructure, and Innovation*, Report of the LSE Growth Commission (London: Centre for Economic Performance, 2013).
- 17 Ian Goldin, *Divided Nations: Why Global Governance is Failing, and What We Can Do About It*, (Oxford: Oxford University Press, 2013). p. 70
- 18 *Ibid.*, p. 70.
- 19 United Kingdom Cabinet Office, “OGP UK 2013 Draft National Action Plan: From Open Data to Open Government”, (June 2013), <https://www.gov.uk/government/consultations/open-government-partnership-uk-draft-national-action-plan-2013/ogp-uk-2013-draft-national-action-plan-from-open-data-to-open-government> (accessed 24 September 2013).
- 20 Harlan Yu and David Robinson, “The New Ambiguity of ‘Open Government’”, *UCLA Law Review Discourse*, 178, (2012): 180–208.
- 21 Deliberative techniques allow for a more meaningful deliberation in order to distill a more authentic public opinion that, in turn, influences government policy.
- 22 Open Government Partnership, “About”, <http://www.opengovpartnership.org/about> (accessed 24 September 2013).
- 23 Nancy Birdsall, Christian Meyer and Alexis Sowa, “Global Markets, Global Citizens, and Global Governance in the 21st Century”, *Working Paper 329* (Washington, DC: Centre for Global Development, 2013).
- 24 WEF, “Global Agenda Council on Institutional Governance Systems 2013”, World Economic Forum, (2013), <http://www.weforum.org/content/global-agenda-council-institutional-governance-systems-2013> (accessed 9 September 2013).
- 25 The Commission was chaired by Joseph Stiglitz with Amartya Sen as Chair Advisor and Jean-Paul Fitoussi as Coordinator. The Commission sought to examine different measurements of economic and social progress beyond GDP. See the Commission website, <http://www.stiglitz-sen-fitoussi.fr/en/index.htm> (accessed August 23 2013). See also Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi, *Mismeasuring Our Lives: Why GDP Doesn't Add Up* (New York: The New Press, 2010).
- 26 See World Bank, *World Development Report 2013 – Jobs* (Washington, DC: World Bank, 2013), pp. 34–5.
- 27 See OECD, *Action Plan on Base Erosion and Profit Shifting* (Organization for Economic Co-operation and Development, 13 June 2013), pp. 24–5, <http://www.oecd.org/ctp/BEPSActionPlan.pdf>
- 28 The Group of Thirty, *Long-term Finance and Economic Growth*, (Washington DC, Working Group on Long Term Finance, The Group of Thirty, 2013).
- 29 John Kay, *The Kay Review of UK Equity Markets and Long-Term Decision Making: Final Report* (Department for Business Innovation and Skills 2012). See also Colin Mayer, *Firm Commitment: Why the Corporation is Failing Us and How to Restore Trust in It* (Oxford: Oxford University Press, 2013).
- 30 The McKinsey Global Institute put the annual global price tag of energy, water, agriculture and fisheries subsidies at over a trillion United States dollars; see Richard Dobbs, Jeremy Oppenheim, Fraser Thompson, Marcel Brinkman and Marc Zornes, *Resource Revolution: Meeting the World's Energy, Materials, Food, and Water Needs* (McKinsey Global Institute, November 2011). See also ICTSD, “Tackling Perverse Subsidies in Agriculture, Fisheries and Energy”, *Information Note* (Geneva: International Centre for Trade and Sustainable Development, June 2012).
- 31 IEA, *Redrawing the Energy–Climate Map: World Energy Outlook Special Report* (Paris: International Energy Association, 2013), p. 68.
- 32 The World Bank, “An ‘Evergreen’ Revolution Cuts Fertilizer Costs for Africa’s Farms”, The World Bank, (18 March 2013), <http://www.worldbank.org/en/news/feature/2013/03/18/an-evergreen-revolution-cuts-fertilizer-costs-for-africa-s-farms> (accessed 23 August 2013).
- 33 Nelipher Moyo and Vera Songwe, “Removal of Fuel Subsidies in Nigeria: An Economic Necessity and a Political Dilemma”, *Brookings Institution*, (10 January 2012), <http://www.brookings.edu/research/opinions/2012/01/10-fuel-subsidies-nigeria-songwe> (accessed 23 August 2013).
- 34 “Thailand to Cut Rice Subsidy Price”, *Financial Times*, (18 June 2013), <http://www.ft.com/cms/s/0/b4b6418e-d817-11e2-9495-00144feab7de.html#axzz2b6MgOPeQ> (accessed 23 August 2013).
- 35 The World Bank, “The Real Costs of Fossil Fuel Subsidies”, (9 May 2012), http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSDNET/0,,contentMDK:23184215~pagePK:64885161~piPK:64884432~theSitePK:5929282_00.html (accessed 23 August 2013).
- 36 Isabel Ortiz, Gaspar Fajth, Jennifer Yablonski and Amjad Rabi, “Social Protection: Accelerating the MDGs with Equity”, in Isabel Ortiz, Louise Moreira Daniels and Sólrún Engilbertsdóttir (eds), *Child Poverty and Inequality: New Perspectives* (New York: UNICEF, Division of Policy and Practice, 2012).
- 37 *Ibid.*
- 38 UNICEF, *Child Poverty: A Role for Cash Transfers? West and Central Africa*, Regional Thematic Group 3 Study (Dakar: UNICEF Regional Office for West and Central Africa, February 2009).
- 39 Isabel Ortiz, Gaspar Fajth, Jennifer Yablonski and Amjad Rabi, “Social Protection: Accelerating the MDGs with Equity”, in Isabel Ortiz, Louise Moreira Daniels and Solrun Engilbertsdottir (eds), *Child Poverty and Inequality: New Perspectives* (New York: UNICEF, Division of Policy and Practice, 2012).
- 40 ILO, “The Youth Employment Crisis: A call for Action”, Resolution and Conclusions of the 101st Session of the International Labour Conference (Geneva: International Labour Office, 2012, First Edition).
- 41 See ILO, “Youth Guarantees: A Response to the Youth Employment Crisis?” *ILO Employment Policy Brief* (International Labour Organization, 4 April 2013).
- 42 Finnish Ministry of Employment and the Economy Working Group on the Youth Guarantee, *Youth Guarantee 2013* (13 March 2012), http://www.tem.fi/files/33973/English_version.pdf (accessed 26 September 2013).
- 43 See for example the Youth Empowerment Programme of Kenya in ILO, *Studies on Growth with Equity – Kenya* (Geneva: International Institute for Labour Studies, 2013, forthcoming).
- 44 Pascal Lamy, “Global Governance”, Speech, World Policy Conference, Cannes, (8 December 2012), <http://www.futureworldfoundation.org/Content/Article.aspx?ArticleID=5544> (accessed 21 September 2013).
- 45 Sean Cleary, “New Foundations for the World Economy and Global Governance”, *Background Paper* (Bertelsmann Stiftung’s Trilogue Salzburg, 2011), p. 15, https://www.bertelsmann-stiftung.de/bst/en/media/xcms_bst_dms_34545_34546_2.pdf
- 46 See The Earth Charter Initiative website, <http://www.earthcharterinaction.org/content/> (accessed 6 September 2013).
- 47 InterAction Council, “A Universal Declaration of Human Responsibilities”, Proposed by the InterAction Council (1 September 1997), <http://interactioncouncil.org/universal-declaration-human-responsibilities> (accessed 6 September 2013).

Acknowledgements

Over the past year, the Oxford Martin Commission for Future Generations has benefited from the insights, inspirations and ideas of many organisations and individuals around the world.

The Commission would like to thank the following organisations that facilitated or hosted workshops and events as part of our knowledge-gathering process:

- New Delhi workshop, coordinated by our Commissioner Nandan Nilekani, January 2013
- World Economic Forum workshop with Young Global Shapers and Young Global Leaders, Davos, Switzerland, January 2013
- London workshop with business, government and academic leaders, hosted by the Royal Society, January 2013
- China Development Forum, Beijing, March 2013
- Global Scholars Symposium, held at the University of Cambridge, April 2013
- Center for Global Development, Washington DC, May 2013
- United Nations Department of Economic and Social Affairs, New York, May 2013
- Brussels workshop, co-convened with the European Forum on Forward Looking Activities of the European Commission, May 2013.

The Commission would especially like to thank the academic community of the Oxford Martin School and others at the University of Oxford for their expert advice and stimulating insights, particularly on the megatrends and challenges covered in Part A of the Report. Special thanks are extended to Professor Sir John Beddington FRS, who recently joined the School as a Senior Adviser, for his comprehensive and thoughtful comments. Within the Oxford Martin School, particular thanks are due to Dapo Akande, Professor Sir Tony Atkinson, Professor David Banister, Eric Beinhocker, Dr Ian Brown, Professor Simon Caney, Professor Paul Collier, Professor Sadie Creese, Dr John Frater, Professor Sandra Fredman, Professor Charles Godfray, Professor Jim Hall, Professor Bleddyn Jones, Dr Malcolm McCulloch, Professor Angela McLean, Professor Steve Rayner, Professor Adam Swift, Professor Tony Venables and Professor Kathy Willis. Also in Oxford, we are grateful to Professor Sir John Bell, Professor Sir Chris Llewellyn-Smith and Lord Robert May for their frank and encouraging feedback, as well as Professor Marcus Banks and Professor David Gellner. The Commission would also like to thank Professor Andrew Hamilton, the Vice-Chancellor of the University of Oxford, as well as the Management Committee and Advisory Council of the Oxford Martin School for their support of this initiative.



Helpful meetings were held with the World Bank, the IMF, the Brookings Institution, the Center for Global Development, the Carnegie Endowment for International Peace, the World Economic Forum, the OECD, the UK Cabinet Office and Government Office for Science, the UK Government's Foresight programme, the British Council, the European Commission, the London School of Economics, NESTA, BP, the Institute for Government, India's National Planning Commission, India's Strategic Foresight Group, China's National Development and Reform Commission, GetUp!, Berggruen Holdings, Singapore's Centre for Strategic Futures, Seed Magazine, Australia's Grattan Institute, and the World Futures Council. We are particularly grateful to Bob Zoellick, and to Guy Ryder and colleagues at the International Labour Organization for their time and expert advice, as well as the Vodafone Group's Chief Executive, Vittorio Colao; McKinsey's Managing Director, Dominic Barton; the Bank of England's Executive Director of Financial Stability, Andy Haldane; Nobel laureate, Professor Michael Spence; Wales' Commissioner for Sustainable Futures, Peter Davies; and the Executive Secretary of the Global Ocean Commission, Simon Reddy.

The Commission has been supported throughout by an Oxford Martin School secretariat, led by Natalie Day (Head of Policy) with Anushya Devendra (Communications and Policy Officer) and Dr Travers McLeod (Policy Adviser). This secretariat has coordinated the process, undertaken in-depth research and assisted in the drafting of the report.

The Commission would also like to thank the following research assistants who provided invaluable background research: Anna Alekseyeva, Dr Evelyn Chan, Brian Klaas, Sebatso Manoeli, Sara Nawaz, Aisha Saad, James Tilbury and Dr Kudrat Virk. The central team of the Oxford Martin School, including Clara Bowyer and Carole Scott as well previous staff members Julia Banfield and Alison Stibbe, provided much-needed assistance on Commission communications and events, as well as technical and administrative support. Special thanks to Claire Jordan for her patient coordination of meetings and teleconferences, as well as David Clark for copy editing this report.

The Commission thanks Arancha González Laya, former Chief of Staff to Pascal Lamy at the WTO and now Executive Director of the International Trade Centre, for her encouragement and advice throughout this work. Other colleagues at the WTO, Susan Conn, Deirdre Lynch and Elisabeth Perennou, helped with scheduling and logistics to enable the Chair to lead numerous workshops, meetings, teleconferences and interviews.

Our greatest debt is to Dr James Martin who tragically died while this Commission, which he warmly supported, was in progress. James Martin believed that humanity is at a crossroads. It was his extraordinary vision and generosity that led to the formation of the Oxford Martin School. It is to the furthering of James Martin's vision that this Commission report is dedicated. ●●





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ISBN: 978-0-9927411-1-2
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