



Sustainability Leadership Conference

A collaboration between Dubai Electricity & Water Authority and Cambridge
Institute for Sustainability Leadership

The transition to the sustainable economy

Executive Briefing

Since the middle of the 20th century, countries around the world have experienced tremendous economic growth. This prosperity has been fuelled by new technologies and methods that enabled us to extract, transform and consume natural resources at astonishing rates within and across borders. But the global operating context is changing, with strong signals that this model is running out of steam. Are we moving from an age of abundance to a period of scarcity? Are key pillars of our economy, such as a stable climate and cohesive societies, weakening and will they be significantly different 10, 20 or 30 years from now? And should governments, businesses and citizens wait and see or should they anticipate and adapt to these changes? In this short brief we take a look into the future to highlight some of these trends and explore some important emerging questions for leaders and key decision makers.

A changing world

Currently, approximately one billion people are added to the planet every 12 to 13 years. By 2050, the United Nations predicts world population will reach 9.6 billionⁱ. Even though this growth is predicted to slow down in the second half of this century, the challenge of satisfying the **material needs, aspirations and lifestyles** of these additional 2.4 billion people will place unprecedented demands on the production capacity of the planet's ecosystems, energy and mineral resources. The **global 'middle class'** – individuals with a daily expenditure of between US\$10 and \$100 and a desire for better food, new homes and more products – will rise from 1.8 billion (2009) to 4.9 billion by 2030ⁱⁱ. Most of this population growth will be in **cities**, especially those in Asia and Africa.

Meeting the growing and changing needs of society will require **additional resources**. One challenge is that our current economy is predominantly 'linear'- where resources such as metals are extracted, manufactured, used and then discarded or destroyed. By 2030, the global population will require 100 billion metric tonnesⁱⁱⁱ (Gt) of material a year. Most of these materials end up as infrastructure, consumer goods or in the atmosphere, with a fifth of all material extracted going to waste. It is estimated that by 2050 oceans are expected to contain more plastics than fish by weight^{iv}.

The current approach to economic development is energy intensive and many societies are asking what type of **energy system** will be needed in the future. In most countries, the energy system is largely based on fossil fuels such as oil and gas. The combustion of these fuels is having significant human health impacts (through particulates) and implications for the global climate through greenhouse gas emissions. To meet this increased demand for energy created by growing populations and increasing levels of consumption, governments are looking for alternative energy sources. According to the International Energy Agency, green technologies—wind, solar and other sources—now produce 22% of the world's electricity^v.

Energy, water and food are interlinked and critical for human society. From running equipment on farms, to processing and distributing food, to ultimately preparing it for consumption, the global food system has become entwined with the energy system. Food security also requires clean water: one estimate suggests that an average citizen consumes 3,496 litres of water a day^{vi}, with most of this embedded in the production of the food and drink that they consumer. According to the Institute for Mechanical Engineers, a kilogramme of wheat requires between 500 and 4,000 litres of water, while **meat production** requires even more - a kilo of beef requires 15,415 litres of water^{vii}.

Disruption to this critical nexus of energy-water-food can present significant challenges to stability. Already, rapidly developing countries like Brazil and South Africa face regular power-outages as demand outstrips supply, while drought-related spikes in the prices of staple food crops in 2008 and 2011 led to food riots in 30 countries. These **tensions** are likely to worsen as demand for water, food and energy is expected rise by 30 and 50 per cent over the next 15 years^{viii}. This will be stressed further by changes in the earth's climate. Climate change, a long-term and lasting adjustment to the world's weather patterns, is expected to affect the frequency and intensity of extreme weather events.

While our understanding of the impacts of climate change continues to evolve, the evidence that Earth's climate is warming is unequivocal. Observations over the past fifty years show that global temperatures are a departure from at least the previous 1,300 years^{ix}, with scientists concluding that most of this **warming** is due to emissions of greenhouse gases from human activity. The World Bank estimates that without decisive action our planet is expected to warm by 4 degrees Celsius^x by the end of the century which could inundate coastal cities, increase the frequency (and severity) of tropical cyclones, displace human populations, and disrupt business supply chains.

Many countries are experiencing a growing gap between rich and poor citizens. Many institutions warn that widening income inequality poses one of the most significant risks to the business operating context^{xi}, threatening economic growth and the ability of the state to meet rising social expectations. A primary focus of equity for many citizens is **the opportunity to work**. Across Europe, which is currently undergoing significant social and political changes, the levels of youth unemployment^{xii} hit 53.5% in Spain, 49.8% in Greece and 43.9% in Italy by November 2014. Rapidly evolving technological advances are creating tremendous opportunities but also risk putting pressure on millions of jobs. A report by Citi and the University of Oxford showed that 47% of US jobs were at risk from automation^{xiii} while the figures were 69% in India and 77% in China.

These indicators highlight some of the issues emerging in the current operating context. Over the last 50 years, economic growth has delivered an unprecedented improvement in the lives of millions of people and has promoted new behaviours by businesses, policy-makers and consumers. Yet, as we take stock in 2017, there is plenty to suggest that the global economy

may not be meeting the needs of all, nor that it is suitable to meet the demands of a world of 9 billion people. Do we need a new plan for a more sustainable economy that encourages economic and social prosperity and well-being and protects precious and vital natural systems and resources?

Towards the sustainable economy

To respond to this changing context in 2015 governments from around the world endorsed the United Nations Sustainable Development Goals (SDGs), a comprehensive blueprint to deliver social equity and environmental security, while 196 nations gathered in Paris to agree the most comprehensive action plan on climate change. These commitments are important, not least because they are global in scope, but also that they come with a timeline and framework: **action is required** by 2030 and the outcomes are clearly defined for all to see.

Condensed from the ambitions of almost 200 governments and shaped further by business and civil society, the SDGs represent a once in a generation statement of direction for the whole world^{xiv}. The 2030 Agenda for Sustainable Development is a plan of action for people, planet and prosperity. The 17 Sustainable Development Goals and 169 targets are set to stimulate action over the next fifteen years in areas of critical importance for humanity and the planet^{xv}.



Alongside the global agenda, governments are progressing the sustainability agenda domestically. From China and Colombia to South Korea and California, policy makers have launched carbon tax or trading schemes, removed fossil fuel subsidies and continued to implement their low carbon development plans. Many cities, including the C40 Cities^{xvi} group, accelerated actions to tackle emissions, improve productivity and increase their **resilience**.

Actors within the finance sector are beginning to explore approaches to **allocating capital** towards sustainability and to manage the risks that social and environmental challenges both to financial institutions and to the wider financial system. In a seminal speech in September 2015, Mark Carney, Governor of the Bank of England said that “*once climate change becomes a defining issue for financial stability, it may already be too late*”. A growing number of banks, insurers and reinsurers are recognising that they may need to integrate an understanding of risk and impact into their commercial decisions.

Leaders are recognising that they need to **adapt** to these changes and that businesses have a **strong reason for acting** now. The World Economic Forum’s 2016 Global Risks Report illustrates that issues such as water crises, failure of climate change mitigation and adaptation and large-scale involuntary migration will have significant impacts^{xvii} on business operations and they are likely to occur in the next 10 years.

Companies in a range of industrial sectors are reporting that the changing context is impacting their business. In just one example, the Raw Materials Initiative has identified 14 materials, including cement, glass, iron and steel castings, which will have an increased supply risk over the next 10 years^{xviii}. Already, these resource shortages are encouraging companies to find ways to thrive in the **circular economy**, one where materials are kept in use as long as possible then reused and regenerated rather than wasted.

In a 2016 authoritative tri-annual report of business leaders, 89 per cent of respondents indicated that their commitment to sustainability is translating into real impact in their industry^{xix}. The Business and Sustainable Development Commission identifies 60 sustainable and **inclusive market “hotspots”** in energy, cities, food and agriculture, and health and well-being. It predicts that these have the potential to generate at least US\$12 trillion and create 380 million jobs by 2030^{xx} while “embedding the SDGs into the strategies of private companies could create an additional US\$8 trillion across the wider economy”^{xxi}.

These trends and opportunities demonstrate the high degree of interdependence between economic, social and environmental priorities and point to a leadership response that encompasses sustainability, innovation and collaboration. The overarching conclusion of CISL’s **Rewiring the Economy plan** is that “*laying the foundations for a sustainable economy will require widespread and long-term commitment to collaborative action*”^{xxii}.

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