



A future resource and pollution constrained world—An agenda for a new partnership between business, governments and academia



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ABSTRACT

The world will undergo rapid and profound developments during the coming decades. This is due to a number of global mega trends, such as population growth, poverty alleviation and urbanisation. The result is a future that will be both resource and pollution constrained. Following the development of the past decades, this future also includes increased systems complexity and an interconnected world. To deal with these challenges, the global society must move towards a more collaborative approach that builds on a grand coalition of stakeholders. Building on experiences from global business, international policy advisory positions and research, this opinion-piece discusses items on an agenda to deal with the challenges in creating a sustainable future.

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1. Mega trends

A central element in the global development over the next decades is a strong growth, occurring in several areas. This is the result of a number of mega-trends that will have a central influence on society and nature. Such trends include that the global population is expected to grow by one-third over the next 40 years (UNDP, 2012). Importantly, population growth will mainly occur in what we *today* call emerging economies, which by 2050 will represent about 85% of the global population (UNDP, 2012). The global population is also ageing, with major economic and social consequences (UN, 2013). The development furthermore includes a doubling of people living in urban environments, which reaches up to 70% of the global population by 2050 (UN, 2012b). The population growth and

new urban infrastructures will primarily occur in Asia and Africa, resulting in a rapid economic growth in the emerging economies that already by 2025 will represent more than 60% of global GDP (OECD, 2010).

These countries will have a focus on increasing living standards and alleviate poverty during this development, which do not only relate to economic situations. It also includes access to energy, water, food and other societal services. The status today is however that 1.300 million people globally live in energy poverty, lacking access to reliable and affordable energy (IEA, 2011) and 2.000 million people live in areas with severe water stress (UNESCO, 2012). Moreover, undernourishment is a reality for 850 million people (FAO, 2012). Reducing these poverties is essential in a development towards an equitable and otherwise sustainable world.

As a result of these mega trends, projections include that we will as early as 2030 see a 40% increase in energy demand, a 70% increase in food demand (FAO, 2011) and an associated 50% increase in water demand (Leflaive, 2012). Nearly 90% of the

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growth in energy demand and two-thirds of investments in energy supply infrastructure, up to 2035, is expected to occur in non-OECD countries (IEA, 2011).

The consequence is an enormous growth in resource demand and a world facing substantial constraints in resource availability due to market availability and ecosystem capacities. The former includes, as an example, the location and production capacity of mineral resources. Moreover, influenced by a strain on global resource markets, the price of several resources, such as foods, fuels and metals, have already started to undergo large fluctuations and experience sharp price increases (de Groot et al, 2012). Adding to the resource complexity and providing a challenging starting-point for this development, the global ecosystems, which are the key suppliers of natural goods and services, are being degraded to the point that their capacity to supply key resources is reduced (Millennium Ecosystem Assessment, 2005).

This means that management and strategies for social and business developments have to assume that access to resources will be more limited and more expensive (e.g. de Groot et al., 2012; KPMG, 2012). The growth going forward will also push demand for lowering pollution. Policy developments indicate that pollution will be increasingly costly, with charges for carbon dioxide emissions, water pollution and other pollutants. It also means that being able to supply and implement resource efficient and low polluting products and services will be a key strategic focus. Companies and societies must be able to operate with minimum resource use and pollution. This will drive demands to measure, report and verify resource use and impacts on society and ecosystems. These pressures will however likely be disparate, as originating from governments, consumers and financial markets, while improved collaboration and common goals could increase the efficacy to innovate and implement more sustainable practices and technologies.

To emphasise, what we have ahead of us is a world that will inevitably be resource and pollution constrained with competition over resources between countries and companies, implying that priorities in planning and developing our societies on the broad scale (e.g. key infrastructures such as energy systems, water supply, and natural resource management as well as innovation agendas) will increasingly be questioned. The agendas for both policymakers and business will have to undergo fundamental changes to build robust systems that can deal with large changes in supply and demand, as well as changing environmental conditions, and build capabilities for driving transformational change and innovation to provide solutions to new challenges.

2. Managing transformational change in a complex world

Given the magnitude and nature of the development challenges, the question is how we can drive transformational change towards sustainability in a world composed of increasingly complex systems and actors with diverging and sometimes competing agendas and priorities. Especially seeing that the global governance for environmental and economic issues has been weakened (WBCSD, 2012), of which evidence can be found, for example, in the challenge for the World Trade Organization (WTO) to move the Doha Round forward as well

as the limited success under the UN Framework Convention on Climate Change (UNFCCC).

While the world arguably can sustain the mega trends within sustainable limits, this requires careful planning and better governance (e.g. Hoff, 2011). There is a consensus that no single part of society can solve this alone, as the challenge does not necessarily lie in physical constraints but rather in cooperation, learning, innovation and efficiency in implementing change (e.g. Hoff, 2011; Stigson et al., 2009).

To create a sustainable world will therefore require new partnerships between business, governments and academia to bring together the necessary innovation capacity, ability to implement actions and the support of the right policy frameworks. We need suitable platforms for these new partnerships that can bring together key actors without being impeded by political traditions and bias within many of the existing old structures.

The leading economies of this world have realised that the future world is facing these challenges. This has resulted in a “Green Race”—meaning a competition has started regarding who will be the leading suppliers of resource efficient and low polluting solutions to a world that will inevitably require such technologies and services.

The message is thus that development patterns for the future needs to change and that the resources needed to build and maintain our societies need to be supplied in a much more efficient and less environmentally degradable manner. We will also have to change lifestyles and consumption patterns to allow 9 billion people to live well within the limits of the planet. A central aspect in this is to reduce our collective ecological footprint, i.e. the resource use per capita. In the developed countries, the footprint must be reduced to sustainable levels to allow for operating space in emerging economies to alleviate poverty and improve quality of life, which furthermore must be done without copying the consumption patterns and lifestyles in the rich world (WBCSD, 2010).

However, it is important to stress that as a global society, we must acknowledge that we have problems. What we need more of are common understandings about the potential solutions and what capacities and capabilities are needed to implement the solutions. This will require that we bring together a grand coalition of science, governments and business as the parties that have knowledge, regulatory capacity and capability for innovations and implementation. We also need civil society at the table to create trust for the difficult trade-offs that we will inevitably be facing as we start setting priorities for actions. As a part of both governmental and private sectors, the role of the financial sector should be acknowledged seeing that transforming the global society in a sustainable direction will be costly and requiring financing and aid to support innovation and implementation of more sustainable practices and technologies.

3. An agenda for a grand coalition

To this end, this opinion piece highlights a number of key items for a global development agenda, based on our experiences from the global business, roles as policy advisors, and research (see bios). Namely:

1. A common long-term vision

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