

Business threats and opportunities from the resources challenge

“To promote human well-being, alleviate poverty and minimise waste by ensuring a sustainable supply of food and water.”

Issues:

The challenge is to enable 9bn people (projected peak population) to live well with the resources and carrying capacity of a single planet.

We need a global economy that can deliver this without crossing major environmental risk boundaries including¹:

- Global warming – keeping overall warming below 2°C.
- Biodiversity – reducing extinction rates below 10 species per million pa.
- Water – human consumption below 4000 km³ pa.
- Capacity to process waste.
- Stratospheric ozone concentration – maintain at least 276 Dobson units.
- Reduce dependence on non-renewable resources.
- Unsustainable exploitation of renewable resources.
- Disruption of natural nitrogen and phosphate cycles.
- Ocean acidification.
- Converting too much of the available land to human use (agriculture and cities).

Crossing these boundaries dramatically increases the risk of irreversible damage to ecosystems and the carrying capacity of the earth.

John Beddington has described the ‘Perfect Storm’ of an increased population requiring 50% more food by 2030, 30% more water and 50% more energy, whilst we are also trying to prevent accelerating climate change and adapt to the climate change already in the system². In a world of increasing competition for food resources, the EU is only 25% self-sufficient in vegetable protein.

Business Threats:

- Inability to globally source food in the future.
- Trade barriers on the export of water embodied in products from stressed areas.
- Reduced access to key minerals – eg rare earths.
- Increased conflict over access to resources.
- Reaching the limits of key non-renewable resources – peak oil, peak phosphorus and peak minerals such as indium, lithium and rare earths.
- Increased regulation to avoid crossing environmental risk boundaries.
- Increased costs and supply volatility for many key raw materials.
- Public pressure on companies that threaten environmental boundaries.

¹ “A Safe Operating Space for Humanity”, Johan Rockström *et al*, Nature, Vol 461, 24th September 2009

² “Food, Energy, Water and the Climate: A Perfect Storm of Global Events?”, 2009, John Beddington.

Business Opportunities:

- Development of low-carbon goods and services.
- Phasing out of powerful greenhouse gases.
- Reducing NO_x and CH₄ emissions from land use change and agriculture.
- Improvement of feed conversion efficiency in livestock.
- Reduction of waste in the food chain.
- Factor 10 improvements in resource efficiency.
- Development of renewable substitutes for non-renewable resources.
- Designing and constructing low-impact mega-cities.
- Reducing embodied water in goods and services.
- Improving the recyclability of products and the recycling of resources.
- Developing products and services with low or zero life-cycle waste and emissions.
- New high-efficiency water treatment technologies; cheaper desalination processes.
- New crop varieties and species that can withstand lower water availability and increased variability.
- Technology and services for real-time monitoring of the environment; eg better management of water catchments.
- New methods to protect crops and livestock from pests and diseases.

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