

## Panic versus denial: The resource gap grows, the global risks rise – but who is listening?



**March 2014:** The complex nexus of food, water, energy and climate change presents huge global economic, environmental and societal challenges – heating up the battle to access new resources from the Arctic to fracking. Risks are growing, even as multilateral action stalls.

Today we are using around 50% more renewable resources and land than the planet can generate. By 2030 the annual rate will be 2 times, and by 2050 we will need the equivalent of 2.8 planets, as the population increases along with per capita consumption. Clearly such consumption is not sustainable. These resource challenges are significantly impacted by climatic shifts, with the latest 5th IPCC report on climate change reiterating the risks of continued shifts, including the impact of sea level rises, extreme weather events, and ocean degradation. Meanwhile, the Arctic is rapidly becoming a new battleground for securing natural resources, from oil and gas to minerals, diamonds and fish.

The imperative is not only to do more with less and eliminate waste but to rethink usage, reducing consumption and developing self-sustaining systems that reuse resources effectively, harnessing new technologies and approaches from urban farming to algae-based biofuels. The challenge is that if we do not act, the potential for resource conflicts between countries, organizations and communities will rise.

Yet as resource gaps grow and risks increase – the focus of this briefing – the world seems locked into a vicious cycle of debate and inaction. Media debates around partisan interests obfuscate scientific realities, even as multilateral action remains stalled on critical issues, whether climate agreements or solving the paradox of the hungry and the obese.

It's a crisis of morals, governance, and above all marketing and media, pitting crisis deniers, often with vested interests in the status quo, against those who recognize the threats but are communicating panic versus reasoned solutions. Expect more debate and calls for responsible capitalism – those that are listening will be taking action at multiple levels in society and business.

### The fight against climate change

Around the world the weather has proven to be increasingly unusual over the past year. In many places in the UK, for example, it is so wet that the British are wishing not for houses but for houseboats or stilt houses. The U.S has suffered record-breaking cold, rainfall and drought around the country. In Asia super typhoon Haiyan killed 10,000 people and battered the Philippines with record-breaking winds, while in Latin America Argentina had one of its worst heatwaves in December 2013. Whether a believer

or not in human-driven global warming the unforgettable weather events in the last year have underlined the vulnerabilities of increasing numbers of people and property to extreme weather. For the latest state of scientific knowledge on climate change click [here](#) for the [Fifth Assessment Report \(AR5\)](#) from [IPCC](#) which has concluded that it is 95% likely that most of the rise in global average temperatures (widely believed to be the underlying reason for extreme weather events) since the middle of the 20th century is due to emissions of greenhouse gases, deforestation and other human activities.

**Climate change facts** from the [World Resources Institute](#):

- This decade has been the warmest on record in 160 years of monitoring.
- The Arctic currently has less than one-third of the multi-year ice that it had in 1980.
- If global emissions continue unabated, we're on track for roughly 5 degrees centigrade of warming—close to 10 degrees in the Arctic.
- In the 1980s the world spent around US\$50 billion per year on weather-related disasters but today we spend roughly US\$200 billion.

### **The global challenge**

**Mass migration:** In addition to bringing severe and possibly permanent alterations to our planet's geological, biological and ecological systems, climate change could lead to conflict and war as devastating extreme weather often causes mass migration from the hardest hit areas. Asia-Pacific is a high-risk area for environmental disasters and the [Asian Development Bank](#) warns that countries must prepare for an influx of people fleeing natural disasters. Between 2009 and 2011, 42 million people were driven from their homes in Asia-Pacific due to such disasters, although it is not known how many were fleeing as direct consequence of climate change. Six of the ten countries most vulnerable to climate change are in the Asia-Pacific: Bangladesh tops the list followed by India, Nepal, the Philippines, Afghanistan and Burma.

**Climate change refugees:** Climate changes have now generated the world's first climate asylum seeker, potentially the first of many. A 37-year-old man from Kiribita, an island nation with 100,000 inhabitants in the central tropical Pacific Ocean that is highly vulnerable to rising sea levels, has sought climate change refugee status in New Zealand, although has not yet been granted asylum. A wide range of research indicates that the impact of climate change will create environmental, humanitarian and security challenges fuelling regional and global geopolitical tensions. (Source: [The Telegraph](#), [Global warming is real](#))

### **Changing the future of climate change**

**Government climate talks continue:** The latest UN Climate Change Conference in Warsaw in November 2013 ended with agreement on keeping governments on a track towards a universal climate agreement in 2015 and included significant new decisions that will cut emissions from deforestation and about managing loss and damage. In mid-February 2014 the U.S was the first country to share its ideas for what the 2015 climate deal could look like. The European Commission has also recently outlined its proposals for climate and energy policies up to 2030. These include a binding emissions reduction target of 40% from 1990 levels and an EU-wide binding target of at least 27% of energy coming from renewable sources. President Obama is also expected to propose a US\$1 billion fund in his fiscal 2015 budget to help communities prepare for the effects of climate change and to fund research and technology to protect against its impact. (Sources: [UN](#), [The Guardian](#), [Washington Post](#), [Scientific American](#))

**The Super Lab:** Shawn Frayne, owner of Hong-Kong based [Haddock Invention](#), has with his partners

started the Ocean Invention Network. The super lab network of like-minded inventors has a one common goal – invent things to reduce carbon emissions worldwide in a dramatic and affordable way. Collaboration is the key with each independent “node” (lab) working on 3 to 4 projects in parallel. The projects are a mix of experimental inventions, consulting and product development. When an idea gets enough momentum, partner labs can get involved to help vet, improve, and grow the idea. Until now the network includes [Octo23](#), [Mantis Shrimp Invention](#) and [Coho Solar](#), a spinoff from Haddock. Shawn Frayne is also the inventor of the [award-winning “wind belt”](#) and co-creator of the [Kickstarter-launched Solar Pocket Factory](#). (Sources: [Gigaom](#), [Fast Company](#))

**Could the future be less consumption=less waste=less CO2 emission?** What if businesses used all the data they gather to make us buy more, to help us consume less? Future brands would help consumers understand how much they consume, and what this means for their health, wealth and happiness, e.g. your favorite brand will build you a personal shopping cart based not only on past purchases but what you have thrown away as well as offering alternatives to suit your desired body weight or health profile. Here brand loyalty will be the key, not discounts. The question is whether we will be comfortable trusting so much information to businesses that this is possible. (Source: [Fast Company](#))

### “Water, water, everywhere, nor any drop to drink”

Samuel Taylor Coleridge’s *The Rhyme of the Ancient Mariner* may seem a little extreme – after all he was talking about the thirst of castaway sailors, but water scarcity is a reality in many parts of the world and will become an increasing challenge for many more people in the next decades. The world may seem to have plenty of water but only 2.5% of all the water on Earth is fresh water, and most of the world’s remaining fresh water lies too deep underground to be accessible. In fact, only 1% of the Earth’s fresh water is available for withdrawal and human use. Water is a crucial resource for all aspects of life, but fresh, accessible water is a scarce and unevenly distributed resource, which does not correspond well with patterns of human development. Due to demographic, economic and social changes global freshwater consumption rose at twice the rate of population growth in the 20th century and water consumption is projected to increase by 85% from 2010 to 2035.

**Troubling water facts** from [Water.org](#), [The World Bank](#) and [Huffington Post](#):

- More than 3.4 million people die each year from water, sanitation, and hygiene-related causes. Nearly all deaths, 99 percent, occur in the developing world.
- More people have a mobile phone than a toilet.
- 2.8 billion people live in areas of high water stress.
- About 95 percent of the water entering our homes goes down the drain.
- Running the tap while brushing your teeth can waste 4 gallons of water.

### *The global water challenge*

**Tibetan water wars?** The distribution of water and population do not correspond, so 60% of the world’s people in Asia only have access to 36% of the global water supply, resulting in widespread scarcity issues. Explosive population and consumption growth will exacerbate water security challenges in Asia, and in India and China in particular. It threatens to reduce economic growth, exacerbate territorial disputes, and impose further hardships on Asia’s poor. There is also the potential for conflict over ten of Asia’s largest and longest rivers which originate in the Himalayas or Tibetan plateau, including the Yangtze, Mekong, Brahmaputra (which becomes part of the Ganges), and collectively serve about 47% of the world’s population. China has been building dams to divert the flow of some of these rivers from the south to its arid north and east as well as to generate

power, potentially with severe negative consequences for highly populated downstream countries, including India, Bangladesh, Cambodia, Laos, Thailand and Vietnam. Source: ([The National Bureau of Asian Research](#), [Princeton](#), [Asia Society](#), [The Globalist](#))

**Drought and flood impacts:** Drought and flooding are both extremely devastating but where drought is often a slow and creeping natural disaster, flooding is often rapid and devastating. The direct and indirect impacts can be enormous, environmentally, economically and socially, including reduced viability of crops, rangeland, and forest; lost business opportunities; reduced income for farmers, agribusiness and other stakeholders; increased unemployment, crime and insecurity and migration. Drought and flooding has become more intense and frequent worldwide: In 2013 the [IPCC](#) concluded in their [Fifth Assessment Report \(AR5\)](#) that it will probably get worse this century. According to the [World Resources Institute](#) 37 countries face “extremely high levels” of baseline water stress leaving them in high risk of drought.

### *Changing our water future through disruptive technology and innovation*

**Nanotechnology:** In India researchers have developed a water purification system using composite nanoparticles to remove microbes, bacteria and other impurities from the water. According to Professor Thalappil Pradeep of the [Indian Institute of Technology Madras](#) it is possible to deliver microbially safe water for a family for just US\$2.50 a year. Low-cost water purification could finally be possible in a commercially scalable way! (Source: [The Guardian](#))

**Membrane chemistry:** Membrane chemistry is not a new technology, but is continuously being developed. Membranes to purify and filter water are integral to modern water treatment processing today, e.g. desalinating water. Recent breakthroughs have been credited with forcing down the cost of desalinated water from US\$1 per cubic metre to between US\$0.80 and US\$0.50 over five years. New ceramic membranes are helping to make treatment more affordable. (Source: [The Guardian](#))

**Seawater desalination:** Seawater desalination is still extremely expensive but in the quest to solve the world’s water problems, new and more efficient methods are being tested. [MIT Technology Review](#) recently revealed that researchers at MIT have developed a new way to desalinate water, known as shock electrodialysis. It not only removes salt but particulate matter and bacteria too. According to the Martin Bazant, postdoc Daosheng Deng, and his colleagues: “*Shock electrodialysis has the potential to enable more compact and efficient water purification systems*”.

**Smart monitoring:** It is estimated that 45 million cubic meters of water are lost every day in distribution networks in developing countries. For companies, these leaks are costly and increase pressure on water resources and the likelihood of pollutants infiltrating supplies. New monitoring technologies can now help companies ensure the integrity of their vast water supply networks. Electronic instruments, such as pressure and acoustic sensors, connected wirelessly in real time to centralized and cloud-based monitoring systems allow companies to detect and pinpoint leaks much quicker. (Source: [The Guardian](#))

**Intelligent irrigation:** It takes time to change people’s mindset from “there is plenty of water” to “we need to rethink our water use.” However doing so is particularly important in the agricultural industry which uses approximately 70% of the world's freshwater. Today a more intelligent approach to water management is starting to gain ground in developed countries. Precision irrigation systems, computer algorithms and modeling are beginning to bring benefits to farmers in these countries. (Source: [The Guardian](#))

**Wastewater processing:** Even in developed countries many still do not have their sewage adequately treated and wastewater is often discharged, untreated, into rivers and estuaries or used

as irrigation water. Now new technologies are promising to transform wastewater into a resource for energy generation and a source of drinking water. For example, modular hybrid activated sludge digesters now remove nutrients to be used as fertilizers while at the same time driving down the energy required for treatment by up to half. (Source: [The Guardian](#))

### *Examples of initiatives for a water scarce future*

**Water – energy – food nexus:** In Kern County, California, [Chevron](#) is partnering with the [Cawelo Water District](#) to provide much needed water to local farmers for agricultural use. Water is a significant byproduct from steam flooding, a technology employed to extract thick, viscous oil out of the ground. Chevron reclaims about one-third of the water to generate new steam, and provides most of the remaining treated water to the Cawelo Water District to distribute to 160 farmers to irrigate 45,000 acres of crops. Since 2005, [The Coca-Cola Company](#) has implemented a series of technical and natural solutions in nearly 400 community water projects in more than 90 countries. These community water partnerships include rainwater harvesting, drip irrigation, agricultural water efficiency improvements and protecting watersheds. (Source: [GreenBiz](#))

**Pre-competitive collaboration:** The [UN](#) has classified Kenya as a chronically water-scarce country and the country's capital is already experiencing water problems. Along with many other companies the brewer [Diageo](#) in Kenya relies on water for its production. To continue business in Kenya sustainable water supply was a necessity. However Diageo realized the company could not solve the problem on their own. To make a real difference in the broader watershed Diageo realized it had to work together with new partners. Today Diageo has convened a taskforce including competitors, local and international governments to address water risk in Nairobi. Could such pre-competitive collaboration be the key to solving water risk around the world? (Source: [The Guardian](#))

**The waterless toilet:** Older toilets can use three gallons of clean water with every flush, while new toilets use as little as one gallon. The future: No water needed to flush? Henry Wu is founder of the water-free toilet [Landwasher](#) that simply uses “number one” to flush “number two.” He has already installed more than 10,000 of his toilets across China and sells almost US\$7 million worth of them a year, making [Landwasher](#) a worldwide leader in environmental sanitation.

### **Fighting energy poverty in a modern world**

Energy is essential for the development of and prosperity of the world's societies. For people living in the developed world the problem of energy is not one of shortage but one of waste, while billions simply lack access to modern electricity in other parts of the world.

*Troubling energy facts* from [The World Bank](#) and [Mosaic](#)

- 2.5 billion people have unreliable or no access to electricity.
- Developing countries are the most vulnerable in terms of electricity generation by 2050.
- In the U.S. alone, fossil fuels cost US\$500 billion in environmental and health costs each year.
- Ending fossil fuel subsidies would cut CO2 emissions by an estimated 13%.

### *The global energy challenge*

**Meeting demand...:** Energy demand is rising rapidly as the world's population increases and energy-using devices from cars to televisions become more affordable for the world's growing middle class. In the [International Energy Outlook 2013](#) the IEA estimates that world energy consumption will grow by 56% from 2010 to 2040. Total world energy use will rise from 524 quadrillion British thermal units (Btu) in 2010 to 630 quadrillion Btu in 2020 and to 820 quadrillion Btu in 2040.



Renewable energy and nuclear power are the world's fastest-growing energy sources, each increasing by 2.5% per year. However, fossil fuels will continue to supply almost 80 percent of world energy use through 2040.

... **while limiting carbon dioxide emission:** Many governments have already put targets in place for the generation of substantial percentages of electricity from renewable sources such as solar, wind and biofuel. While the biggest emitters, the U.S. and China, have yet to establish targets for CO<sub>2</sub> reduction, both countries are already making major investments in clean energy. Despite the many clean energy success stories, global energy-related carbon dioxide emissions increased by 1.4% in 2012, reaching 31.6 gigatonnes which is a historic high. 60% of global emissions, up from 45%, is now accounted for by non-OECD countries. (Source: [IEA](#))

### **Changing our energy future through disruptive technology and innovation**

**Hybrid solar devices:** A research team from [MIT](#) has come up with an invention that combines the best from photovoltaic and solar-thermal systems. They have created a solar thermophotovoltaic device. Similar devices have been built before but this is the most efficient to date. According to the paper's senior author, Evelyn Wang, the device is built using carbon nanotubes which are such efficient absorbers of sunlight that they do not waste any of the spectrum, converting nearly all of it into heat energy. Because the sunlight is also transformed into heat, that energy can be stored more easily than the direct electricity that photovoltaic cells produce. (Source: [Scientific American](#))

**Harnessing tidal energy from water:** A grid-connected [underwater tidal turbine](#) has successfully generated renewable energy off the coast of Maine for a year. The project, run by the [Ocean Renewable Power Company \(ORPC\)](#), has done an environmental assessment which found no detrimental impact on the marine environment. With help from the Department of Energy, the project is set to deploy two more devices in 2014. A Japanese delegation has visited the project as Japan seeks to produce 30% of its total power offshore by 2030. (Source: [Reneweconomy](#))

**From plastic bags to diesel fuel:** Americans throw away about 100 billion plastic bags every year and only 13% end up being recycled. The rest ends up in landfill, waterways and the natural environment. However, a new study in the journal Fuel Processing Technology reveals it is now possible to convert the abundant source of plastic bags into diesel, natural gas and other useful petroleum products. Senior research scientist Brajendra Kumar Sharma at the [Illinois Sustainable Technology Center](#) who led the research says: "You can get only 50 to 55% fuel from the distillation of petroleum crude oil, but since this plastic is made from petroleum in the first place, we can recover almost 80% fuel from it through distillation." Another good thing: The process produces significantly more energy than it uses! (Source: [Phys Org](#))

**Harnessing energy with microbes – the microbial battery:** At [Stanford University](#) engineers have found a new way to generate electricity from sewage using naturally-occurring "wired microbes" as mini power plants, producing electricity as they digest plant and animal waste. The Stanford engineers estimate that the microbial battery can extract about 30 percent of the potential energy locked in wastewater. That is roughly the same efficiency at which the best commercially available solar cells convert sunlight into electricity. The invention could be used at sewage treatment plants and maybe even in dead zones of lakes or coastal waters where the amount of nitrogen and solid matter have depleted oxygen levels that have killed off marine life. (Source: [Phys Org](#))

### **Examples of initiatives for an energy poor future**

**Investing in clean energy:** Big corporations, nonprofits and government organizations are using an enormous amount of energy on a daily basis. Fortunately there is a heightened awareness of the

consequences: More and more corporations are investing in clean energy. One example is Google that has invested in 15 wind and solar projects worldwide, although mostly in the U.S. The projects have the capacity to produce two gigawatts of power which is the equivalent of the Hoover's Dam's power generation. [The Solar Energy Industry Association \(SEIA\)](#) released a report in October 2013 showing the top 25 U.S. companies that use solar energy to power their facilities. Among the top 10 are: 1. Walmart, 2. Costco, 3. Kohl's, 4. Apple, 5. IKEA, 6. Macy's, 7. Johnson & Johnson, 8. McGraw Hill, 9. Staples, 10. Campbell's (Sources: [CNBC](#), [International Business Time](#))

**Gamifying energy consumption:** Being environmentally conscious doesn't have to be boring. Just as exercise and education are being gamified, so is going green – taking advantage of the digital generations' urge to use smartphone apps as a weapon to advance sustainability. One example of gamified sustainability is [Opower](#) which processes household energy data into a gamified interface that helps people reduce their power consumption and utility bills. The company partners with utilities to analyze data in more than 50 million homes. [Greenbean Recycle](#) aims to change the recycling attitudes and behaviors in U.S. colleges, including [MIT](#), [Harvard](#) and [Tufts](#). It uses game mechanics, such as intercollegiate challenges and recycling lotteries. (Source: [Greenbiz](#))

**Making clean energy accessible through crowdfunding:** Crowdfunding is starting to permeate many industries. In Europe, crowdfunding renewable energy is taking off. One example is [Solar Schools](#), a UK crowdfunded project seeking to “help schools overcome financial barriers to renewable energy and become cleaner, greener places for pupils to learn.” [Solar Schools](#) has raised £275,000 so far for 45 schools. [Sun Funder](#), through crowdfunding and partnerships with solar energy businesses around the world, provides solar energy solutions to underserved communities worldwide. [Sun Funder](#) has empowered 102,357 people with US\$388,000. Other examples of crowdfunding projects include: [Abundance Generation](#), [Solar Mosaic](#) and [Milaap](#). (Source: [Energy Post](#))

## Food shortage: A looming crisis

Food security is a growing issue, requiring innovative solutions to build food supply and reduce waste. Agriculture around the world is feeling the disruption of climate change, even as food commodity prices soar and become increasingly volatile, while farmers worldwide are trying to adapt to a new and challenging agricultural future. However, it is not only about growing more food, it is about waste management and also redistributing the food that has already been produced.

**Food facts** from the [World Food Programme](#)

- One in eight people goes to sleep hungry every day.
- 870 million people are hungry worldwide, which is 130 million fewer hungry people than 20 years ago.
- Hunger increases a country's risk of democratic failure, protest, rioting, violence and civil conflict.
- The global population will grow over 30% by 2050. Food production will need to grow by 70% to meet with demand.

### *The global food challenge*

**The staggering level of food waste:** The first study of the impact of global food waste, [“Food wastage footprint: Impact on Natural Resources”](#) reveals that a staggering 1.3 billion tons of food – one-third of our food – is being wasted each year causing major economic losses as well as significantly harming natural resources. The environmental impact is tremendous: The water used to produce the wasted food is equivalent to the annual flow of water in the Russia's Volga River, while production of wasted food is responsible for 3.3 billion tons of greenhouse gas emissions.

Several food waste hotspots stand out, e.g. wastage of cereals in Asia; high-income regions account for about 67% of all meat wastage; fruit wastage contributing to water waste is especially high in Asia, Latin America, and Europe; and high vegetable wastage in industrialized Asia, Europe, and South and South-East Asia drives a large carbon footprint. (Source: [UNEP](#))

**Agricultural landgrabbing:** Landgrabbing in poorer countries has become increasingly popular among wealthy countries to secure their future food supplies. According to [Oxfam](#) an area of land eight times the size of the UK has been sold off globally in the past decade. In northern Mozambique, a Brazilian-Japanese venture plans to farm more than 54,000 square miles — an area comparable to Pennsylvania and New Jersey combined — for food exports. South Korea aims to acquire 940,000 acres of farmland abroad by 2018 for corn, wheat, and soybean production. The Korean government will help domestic companies lease farmland or buy stakes in agribusiness firms in countries such as Cambodia, Indonesia, and Ukraine. The issue is particularly found in Africa: In June 2013 [Oxfam](#) urged the G8 to fight landgrabbing (and water grabbing) in the continent, because it is neither fair nor sustainable long-term for the African people. Part of the problem is that about 90% of land in sub-Saharan Africa is untitled, so people that may have lived on and farmed the land for generations have no enforceable legal claim to it. One simple solution would be to give people legally enforceable land rights, a practice which would also help organizations with a commercial interest to invest in a more responsible way. Countries such as Botswana and Ghana have already improved their laws so customarily held lands have the force of private property. However, in many other African countries land sales still result in the eviction of farmers removing their means of providing for themselves. (Sources: [CNN](#), [The Futurist](#), [New York Times](#))

### *Changing our food future through technology and innovation*

**Using simple technology:** [Consortium at the Global Forum for Innovation in Agriculture \(CGIAR\)](#) is using technology to help solve the world food security challenge. In collaboration with its partners it has developed low cost sensors and remote sensing information to adapt precision agriculture techniques to the needs of low-income farmers. It has managed to save fertilizer and water of up to US\$ 300 per hectare in Mexican and Asian farmers' fields, while in Africa, farmers can now use their cell phones to purchase inputs, get expert advice, obtain insurance, and sell their products.

**Vertical factory farming:** Rooftop gardening has been popular for years. Now in the quest to meet increasing food demand, vertical urban farming is on the rise. Another similar development is vertical factory farming which horticulturist Cary Mitchell of [Purdue University](#) suggests is best done not in city skyscrapers but in large warehouses located in the suburbs, where real estate and electricity are cheaper. Already [Caliber Biotherapeutics](#) has a 150,000-square-foot "plant factory or pinkhouse" in Texas, where it grows 2.2 million tobacco-like plants to make new drugs and vaccines, stacked 50 feet high, under the glow of blue and red LEDs. This type of indoor gardening is yet not suitable for growing real food but may be in the future. (Source: [npr](#))

**Reducing the need for agricultural water:** The startup [Reel Gardening](#) has developed a paper strip that comes pre-packaged with seeds and fertilizers so it can be easily planted and maintained. It is a unique seed system that can be grown into a vegetable or herb garden in nearly any climate. Why is it better? It uses 80% less water than more traditional methods of planting because it requires water only at the exact location of each seed. The company is based in Johannesburg, South Africa and has projects in place in South Africa, Swaziland and Tanzania. It is planning to complete 5000 community gardens and establish a retail base of 150 retail outlets. As a part of its growth plan it is also focusing on increasing employment and hiring previously unemployed mothers. (Source: [CNN](#))



### Examples of initiatives for a food poor future

**CropMobster:** Tired of watching edible but unsold foods go into compost piles and landfills, farmer Nick Papadopoulos of California created [Cropmobster](#), a simple alert system for farmers and grocers in the San Francisco Bay Area. Producers and vendors post entries (e.g. tomatoes, eggs available), that are shared via email, Twitter, and Facebook, and eventually the unwanted food finds a home. Cropmobster has sold or donated 100,000 pounds of produce so far. Three hundred producers and grocers have signed up to the service, with 80 to 90 using it regularly. About 5,000 people are registered for the alerts. It is a simple way to feed hungry people and reduce food waste. (Sources: [Sharable](#), [Fast Company](#)).

**The road from food insecurity to food security - the Ethiopian initiative:** Ethiopia is just one of many African countries fighting food insecurity. However the country has reduced the number of its population below the global poverty line from 77.6% in 2012 to 66% in 2013. The progress is a result of an ambitious policy commitment as well as supportive programs for agricultural development. The country has invested heavily in agricultural centers and trained close to 60,000 workers across the country. Pieces of this successful Ethiopian model are now being adapted by other countries, e.g. Tanzania. (Source: [Stanford Social Innovation Review](#))

**Innovative farming:** [Aspire Food Group](#) has developed an efficient, sustainable source of protein that includes fortified flour including a mix of ground cricket powder. The startup company is growing, processing, and selling edible insects and plans to empower urban slum communities, offering them better access to an efficient, sustainable source of protein and nutrients. The team of five [McGill](#) MBA students has [won the Hult Prize](#), the world's largest and most prestigious competition for social entrepreneurs. (Sources: [CNN](#) and [National Post](#)).

### The race for other natural resources

While the focal point of this briefing is about securing enough water, food and energy for our future populations, the race for natural resources doesn't stop there. Competition for other natural resources such as rare earth elements, fish, timber and phosphate rocks is increasing. Securing adequate natural resources to meet demand is a pressing economic as well as an environmental challenge for governments, organizations and consumers worldwide. Shortages of critical resources have the potential to cause social and political instability, geopolitical conflicts and irreparable environmental damage. However, the race to secure enough natural resources for business can go hand-in hand with greater responsibility. In January 2014 Intel pledged it would no longer use conflict minerals in its microprocessors and in February 2014 Apple followed suit. (Source: [BBC](#)). Hopefully it will spark a race to make other technology companies take action!

How competition to secure resources, both today and in future, will evolve is complex and it is not yet clear which strategies will prevail. What is clear is that the quest to secure resources has already begun for many government and organizations around the world, who are seeking to control their own economic and social destinies, and to reduce dependence on other entities and countries.

What is your organization doing to tackle the challenge of securing resources for the future – and to manage the risks?

## In April, Look out for trends in action on: A new world of hubonomics and mega/smart cities