

LIISA ROHWEDER

# The next wave of innovation is clean, big and profitable

Expert article • 1764

**F**or almost half a century our consumption of natural resources has exceeded what Earth can provide. We would already need 1.5 globes to fit in our ecological footprint, a common measure of our impacts on nature. Most of our footprint consists of burning fossil fuels and the course remains worrying: in 1961 the share of coal in our ecological footprint was 36 % and in 2010 already 53 %. Fortunately, clean technology allows us to do more with less. Sustainable solutions are no longer just an expensive commodity, but an essential driver of a low-carbon economy.

The role of cleantech will be comparable to previous technological revolutions, all of which have completely reshaped the contemporary way of producing, consuming and above all, living. The clean path is extremely attractive. Similarly to steam power, railways, electricity and information technology, the new wave of innovation is likely to enhance all industrial sectors. This time, however, within the Earth's budget.

Cleantech has moved from risky pilot projects to the verge of breakthrough much quicker than anticipated. What is more, technological development has promoted low-carbon society with much greater confidence than international climate negotiations. The driving force behind cleantech is simple: it has become cheaper. The price of solar PV panels for example has plunged 75 % from the end of 2009, and new technologies are increasingly cost-competitive with the conventional systems. Cleantech, however, is much more than just renewable energy: it is also smart grids and energy storages, LEDs, building materials, electric vehicles, waste management and smart water use. They are all about being more efficient, not about sacrificing our modern conveniences. In addition, they all make good business sense. News headlines from only the past few months argue that the clean development shows no signs of slowing down and the transition from fossil fuels is already taking place: 'Record of lowest unsubsidized solar power price shattered in Dubai.' 'Solar and wind to become cheapest energy in Asia.' 'Europe's largest battery power plant opens in Germany.' 'The largest Nordic fund managers to blacklist coal-mining companies.'

Cities and companies will have an essential role in leading the low-carbon transition forward. In 2014 urban population accounted for 54 % of the global population and the share is expected to grow constantly. Cities also produce more than half of global GDP and 70 % of greenhouse gases. In such urban circumstances, the low-carbon pathway is the key to safe, livable and growing communities. However, tackling climate change is not just an opportunity for a growing economy but also a precondition. Scientific community agrees that our actions during the next 15 years will determine whether we will manage to curb the global warming below 2 °C, the internationally agreed-upon risk limit. Having to cope with higher temperatures would be both costly and risky, and the window of opportunity is closing rapidly.

Cleantech has moved from risky pilot projects to the verge of breakthrough much quicker than anticipated.

The existing approaches of climate policy will not be sufficient to decarbonize our economy. What is needed is a clear and predictable long-term policy framework that supports innovations and promotes low-carbon investments. According to the latest Global Cleantech Innovation Index, several technologically top performing countries - including Finland, Sweden, Japan and Israel - lack resources in scaling up and commercializing their emerging cleantech potential. The low-carbon society requires real effort, and ending up on the clean path is not self-evident even with the greatest of assets. Finland, for instance, is a country covered with forest, largely surrounded by windy shoreline, bathes in sunlight equally to Central Europe and is one of the global leaders in producing cleantech innovations. 90 % of the Finnish population wants more solar and wind energy and 79 % finds the low-carbon society an important goal to pursue. Still, we somehow fail to replace the old technology with new innovations. One major drag on the transition is the insufficient domestic demand. A well-functioning

domestic market - a stepping stone to international breakthrough - can only be delivered through determined government actions.

Benefits of low-carbon society are beyond dispute. Apart from energy security, a low-carbon society will be cleaner, safer, quieter, healthier and more affordable than its coal-black predecessor. Bold investments to cut down emissions

will deliver significant economic returns with short payback periods, thus being a great use of dollars, euros, yens and yuans. Cost of clean technology keeps sinking like a stone, while fossil alternatives are struggling to remain reasonable on any indicator. But the benefits of abandoning carbon are to be realized quickly. China became the global leader in green investments when the smog left no other alternatives to see. ■



© Aki-Pekka Sinikoski / WWF

LIISA ROHWEDER

Chief Executive Officer  
WWF Finland  
Finland