

What happens when a global leader in innovation turns its gaze to the biggest innovation challenge of our century? Japan, and its sustainable future.

Author: Hideyuki MORI, Executive Director of The Institute for Global Environmental Strategies (IGES)  
Yuji Nakahara, President of DSM Japan

"This society is changing faster than ever. This society will not wait for sport to change ... We want to be the leaders of change, not the object of change," International Olympic Committee President Thomas Bach said three years ago. And three years ago, the Olympic Agenda 2020 was adopted, constituting a major reform driven by Bach based on three pillars: "Youth", "Credibility" and... "Sustainability".

With the impetus of the upcoming 2020 Tokyo Olympic Games, otherwise referred to as the 'Eco Olympics', there's a sense of momentum around Japan's growing commitment to taking action against climate change. From the solar powered Olympic stadium to a futuristic "hydrogen town" housing the athletes, sustainability is being woven throughout the Games.

#### Gold for awareness

Japan has long been a frontrunner in conversations addressing climate change, notably hosting the third UN climate change conference back in 1997, which triggered The Kyoto Protocol<sup>1</sup>. So it's maybe no surprise that awareness amongst the Japanese is high. Ten years ago, in a poll by Gallup, 99 percent of people living in Japan reported knowing "something" or a "great deal" about global warming. A staggering level of awareness for the issue at that time, when the global median was 62 percent across 127 countries<sup>2</sup>.

Awareness in Japan is high for good reason. No one is more concerned about rising sea levels than the Japanese, who are surrounded by sea. And with 73 percent of Japan forested, mountainous and unsuitable for agricultural, industrial or residential use, the majority of habitable zones are located in or near coastal areas<sup>3</sup>. As sea levels rise, shoreline retreat and the disappearance of entire coastal zones is a real threat for Japan.

#### Hampered by hurdles, yet fueled by resilience

Though largely united in recognising the threat of climate change, Japan has been dealt a bumpy drive on its path towards carbon reduction, with other pressing national priorities vying for the front seat in the last decade – including a declining (ageing) population, economic stagnation and energy security challenges.

Japan was the first country globally to experience the boom, bust and stagnation cycle that the rest of the world has become familiar with over the last decade<sup>4</sup>. But it fought back, successfully. The introduction of 'Abenomics' has increased exports, boosted domestic demand and

---

<sup>1</sup> [https://unfccc.int/files/press/backgrounders/application/pdf/fact\\_sheet\\_the\\_kyoto\\_protocol.pdf](https://unfccc.int/files/press/backgrounders/application/pdf/fact_sheet_the_kyoto_protocol.pdf)

<sup>2</sup> <http://news.gallup.com/poll/117772/awareness-opinions-global-warming-vary-worldwide.aspx>

<sup>3</sup> <https://www.sciencedaily.com/releases/2017/07/170713154919.htm>

<sup>4</sup> [https://www.washingtonpost.com/news/wonk/wp/2017/10/30/japan-is-showing-world-leaders-how-to-save-their-economies/?utm\\_term=.59f32f9e1b27](https://www.washingtonpost.com/news/wonk/wp/2017/10/30/japan-is-showing-world-leaders-how-to-save-their-economies/?utm_term=.59f32f9e1b27)

prompted revolutionary efforts to address the drag of Japan's 'silver tsunami' (another global first) including bringing more women into the workforce, leading to Japan's strongest labor market in a generation.

Japan has always had limited natural resources, making it largely dependent on the import of fossil fuels and nuclear to power its energy supply. The earthquake, tsunami and Fukushima nuclear accident of 2011 however further fueled pressures around energy security. Only five of the country's 42 nuclear reactors which are operable and potentially able to restart are restarted to date<sup>5</sup>, a result of safety concerns after Fukushima. However, testament to its resilience, despite facing immense challenges in 2011 the nation still managed to achieve one of the highest levels of energy efficiency in the world.

Government campaigns have long promoted public awareness around energy use – from the popular "Team Minus 6%" campaign to meet Kyoto Protocol objectives to "Cool Biz" and "Warm Biz", endorsing energy conservation in the summer and winter months.

The world's third largest economy is both innovative and resilient<sup>6</sup>. A powerful combination when turned towards taking action against climate change.

#### Power of carbon pricing

As governments, NGOs and the international business community gathered in Bonn, Germany, for last year's UN climate change conference the sense of urgency was palpable, and it brought with it a laser focus on the paths to action, and results. One of the most promising initiatives is the Carbon Pricing Leadership Coalition, which brings together 30 governments and more than 180 businesses and strategic partners to put a value on carbon dioxide emissions.

For Japan and other nations to meet their Paris Agreement emission reduction targets – in 2015 Japan committed to driving a 26 percent reduction on its 2013 emissions by 2030 – dramatic emissions cuts are needed<sup>7</sup>.

Earlier in 2017 Koichi Yamamoto, Japan's Environment Minister, called for more robust debate in Japan over the merits of carbon pricing, and its effectiveness at reducing greenhouse gas emissions without impeding economic development. He estimates that carbon pricing could help Japan hit its further target of slashing emissions by 80 percent by 2050, commenting that by then, Japan should 'not simply be aiming to lower carbon, but aiming to exit from carbon'.

This is a positive step forward, and as the discussions on carbon pricing begin to take shape Japan stands at an advantage in many ways, having other countries' experiences to draw from. Today, around 40 countries and more than 20 cities, states and provinces already have in place mechanisms to tax or trade carbon, while around 90 countries have mentioned carbon pricing in their NDCs.

Implementing carbon pricing is not however easy. A level playing field won't emerge in the short term: there's no global institution to enforce that, and we need the leadership of (sub-) national leaders to drive it. But carbon pricing is an inevitable opportunity which makes alternative energy

---

<sup>5</sup> <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/japan-nuclear-power.aspx>

<sup>6</sup> <https://www.weforum.org/agenda/2017/03/worlds-biggest-economies-in-2017/>

<sup>7</sup> <https://www.japantimes.co.jp/opinion/2017/08/27/editorials/national-energy-plan-needs-major-review/>

solutions, such as solar, wind and advanced biofuels, more competitive while ensuring fossil fuel pollution is correctly priced for the cost it causes to society.

As the needle shifts towards investment into domestically generated alternative energy it's a double win for Japan, which could ultimately cut its dependency on energy imports as a result, encouraging further sustainable and robust economic growth. Renewable energy sources together represented 14.2 percent of production during 2016 and solar's contribution to Japan's energy mix soared during the second half of 2016, when solar PV accounted for more than five percent of all electricity generated<sup>8</sup>. Even in 2015, Japan had the third highest amount of solar installed capacity globally, after Germany and China<sup>9</sup>.

More broadly, carbon prices can be used to enhance the performance of economies – specifically benefiting innovative, low-carbon firms, and promoting the technical upgrade or exit of the least efficient firms in emissions-intensive industries. Carbon pricing is one of a number of policy instruments for a low-carbon economy, but it's a powerful one, especially if it has the weight of Japan behind it.

The green goalposts have been set: team Japan has it all to play

Promisingly, a shift towards more sustainable thinking within Japanese businesses is also taking place, and a new research report released this year by IGES found that not only has overall awareness of the UN's Sustainable Development Goals (SDGs) increased in the last year, but the importance of partnerships in meeting them has become more widely recognised.

Japanese companies are starting to position the SDGs at the core of their business model, incorporating the goals into corporate missions, visions and strategies, reflecting greater recognition for the importance of utilising the SDGs as a means to leverage brand equity and improve overall value proposition<sup>10</sup>. Doing good is good business.

This is an encouraging step forward not just for Japan, but for its neighbours in Asia. As a nation revered for its ability to lead in innovation, and find resilience in the face of major challenges, when Japan sets its sights on developing new technologies and effective policies to spur a low-carbon economy, this bodes well for those beyond its borders too.

The realisation of sustainable development in the Asia Pacific region is a vital issue for the international community, with the region being home to more than half of the world's population and experiencing rapid economic growth. With Japan's government and business community off the bench and in the climate game, the collective race against climate change takes a big step up.

*To voice DSM's support for global carbon pricing, DSM has joined the "Carbon Pricing Champions" of the United Nations Caring for Climate initiative and our CEO, Feike Sijbesma, is co-chair of the World Bank – IMF Carbon Pricing Leadership Coalition.*

---

<sup>8</sup> Ministry of Economy, Trade and Industry

<sup>9</sup> Mercom Capital Group

<sup>10</sup> <https://www.iges.or.jp/en/press/20170628.html>

---

References:

<https://www.forbes.com/sites/williampentland/2017/01/23/japans-solar-boom-is-accelerating/#6187ac032c90>  
<https://www.reuters.com/article/us-japan-environment-analysis/new-coal-power-plants-may-block-japans-carbon-emissions-goal-minister-idUSKBN19K15Z>  
<http://www.japan-trends.com/will-the-tokyo-2020-olympics-be-the-eco-olympics/>  
<http://news.gallup.com/poll/117772/awareness-opinions-global-warming-vary-worldwide.aspx>  
<https://www.sciencedaily.com/releases/2017/07/170713154919.htm>  
[https://www.washingtonpost.com/news/wonk/wp/2017/10/30/japan-is-showing-world-leaders-how-to-save-their-economies/?utm\\_term=.047d4a6be30c](https://www.washingtonpost.com/news/wonk/wp/2017/10/30/japan-is-showing-world-leaders-how-to-save-their-economies/?utm_term=.047d4a6be30c)  
<https://www.nytimes.com/2016/12/05/science/japan-global-warming.html>  
<http://climateactiontracker.org/countries/japan.html>  
<http://www.gulf-times.com/story/550187/Japan-s-environment-minister-puts-carbon-tax-foes>  
<https://www.weforum.org/agenda/2017/10/these-are-the-10-most-innovative-countries-in-the-world/>  
<https://www.nrdc.org/sites/default/files/paris-climate-conference-japan-ib.pdf>  
<https://www.olympic.org/news/make-2020-tokyo-model-for-sustainable-games>  
<http://www.oecd.org/greengrowth/the-contribution-of-science-and-innovation-to-addressing-climate-change.htm>