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SUSTAINABLE HEROES

Green Leaders in Focus

Biodegradable Plastic

Niall Dunne, CEO, Polymateria

Niall Dunne, CEO of Polymateria, a UK-based maker of green packaging, is pioneering the use of biotransformation technology to eliminate the scourge of plastic pollution

Energy Independence

Sébastien Clerc, CEO, Voltalia

Green Investing

Hidetake Takahashi, Head of Energy & Eco Services, ORIX

Virtuous Circle

Prabha Parameswaran, Group President, Growth & Strategy, Colgate-Palmolive

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HEROES
Green Leaders
in Focus
irtuous Circle
abha Parameswaran, Group
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arsono Hartono, CEO, PT Rimba
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odegradable Plastic
ll Dunne, CEO, Polymateria
ergy Independence
bastien Clerc, CEO, Voltalia
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detake Takahashi, Head of Energy
Eco Services, ORIX


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Virtuous Circle
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in Focus

Determination

Dear Reader,

“The greatest threat to our planet is the belief that someone else will save it.”

That’s a quote by polar explorer and 2018 Sustainable Hero Robert Swan, which encapsulates the collective effort required to defeat climate change. The Sustainable Heroes in our 10th edition have risen to the challenge and taken bold action to decarbonize our economies, knowing that time is running out.

The World Meteorological Organization predicted for the first time that we are on the verge of exceeding 1.5C of warming within the next 5 years. The threshold, outlined in the Paris agreement, isn’t merely symbolic. Scientists have long warned that breaching this marker would exacerbate deadly flooding, wildfires and drought.

Already this year, anthropogenic climate change has triggered the worst April heatwave in Asian history and devastating flooding in South Sudan has led to climate refugees.

But there’s also cause for great optimism as we already have many of the technologies to arrest further temperature rises. The issue is deploying them quickly and at scale.

Wind and solar reached a record 12% of global electricity generation in 2022, up from 10% the previous year, according to a report by energy think tank Ember. It forecasts that from this year forward renewables will trigger a new era of falling power sector emissions.

The International Energy Agency’s new research highlights that EV sales are on course to jump 35% this year, with electrification of the auto industry set to avoid the need for 5 million barrels of oil a day by 2030.

The EU announced its Net Zero Industry Act to fast track approvals including state aid considerations for green industries. Taken together with the US Inflation Reduction Act, we can expect a strong boost to green activities across these regions.

All of this edition’s Sustainable Heroes have the determination and staying power to transform our key systems. Our Heroes have overcome the headwinds of red tape, volatile markets and entrenched competition to thrive.

Niall Dunne, CEO of Polymateria, a UK-based maker of green packaging, is pioneering the use of biotransformation technology to eliminate the scourge of plastic pollution.

Sébastien Clerc, CEO of Voltalia, a French renewables producer, believes that energy dependence concerns in Europe will accelerate the tremendous potential of renewables.

Hidetake Takahashi, Head of Energy and Eco Services at ORIX, a leading Japanese financial services group, is doubling renewable energy capacity through strategic acquisitions while investing in green energy solutions that address intermittency challenges.

Prabha Parameswaran, Group President, Growth and Strategy at Colgate-Palmolive explains how the consumer giant has adopted recyclable packaging to create a healthier future for all people, their pets and our planet.

Dharsono Hartono, CEO of PT Rimba Makmur Utama, which operates one of the world’s largest natural capital projects, is protecting and conserving forests in Indonesia to save millions of tons of carbon in the fight against climate change.

At Nomura Greentech, we are enabling our Clients to accelerate the sustainability transition and create a better world.

We hope that our Sustainable Heroes can inspire the next generation of entrepreneurs, investors and industrialists to help us reach net zero by 2050.

On a final note, after successfully overseeing the integration of Greentech Capital Advisors into Nomura Greentech, and seeing the business serve our Clients beyond any of our expectations, I have decided to step away from investment banking and seek other ways to drive sustainable technology and infrastructure.

Nomura Greentech’s Global Co-Heads PJ Deschenes and Duncan Williams will continue to work with our 150+ bankers to serve our Clients with differentiated excellence. The business has tripled in size since we combined with Nomura and the team is uniquely able to support companies and investors across sustainability-linked sectors. I’m excited to cheer on their success from the sidelines.

I remain as passionate as ever about the sustainability transition. Anyone reading this magazine is a “fellow traveler” and understands the power of collective action.

I continue to believe that by working together, it can be done!

Jeff McDermott

Jeff McDermott
Global Co-Head
Investment Banking

Founder Nomura
Greentech

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Contents


“At an early age I had
this love for lofty world
changing ambitions...”

Biodegradable Plastic

Niall Dunne is CEO of Polymateria, a UK-based maker of green packaging. Niall tells Nomura Greentech that he is pioneering the use of biotransformation technology to eliminate the scourge of plastic pollution.

Q | What first sparked your interest in sustainability? Tell us about your career journey?

I feel like I've been on the sustainability journey ever since I represented Ireland in the 800 metres. Sport gives you that obsession with change as you quickly realize that to achieve any accolades, you have to change yourself.

At an early age I had this love for lofty world changing ambitions, wanting to stand on a podium, not necessarily for ego, but to show others it can be done. So I took all of that with me when I retired as an athlete.

At the time, the tech sector in Ireland was booming. I came across Accenture, the management consultancy in Dublin. They explained how they were specialists in changing businesses, and that really appealed.

Over time we created a sustainability practice, which we rolled out to global clients. I moved on to work at Saatchi & Saatchi servicing clients like P&G that touched 3 or 4 billion people a day. The scale and reach of these brands was phenomenal yet they were all struggling with how to communicate sustainability.

I helped them using techniques like cause marketing including the Pampers, one pack, one vaccine campaign with UNICEF.

We also built a movement for wind energy by working with rivals, those who you'd typically compete with for market share to create a bigger pie so that we all win. Those disciplines are becoming normalized within how you run disruptive scale-up businesses today.

I then went to British Telecom and put some of those ideas into practice. Then in 2017, seven years into my tenure at BT, I was genuinely at a crossroads.

I saw the Blue Planet episode where the whale calf chokes because its stomach is full of plastic. This was the same episode that broke the internet in China. It certainly broke my heart. I googled about innovative leaders in this area and only found a lot of greenwash.

Then as fate would have it I was introduced to the founders of Polymateria who had just produced data on Polyolefins, which is the material that's most likely to wind up in nature and was most probably in that baby whale's stomach.

They asked me to be the CEO after a discussion about how I would run the business. I explained that I wanted a culture of integrity, diversity and the ability to bring the world with you, and for that to be reflected in how we commercialized a disruptive technology like biotransformation.

Q | How serious is the problem of plastic pollution?

When we were set up in 2015, the world produced 315 million tons of plastic. The sentiment we have in society is to replace our plastic straw for our bubble tea with a paper one. But that doesn't even touch the sides of the issue.

This year we'll break through 400 million tons of plastic production globally. It roughly tracks the global middle class and as GDP grows in different parts of the world, the problem will only get worst. Mostly, it's food packaging, but everything else too.

Delving into where that 400 million tons is going, 40% goes to landfill, 32% winds up in nature, 14% goes back on the grid by burning it and 14% we claim is recycled, but only really 2% of that is pure enough to be used again in food contact approvals.

It's a very difficult material to create a recycling loop around versus steel and some of the higher value materials.

The 32% of plastic that winds up in nature is where we're focused. That's equivalent to 100 million tons. We developed the technology for Polyolefins first as it's the largest share.

It's a global problem because it's western consumption being exported to countries that don't have the infrastructure to cope. It's hard to know the provenance of the plastic. It could have been a Whole Foods customer in California, it's claimed as recycled over there, but it's actually exported to Thailand and then it sits in a managed waste facility, before leaking into a river, and then an ocean.

That's typically what the journey into that whale's stomach would have been. So our theory of change is to stop it on land before it gets into rivers and oceans - 80% of all ocean plastic gets there from land.

Q | How important is the green materials industry in addressing that problem?

Green materials will play an increasingly crucial role as the problem needs to be solved at scale. To give some context, the early days of green plastics innovation were not pretty. Over the past decade, technologies have emerged claiming degradation, but they were just physically fracturing plastic. You and I can do that by adding salt to the formula to create a weakness.

That inevitably creates micro plastics, which exacerbates the problem of plastic pollution. Some countries have banned the technique although others do still promote it.

These companies went to war with the other main competitor, the composting lobby whose technique takes materials like PLA or polylactic acid and biodegrades it using industrial composting facilities. But it's not your regular compost. It's a facility that runs at 60 degrees Celsius and biodegrades after six months. It's very expensive and you cannot put it into food contact situations. Most places in the world do not have access to this expensive infrastructure.

Then we came along, initially like a bunch of geeks just trying to solve the problem, armed with data and an obsession with technology. In the early years of the business, we were pushing out peer reviewed papers and new scientific data.

The scar tissue from this war, created a landscape of complete stasis and it has held the industry back.

Q | You have pioneered a biodegradable plastic. Tell us about how the technology works and how it will be used?

We use biotransformation technology to ensure that plastic which has escaped refuse streams can fully biodegrade in the natural environment. When the plastic is exposed to the open environment the biotransformation process kicks in which causes a rapid loss of physical properties into a wax, and eventually biodegrades completely through a process of mineralization. Importantly, no micro plastics are left behind. The technology works across multiple conditions, not being dependent on any single factor. Other methods have failed because they needed oxygen or light or moisture and the other agents of decay didn't have a role.

A good example is the flexible film on food packaging and salad bags, what's called collation shrink. We first got that back to nature in 226 days. And for a rigid detergent bottle of 600 microns' thickness, it took 336 days.

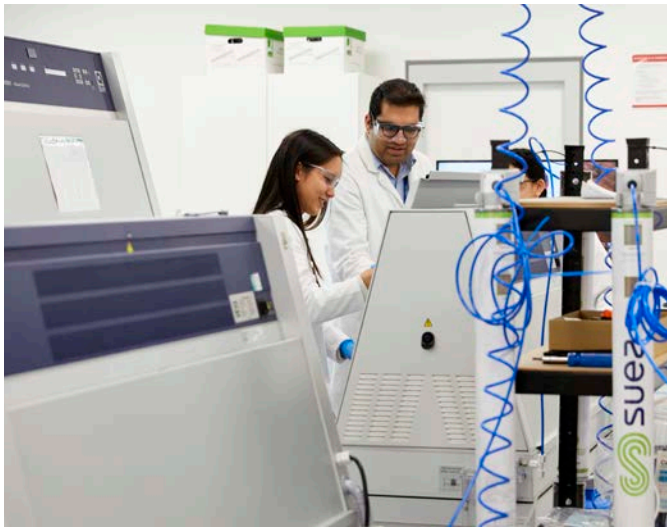
In March we broke our own world record by getting a flexible Polypropylene film made by Toppan, one of the largest film manufacturers in Asia, back to nature in real world conditions in 176 days, and a rigid polypropylene container, fully back to nature in 230 days.

We recently completed our Series B £20 million funding round led by impact private equity fund ABC Impact and sustainable chemical company Indorama Ventures. It will allow us to expand into new markets where fugitive plastic pollution is most acute especially across Asia.

Q | You work closely with Imperial College, one of the world's leading science universities. What have you gained from that partnership?

We have benefited hugely from being in the Imperial Innovations ecosystem. The whole campus is material science making leading–edge products. There's a biotech incubator nurturing everything from two people with an idea through to pre-IPO businesses taking entire floors.

We work with many of their top professors, we hire some of their PhDs. When we opened our labs, we wrote to



HRH Prince Charles and invited him to cut the ribbon, He accepted, which was a huge moment for us.

The Imperial Innovations platform is very much a symbiotic relationship. Our brand and theirs are interlinked to the point where some of our top people are going to do MBAs at the business school and Polymateria will be a case study on how to build a cleantech company.

Q | The EU is planning rules to prevent packaging waste, boost reuse and make all packaging recyclable by 2030. Would that be a big tailwind for your business?

Honestly, Europe's only following what other countries have done. I think India is probably a better benchmark. Prime Minister Modi has banned plastic, less than 50 microns, and has also encouraged innovation in the law by saying exemptions will be given for biodegradability and compostability if you can prove no micro plastic in terrestrial conditions.

That really helps us and you don't have that in Europe, which is still very much pushing reuse and recycling. That said, we are starting to see signs that they realize the material science component needs to be taken seriously.

California's an interesting case. They are banning some plastics but allow exemptions if you can show evidence of biodegradation in less than a year, which is great for us.

The Philippines was the first country in the world to launch a standard that mirrored the British one for biodegradable plastic while Hungary was the first EU member state, and 13 countries are now on that journey.

Q | What are your future plans at Polymateria?

To be the Tesla of plastic. We are heavily focused on execution and discipline to capture the huge opportunities in front of us.

Quality is paramount because we are introducing volatility to those packaging materials, used by all the big brands and they need be stable enough to be useful. That takes operational excellence.

Beyond that, we are diversifying the technology out of food packaging and into agricultural applications. We have a very exciting venture that's in farm trials in the UK for baler twine.

Every time a farmer ties a bale, it creates 16 shards of micro plastic. But the farmer needs the material to be stable enough, long enough to go through the full season and get the straw back on the field or in the shed.

We also have a program called Resin+, which is about infinite scalability. The idea is to normalize the technology by building it into resin at the point of manufacture. This is a game-changer as it would enable us to make millions of tons of plastic biodegradable which would really get to the heart of the problem.

Ultimately, I'd like Polymateria to be judged, not just by how well we deliver on our own agenda, but by how big a ripple effect we create around material science. There was a lot of pushback from some of our investors when I talked about being the Tesla of plastic. But I loved it not because of any idealistic thinking but because Tesla disrupted incumbents who were doing things the wrong way when you consider events like the Volkswagen emissions scandal.

Tesla's big success has been to upend an entire industry and everyone's trying to catch them. And that's why I get up in the morning. I want to help trigger a wave of innovation from others and that's essential to reach net zero goals.

Q | Do you think green companies need more policy incentives to help scale and accelerate their businesses?

I think the plant-based burger companies are doing a great job of winning consumer sentiment without needing any regulatory pressure. If you also have a regulatory tailwind, it creates a pull and push effect.

Consumers are a crucial part of the puzzle. They know the bubble tea and paper straw story is frustrating. They want to experience the usefulness of the material, without the guilt.

Engaging consumers about the need to reduce fugitive plastics is the most powerful tool to create pull in the market.

Q | Who's your sustainable hero and why?

I have to say King Charles, and not just because of what he's done for us. I'm a child of the eighties and I grew up in a world where the Spitting Image TV show exaggerated people's traits, and he was the 'tree hugger'. He was mocked because environmental causes weren't deemed that serious but ultimately, he was ahead of his time in seeing the climate crisis.

So by COP26 in Glasgow, it was fitting to see his efforts acknowledged. He has a passion and drive to push big ideas such as carbon capture and storage, and green hydrogen. He's actively working with pioneers in these fields and that's really inspiring.


“In the beginning, it was just part
of my work and today 100% of
deployment is renewables.”

Energy Independence

Sébastien Clerc is CEO of Voltalia, a French renewables producer. Sébastien tells Nomura Greentech that energy dependence concerns will accelerate the rollout of renewables in Europe.

Q | What made you join Voltalia and what first triggered your interest in sustainability?

I arrived in renewables by chance having been involved in small projects since the 1990s. In the beginning, it was just part of my work and today, 100% of deployment is renewables. In the early days, I worked on small-scale hydro and biomass in Canada. At the time, I was only vaguely conscious about climate issues and by the late 90s, I realized it was really essential.

I worked on my first wind farm in California in 1994 while I was based in the US. When I returned to France in 1999, I was involved in wind and solar projects as well as highways, ports and pipelines.

I joined Voltalia at the end of 2011 as it was a way to fully concentrate on sustainable infrastructure and renewable energy in particular. It was becoming quite obvious at the time that renewables were cost competitive versus other energy sources.

I have an interest in the history of energy. I majored in history, have a Masters in history and economics, and another Masters in finance from Science Po in France.

Q | The Paris Agreement in 2015 set out certain goals around limiting warming to 1.5 degrees Celsius. Are these goals still realistic given global emissions haven't yet peaked, and the most recent IPCC assessment predicted we would soon cross the 1.5C threshold?

I have mixed feelings. I'm optimistic about a bigger market share of renewables within electricity generation and about the market share of electricity within the overall universe of energy consumption. I think it's quite unstoppable.

It moves at a pace that might be too slow but it's the easiest part of the net zero equation because renewables are so cost effective.

Where I'm really doubtful is outside the world of electricity. Some transportation will be difficult to electrify. I'm also concerned about agriculture, which is a big challenge to decarbonize. Overall, it won't be easy to be meet the 1.5 Celsius target but it's still possible.

Q | Voltalia is active in solar, wind, biomass and hydro, batteries and energy efficiency. Why has there been less development of biomass and hydro?

The hydro sector is growing very slowly and in many countries, the best sites are already taken, making progress difficult other than by buying existing assets but that doesn't move the dial on climate change.

Biomass has similar challenges. The growth potential is not that big. In many countries, biomass is better off for heating or transportation without going through electricity to avoid the conversion from wood to electricity and then electricity to heating, where you lose a lot of the potential.

Also, it should really be burned locally to avoid transportation emissions. On top of that, it's best use is when you have nothing better to do with it. For instance, we are involved in biomass in Latin America and French Guyana where you don't need heating. So either you leave it on the floor and it creates emissions or you burn it to produce electricity.

In batteries, the sector is small for now but we have a presence. For energy efficiency, the market is already established, and we need to do more because the best kilowatt hour is the one that is not consumed.

Our energy efficiency business is operated through our subsidiary Helexia, which specializes in solar rooftops for large buildings such as warehouses, supermarkets and factories – anywhere with a big flat roof such as a parking lot.

It offers building owners the chance to self-produce solar electricity onsite and to minimize electricity consumption through efficiency gains by redoing isolation and modernizing heating/cooling systems.

Helexia acts either as a service provider or as an owner of the solar rooftop and the energy efficiency investments and gets paid from the client's energy savings.

Q | Under the IEA's net zero emissions by 2050 scenario, renewable share of generation needs to double from almost 29% in 2021 to more than 60%. How do we get there?

This is where I'm optimistic. It will happen fast provided two conditions are met. One is to speed up the permitting process with the biggest constraint being the 'not in my backyard' brigade or just too much bureaucracy. The second condition is to create a low risk environment for investors. This can be achieved by creating regulated utilities, either via monopolies or something similar. Risks can be lowered via long-term power purchase agreements or long-term contracts for difference which swap the fixed versus floating price of electricity.

Low risk speeds up the construction of new plants and provides a low cost of capital. And in an industry which is probably the most capital intensive of all, this is an essential ingredient to achieve a competitive kilowatt hour.

Q | Have you seen an uptick in inquiries due to energy dependence concerns around the Russia-Ukraine war?

Yes, and this is a theme I have talked about ever since the IPO of Voltalia in 2014. I've long said that the renewables sector is driven by four growth engines: 1. governments who want to fight climate change; 2. cost competitiveness; 3. the growing global demand for electricity; 4. geostrategic independence via locally produced energy.

The front cover of the Economist back in 2014 depicted Mr. Putin holding some of Europe's

leaders like puppets with gas pipelines drawn underneath. At the time, I used two examples to illustrate energy dependence. If you were Moroccan you would not want to rely on natural gas from Algeria, and If you were Ukrainian you would love wind farms.

But of course, for the past 12 months, I see more questions on this subject. Quite often, the next question raises the risk of importing huge quantities of solar panels from China. In response, I say that we'd be better off if we had imported solar panels from Russia versus gas because once the solar panel is on your territory, the exporting country cannot do anything except slowing down the arrival of new capacity, which is a minor problem versus stopping the existing capacity.

Ultimately, the increased capacity in solar means Europe won't be held hostage by Russia in future.

It is pretty clear that European electricity has mainly come from gas and coal plus some nuclear and renewables. Gas is not coming back. Even if Ukraine wins the war, I don't see many reasonable scenarios where Europe would start to import the same volumes as it did previously. It would take a lot of time to fix the Nord Stream pipelines and for geopolitical reasons, even if there was regime change in Russia, I think Europe would be more cautious than before.

The second main source of imported energy is coal but I don't see coal production increasing because Europe is genuinely fighting climate change. All of that means we are left with more nuclear, solar and wind.

More nuclear is not possible in many European countries for historical reasons. And in countries where it is doable, it will take 20 years. There is an ambition to create small modular reactors (SMRs) but it's currently just an ambition. For those countries that don't have a nuclear authority, it can easily take 15 years to create one taking into account new laws, institutions, training specialists and hiring industry monitors.

Then there's the issue of sourcing uranium. It's a small portion of the cost of a nuclear kilowatt hour, but it is still essential to produce nuclear power and as of today, France imports a big portion of its uranium from Russia.

Nuclear is only independently produced electricity if you have raw materials, and Europe doesn't produce uranium. For all of these reasons, the only way forward for Europe is to build as much renewable capacity as possible as fast as possible.

Q | What are your future plans?

We set a new plan last year to double our installed renewables capacity by 2027 to 5 gigawatts and to significantly increase our services to third parties, which will add another 8 gigawatts for clients.

As we are a mission driven company, our objectives include helping our clients save 4 million tons of CO2 by 2027 from switching to renewables.

Solar will continue to be the biggest proportion of energy for Voltalia. Historically, we have invested in wind but new projects are increasingly solar because in most countries it produces cheaper electricity.

But in all countries, you need a mix of renewables. We see Europe growing faster than expected because of the war in Ukraine. We also see progress in Africa because of the energy crisis in South Africa and the hydrogen ambitions of countries such as Egypt. Latin America especially Brazil continues to grow and it's where we have the largest capacity today.

Q | Do you think the US IRA and EU Green Deal Industrial Plan will provide the policy tailwind for the next leg up in renewables or will the market become less global due to protectionism?

Governments are one of the four growth engines I referred to earlier, so a faster engine benefits the whole industry but it is still only one out of four.

The IRA and Green Deal are both good for the industry yet it's also possible to be good and protectionist. So while these policies will boost growth, if they include too much protectionism, it means the US and Europe will have a higher cost of energy.

To illustrate the point, if theoretically, there was suddenly a law in Europe which stated that solar plants can only be built with European solar panels made with raw materials coming from Europe, firstly, it would take 10 years before we achieve volumes and secondly, the cost of these panels would be much higher.

It would be good risk management to produce solar panels in more countries around the world because it creates stability, but we would need to make sure the countries which take market share from China are cost competitive in order to maintain cheap energy.

Q | Where do you stand on the debate about long-term power purchase agreements (PPAs) for renewables versus pricing as a dynamic commodity market?

These long-term contracts provide cheap energy for the industry and the population.

In fact, if all sources of energy compete for long-term PPAs, we would have the best of both worlds – the benefits of strong competition plus low cost of capital because producers like us will ask for a lower return on equity and the banks will accept higher leverage and lower interest rates because of the certainty provided by long-term PPAs.

It's a well-designed, sophisticated market and it's naïve to think that people will build power plants hoping that the spot price will be the same for the next 30 years to get a return.

We have had 10 years of seminars, books and consultants asking us to consider something that takes ten seconds to understand because the renewable plant is 100% fixed cost. Capex is not changing and isn't dependent on the spot price, so strong competition for long-term contracts is the best outcome.

To take a French example, EDF said that it will never invest in a new nuclear plant without a PPA or a monopoly – something to protect it from having fixed costs with variable revenues.

A good regulator will ask distributors of electricity to have a big chunk of their volume with long-term purchases exactly the same way as regulators ask banks who make long-term loans to do so with long-term borrowing.

Q | Who's your sustainable hero and why?

My sustainable hero is the advisor to the King of Easter Island who realized that the island was about to be destroyed and warned the king to save it. Unfortunately, he was not convincing enough.


“We have always tried to
address important social issues
through our businesses.”

Green Investing

Hidetake Takahashi is Head of Energy and Eco Services at ORIX, a Japanese financial services group. Hidetake tells Nomura Greentech that he is doubling renewable energy generation capacity through strategic acquisitions.

Q | What first sparked your interest in sustainability?

The Great Tohoku earthquake, tsunami and nuclear disaster of 2011 really shocked me. While these events were not a direct result of climate change, they were a turning point that made me think seriously about sustainability as well as resilience.

It prompted ORIX to accelerate our activities in renewables. Around this time our CEO assigned me to lead our renewable business and he asked me to focus on sustainability not only here in Japan but also internationally.

After the government decided to shut down all nuclear power in Japan, we faced a significant shortage of electricity, which convinced me about the importance and urgency of dealing with climate change and finding greener sources of energy.

Q | How has ORIX's approach to sustainability changed over the years?

To give some background about our history, ORIX is a diversified financial services group that was founded in 1964 so we are nearly 60 years old. I've been with ORIX for 30 years and have witnessed first-hand how the company has adapted naturally to sustainability. We have always tried to address important social issues through our businesses.

In 1971 we started to export our automobile and equipment leasing business to developing countries in Asia including the Philippines, Indonesia and Malaysia.

At the time, we were still building up our franchise here in Japan but our former CEO decided to export that leasing business model as he wanted to contribute to the economic growth of developing countries through our financial services business.

In terms of human resources, we have a long-term strategy called 'Keep Mixed'.

It means that diversified talent creates new added value. In line with that strategy, we started actively hiring female employees well before the government implemented the Equal Employment Act in 1986 making us an early adopter of diversity and inclusion. At the time it was quite rare in Japanese companies to hire so many women and today, around 30% of our management team consists of women, which is a high number compared to our Japanese peers.

In terms of governance, we also moved early to adopt a western-style governance structure.

To take another example, we incorporated our materials recycling arm, ORIX Eco Services Corporation in 1998. This was way before the phrase 'circular economy' was popularized.

That business is focused on reducing, recycling and reusing waste materials. We also started our renewables and energy-efficiency business back in 1995.

More recently, we launched our sustainability initiatives in 2018, and we have been publishing a sustainability report every year since 2019. We disclose our greenhouse gas (GHG) emissions, our sustainability investing and lending policy and improvements in governance through the creation of a sustainability committee.

We also set material sustainability goals for the group that are supported by business-level goals and key performance indicators (KPI).

Q | ORIX has committed to net zero emissions by 2050. Do you think companies need to bring forward these goals to 2040 as suggested recently by the UN Secretary-General?

We have committed to reduce 50% of GHG emissions by 2030 and have been working hard to achieve this goal. We have two co-firing power stations that use coal and we also own and operate a waste treatment plant. These three facilities are our main sources of CO2 emissions so we need to think about converting coal to biomass, ammonia or hydrogen to meet our 2030 target. We may be able to reach the target before 2050 and companies should strive to decarbonize as soon as practicable.

Q | You have an ambitious goal to double your renewable energy generation capacity from 3.3 gigawatts to 7 gigawatts by 2025. How will you achieve that target?

We have a two-pronged approach using green field development by ourselves and also M&A. We buy new renewable development platforms such as our project in Spain where we acquired a renewables company called Elawan Energy in 2021.

The company had business franchises in 14 different countries making them one of the leading renewable developers in Europe. Following the acquisition, we entered into new markets such as Greece, the UK, Germany and Italy. We have also been trying to expand Elawan's business in the US.

Doubling renewable capacity is challenging but there are huge opportunities across the world, which I believe we can capture using our global network.

While the gigawatt number is an important KPI to show our growth potential, what's more important is to provide sustainable, reliable renewable power to our customers because solar and wind have intermittency challenges.

From that perspective, we have invested in one of the largest renewable platforms in India called Greenko Energy Holdings.

The company is constructing and developing several very large pumping storage hydro plants. These will combine with solar and wind to provide round-the-clock renewable energy.

There is an upper and lower reservoir and in between them, pumps and turbines produce energy. If low-cost solar power generation exceeds demand, then the surplus power is used to mobilize the pump and bring water from the lower to the upper reservoir. When there's a shortage of power, water is released from the upper reservoir to generate power.

We also established an operation and maintenance company in Japan called ORIX Renewable Energy Management to maximize the performance of solar plants and extend the life of renewables plants. We use cutting edge AI technologies for proper operation and maintenance to achieve more megawatt hours.

This is an important pillar of our sustainability effort as longer plant life and higher performance produce more renewable power for a long duration.

Overall, I believe that we are on track to meet our 2025 target through several under-construction projects and others which are at an advanced development stage.

Q | What is the most challenging aspect of making your business more sustainable and why?

Earlier, I mentioned our "Keep Mixed" human resources policy and I think we need to pursue further diversity and inclusion especially here in Japan. The Japanese population is aging and decreasing but at ORIX we need to sustain our business through our workforce.

That means we need to retain and recruit the best talent. This is a challenge for ORIX as well as other Japanese companies. A comprehensive diversity and inclusion strategy can help us to create more innovative solutions for other social issues. It's not just diversity of people but it's also diversity of thinking.

Q | What threats do you see to the sustainability transition in Japan?

One of the threats is industrial development. For too long, we have depended on imports of natural

resources in traditional energy sectors including LNG and coal. And now during the transition period to renewables we are increasingly dependent on imports of major equipment like photovoltaic solar modules, wind turbines and battery storage.

I'm primarily talking about the manufacturing part of industrial development. My concern is that Japan used to be a pioneer in innovative technology but we've increasingly needed to depend on overseas companies. So creating resilient supply chains and developing new technologies is really important for Japan's future.

On a more general note, for the sustainable transition to be successful, I think we need to see a better relationship between economic benefits and environmental and social responsibilities rather than the trade-off relationship that we have grown accustomed to. From this perspective, it is important that the effort comes from both the private sector and government. The government should act as an advocate and cheerleader for industries endeavoring to make a sustainable transition, and the private sector should strive for healthy, sustainable, inclusive growth.

Q | What are the industries or sectors you're most excited about for future investments?

Frankly speaking, I am still excited by the potential of renewables. Currently, they are mainly used for electricity but in future we will see deployment in industrial energy as well as transportation. Renewables are also required to produce green hydrogen, green ammonia and sustainable air fuel. So from that perspective, again there are enormous opportunities.

In Japan, we also have a long history of materials recycling and waste treatment. This industry is quite traditional in terms of digitalization, it's very manual without much automation. So I see an enormous opportunity to make the industry more efficient.

And growing the materials recycling or waste treatment business will help to create a circular economy which is needed for decarbonization. The circular economy is relatively new and there are fewer competitors with more fragmented industries and markets, not only in Japan but also in many other countries.

I've been involved in renewables and the circular economy for 12 years. It's now my life's work and I'm excited by the decarbonization challenge.

Financial services offer a slightly indirect approach to sustainability but I feel like I can directly contribute to resolving social issues through our different businesses.

Q | Who's your sustainable hero and why?

For me it has to be Bill Gates. He successfully innovated in the IT industry and now he is tackling climate change and sustainability through his foundation and Breakthrough Energy, which is investing in direct air capture and low emissions food startups to name a few technologies.

I believe that through these activities he will make huge progress for the sustainable transition just as he did in the IT industry.

I take inspiration from his efforts in becoming a successful entrepreneur and then donating to the climate change cause.


“87.6% of our packaging
is technically recyclable,
reusable or compostable.”

Virtuous Circle

Prabha Parameswaran, Group President, Growth and Strategy at Colgate-Palmolive tells Nomura Greentech how the consumer giant is focused on recyclable, reusable and compostable packaging to create a healthier future for all people, their pets and our planet.

Q | What first sparked your interest in sustainability and how important is the thematic to a multinational consumer brand like Colgate-Palmolive given the climate emergency?

I've been with Colgate-Palmolive for 27 years and am proud that our company has been working on sustainability for more than two decades. We view sustainability as critically important to our overall business growth strategy and our purpose as a caring, innovative growth company that is reimagining a healthier future for all people, their pets and our planet. In my various roles, I have seen Colgate people being very involved with the communities where we live, work and sell our products.

We market our products in more than 200 countries and territories — and the Colgate brand is in more homes than any other. Our essential health and hygiene products are part of people's daily routines so we recognize the responsibility we have to our consumers and the planet to do and be better.

In 2020, Colgate introduced our 2025 Sustainability & Social Impact Strategy, as for us, sustainability and social impact go hand-in-hand. Our strategy is focused on three key ambitions — Driving Social Impact, Helping Millions of Homes and Preserving Our Environment — and we recently published our progress in our 2022 Sustainability & Social Impact Report.

Q | In your role as Group President, Growth and Strategy, you oversee Colgate's innovation and commercial growth functions, including sustainability. How have you been making the business more sustainable?

Sustainability and innovation are both important growth drivers. We know that there are great opportunities as we work to integrate sustainability across all aspects of our business — and create positive social impact.

One innovation that really stands out is our recyclable tube. After years of development, Colgate introduced a first-of-its-kind recyclable toothpaste tube in 2019. The tube was the first to be recognized by external recycling authorities as recyclable and was an incredibly exciting moment for our company, as well as for the industry.

As of December 31, 2022, we have transitioned 77% of all our toothpastes in North America to recyclable tubes and our goal is to transition the remainder of our toothpaste portfolio in the U.S. by 2023 and globally by 2025.

By 2025, we also aim to reduce the absolute use of new (virgin) plastic by one-third against a 2019 baseline, use at least 25% post-consumer recycled plastic in our packaging, make all of our packaging recyclable, reusable, or compostable and eliminate unnecessary and problematic packaging.

As of December 31, 2022, 87.6% of our packaging is technically recyclable, reusable or compostable, up from 84.2% the previous year.

I'm also pleased that achieving 'TRUE certification for Zero Waste' at 100% of our operations is one of our 2025 sustainability targets. TRUE certification is a program developed by Green Business Certification Inc. to recognize organizations demonstrating leadership in waste reduction and resource conservation. Currently, we're the global leader in achieving TRUE certifications for Zero Waste and have 32 certified sites on five continents and in 19 countries. We were the first company to achieve the accreditation in Venezuela and Argentina, which was an incredible achievement.

It's exciting to see our teams continuing to work on innovations that will help the environment and push our industry forward.

Q | How close are you to achieving your 2030 goals of 100% renewable electricity in global operations against a 2020 baseline and reducing Scope 3 GHG emissions from Purchased Goods and Services by 42% against a 2020 baseline?

We are proud of our company's ambitious 2025 Sustainability and Social Impact goals. We've targeted net zero carbon emissions across our value chain, including our own operations, by 2040 and continue to make progress. Since 2010, we have reduced the energy we use in our own operations by 17% and our water use by 11%, and since 2020 we have cut greenhouse gas emissions by 8.5%, all favorably impacting operating costs.

Q | How concerned are you about consumer products that end up in landfill and what's the biggest sustainability challenge you face?

We create essential health and hygiene products and we know that what we put into our products is just as important as what they are made with. Our products must be packaged in a way to keep their integrity and keep people safe, while also keeping in mind the impact they have on our environment.

I mentioned our recyclable toothpaste tube and later this year we are excited to share a next-generation design engineered to use less plastic. The updated tube will be lighter, so it will require less energy to transport.

We know we can't do this work alone though. Partnerships and collaborations are critical to achieving not only our goals, but to creating our vision of a truly circular economy that is socially responsible and nature positive. Our partnerships are aimed at bringing important elements of our strategy to scale, such as design for recyclability, robust collection systems and reuse/ refill expansion. Our partners include Ellen MacArthur Foundation, Consumer Goods Forum Plastics Waste Coalition of Action, Business Coalition for a UN Global Plastics Treaty and more.

As a consumer packaged goods company, we know we have to work with those across the industry to create real change.

We continue to share our recyclable tube technology with third parties, including competitors, and are pleased that other major toothpaste brands have started to move to recyclable tubes. By 2025, we anticipate at least 75% of the 20 billion toothpaste

tubes that are used annually around the globe will become recyclable. Progress for the industry means progress for our environment.

Q | One of your biggest sources of emissions is upstream transportation and distribution. How are you working to reduce that subset?

Although the largest portion of our net zero carbon footprint relates to the sourcing of our ingredients and packaging, we are also working hard to address our upstream transportation and logistics emissions, which accounts for less than 5% of our emissions. Our customer service and logistics teams have launched various initiatives around the world, which are aimed at reducing both costs and environmental impacts while improving customer service.

Tactics they are exploring include finding opportunities for increased route and load efficiency, reducing our packaging and shipping less water thanks to our concentrated formulas. In addition to moving towards carbon-free transportation and facilities, we're increasing our use of emerging low-carbon technologies and renewable energy and driving vendor climate alignment and innovation. We will continue working to develop the roadmap to achieve our 2030 and 2040 targets.

Q | Do you have plans to introduce new sustainable products in the near future?

We are committed to evolving our products to become better for our environment. We continue to support the growth of the Colgate Keep toothbrush, our manual toothbrush with a replaceable head and a reusable metal handle, which uses 80% less plastic compared to similarly sized Colgate toothbrushes.

Concentrated formulas are also an important growth opportunity for us. In 2022, we debuted a new mouthwash concentrate that uses 34% less plastic and 92% less water shipped per bottle of concentrate and uses an innovative, recyclable pump.

Beyond oral care, we have focused on in-home refills, and have seen long-term success with our Softsoap refill business that provides consumers with an easy way to refill their smaller containers with reusable pumps. In May 2023 Colgate's Europe Division introduced Soupline hearts, whose packaging uses 72% less plastic and no water.

In 2022, we introduced Palmolive Shake & Clean, which features a 4x concentrated formula that activates instantly, but the packaging considers sustainability as well.

The soap refill pouch contains 75% less plastic when refilling an existing 20oz. bottle instead of using a brand new 20oz. bottle and the reusable bottle is made from 100% recycled plastic. Both the bottle and carton are recyclable. Palmolive UP! is a line of shower gel that features fragrances made from upcycled ingredients. The tube is recyclable and made of sugarcane.


“Today, the Katingan Mentaya
Project is one of the world’s largest
nature-based solution projects.”

Natural Capital

Dharsono Hartono is CEO of PT Rimba Makmur Utama, which operates one of the world's largest carbon offset projects. Dharsono's work protecting and conserving forests in Indonesia has saved millions of tons of carbon to fight climate change.

Q | What first sparked your interest in sustainability and what made you establish PT Rimba Makmur Utama and the Katingan Mentaya Project?

About 15 years ago I bumped into my University classmate Rezal Kusumaatmadja in Bali while I was attending a palm oil conference. He introduced me to the idea that we could protect, conserve and restore forests in Indonesia, help local communities and grow a business by selling carbon credits generated by emission reductions.

I was born in Indonesia and studied in the US, graduating from Cornell in 1998 with a masters in financial engineering. I worked in New York for six years at Pricewaterhouse Coopers and JP Morgan before returning home.

In 1998 Indonesia was in the top 3 of global carbon emitting countries mainly due to forest fires in the region. Around that time, before our second President Suharto fell, he opened up one million hectares of forest in Central Kalimantan with a plan to convert it into paddy fields to grow rice to become self-sufficient.

It was predominately peatland forest, so it stored a massive amount of carbon. Before cultivation, you need to drain it because it's wetland, but once dry, it becomes a tinder box and easily catches fire. It becomes a terrible source of air-polluting haze events.

We saw first-hand how the haze was affecting the country and Rezal's father used to be the Minister of Environment, so he was in tune with what was happening. Fast forward to 2007 and together we started to understand how carbon credits presented an opportunity to protect our forests. Preserving peat forests had the potential to keep millions of tons of emissions out of the atmosphere.

We originally wanted to conserve 10,000 hectares of forest, which is about the size of Manhattan Island. But to have a globally significant impact on the climate crisis, you need scale, so I challenged him to go for 200,000 hectares. That's almost three times the size of Singapore.

We had no experience in carbon finance, we were two young entrepreneurs with a dream, trying to do the right thing.

Today, the Katingan Mentaya Project is one of the world's largest nature-based solution projects, as measured by the total amount of carbon it protects. As a peat swamp forest, the vast majority of its carbon is stored in the deep, saturated, partially decomposed biomass that the soil is composed of. This carbon-rich peat soil is up to 14 meters deep in some places and has taken tens of thousands of years to accumulate.

Q | How serious is the problem of deforestation in Indonesia?

A substantial amount of our country's economic growth over the past 20 years - even going back to the eighties - can be attributed to making use of our forests.

Like many developing countries, deforestation equaled economic development by converting forests into plantations for paper and palm oil. This was particularly acute in the nineties.

Over the past decade, Indonesia has begun doing a much better job of controlling deforestation, but illegal logging is still a problem.

The government has stopped issuing licenses to palm oil producers especially for designated areas like ours. But there are still significant threats that requires active conservation to mitigate.

Q | What magnitude of emissions have you saved so far and what are your goals?

Over the past 10 years we have issued close to 40 million carbon credits. Each credit represents a unique, real, measurable ton of carbon dioxide that has been prevented from being released into the atmosphere and further contributing towards climate change.

In Indonesia you cannot purchase land so we were granted a 60-year concession from the government in 2013 for which we pay an annual fee. This land generates on average about 7 million tons of carbon credits annually, which is equivalent to taking 2 million combustion-engine cars off the streets.

The concept of a forest carbon project was still very new back when we started, which meant it took six years to demonstrate our intent and purpose before acquiring a license.

Those six years, while I was one of only two employees of the company, was a precious time. I visited all the 35 villages surrounding the area. The area looks like an ellipse. It's a hundred kilometers from North to South and it's about 30 kilometers from East to West. There are two rivers running on either side.

Conservation helps restore balance between biodiversity and humanity. The project protects habitats for five critically endangered, eight endangered and 31 vulnerable species. The protected area is home to between 5% and 10% of the global populations of the Bornean Orangutan, Proboscis Monkey and Southern Bornean Gibbon.

Q | How challenging is it to make it profitable and what are the barriers?

It is absolutely crucial that conservation actions like ours are profitable. If we want to combat the climate crisis and reverse the decline of biodiversity, then protecting the natural world must be taken seriously, it must viable and there needs to be income.

After 15 years, we are profitable. We have more than 200 full-time staff and employ another 400 to 500 part-time staff during the dry season to patrol and help in the fire mitigation efforts.

When we started out, there were no large-scale forestry projects out there. People might consider us crazy to pursue a project without revenue for 10 years. And it took us another four years to get our first sales.

And at that time there was no certainty in the market. But things have changed a lot, especially in the last four or five years. Today there is substantial growth in demand from corporates with ambitious climate targets and scientifically robust strategies to meeting them. The market is maturing, and we are seeing many of the necessary apparatus put in place to help ensure credibility and mitigate risk.

Despite the advances, there are still challenges to overcome. Many people remain skeptical that carbon credits from activities like ours have real impact. As a sector there is always work to be done to improve processes. But I feel much of the skepticism is based on an idea of the carbon market from 20 years ago. Many of the integrity concerns have been addressed through independent standards or from increasing oversight via stakeholder initiatives like the Integrity Council for the Voluntary Carbon Market.

One frequently cited concern is the counterfactual an avoided deforestation project is based on. Opponents of our model will argue that we can never be sure that our modelled deforestation scenario will have happened or that it can be exaggerated to increase the value of the project. Aside from the fact that counterfactuals are an important function of scientific modelling, this argument fails to grasp the level of assurance that is required for a project to meet third-party standards. For an avoided planned deforestation project, like the Katingan Mentaya Project, we have demonstrated clear science-based evidence to show the extent of deforestation that would happen without our intervention.

All of our credits are verified against Verra, the world's leading carbon standard setter. The project is further validated to the Climate, Community and Biodiversity Standards (a partnership of non-governmental organizations, corporations and research institutes), for which we have achieved the highest rating, Triple Gold.

Q | Are wildfires becoming more of a challenge as the planet heats up?

Every year during the dry season we see wildfires break out across the region. The 2019 season caused extensive damage in Kalimantan.

As a forest carbon project developer, it is our duty to ensure we do everything we can to fight fires that threaten our patch and to support efforts beyond our borders.

We have 200 people monitoring if wildfires are approaching. We use satellites and drone technology in near real-time to assist our teams. Our fire mitigation effort is community-based so we work with the villages to do the patrolling.

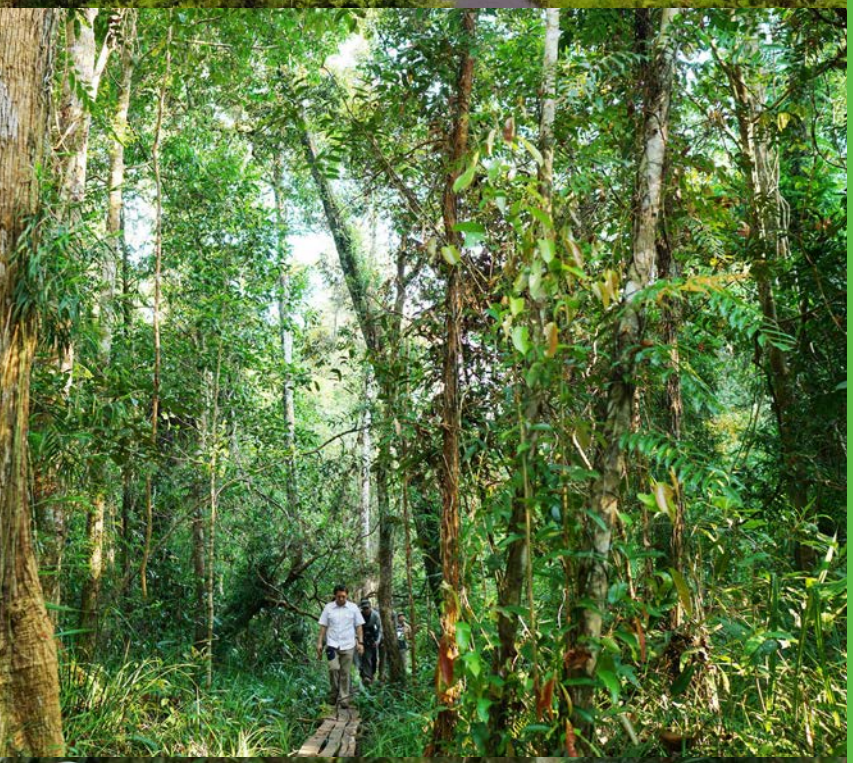
We also work inclusively with communities to discourage them from adopting practices such as 'slash and burn'. We help them to be more productive farmers and fishermen to protect this fragile ecosystem.

And as a final precaution, all voluntary carbon projects must submit a percentage of credits each year to a buffer pool as an insurance mechanism. This means that for whatever reason we experience damage to the forest area, the carbon credits already issued are still valid.

Q | Do you think the wealthy developed economies should be more active in the offsets market given their historically high emissions?

Since the beginning of industrialization, we have witnessed a creation of wealth in developed countries and the associated emissions but now there is a need to actually lower emissions when developing countries are in a growth phase.

The capital that was gained in the past 50 years should be channeled toward activities that protect nature. Much of the nature that needs protecting is in the Global South.



Q | The voluntary carbon market has taken a while to hit $2 billion. Do you think it's set to take off given the number of companies that are coming out with net zero commitments?

Our buyers provide a good insight into this question. They range from energy, to financial firms, auto manufacturers like Volkswagen, and airlines like Delta.

We are well placed as every company is looking to fulfil its net zero commitments and heavy emitting industries will probably have to buy more than other sectors.

But we also need to educate buyers that what they're buying has real impact. We are still missing that part. If greenwashing concerns arise then it can cause difficulties for project developers.

A recent analysis from the rating agency Sylvera, found that companies buying carbon credits reduced their emissions twice as fast as those that do not buy carbon credits. That's a welcome sign that some firms are pulling every lever available in the fight against climate change.

Q | Carbon offsets play an important role in eliminating residual emissions yet they often come in for criticism. why do you think that is?

As businesses, we should never shy away from fair and honest criticism. Well-functioning capitalist democracies need a free press with good journalism as a means of checks and balances and to expose bad practices.

The voluntary carbon market is not perfect and some forest projects are underperforming. It is right that these are called out. But where I see a problem, especially with the articles published by the Guardian and others earlier this year highlighting some of the questionable projects, is the inference that the whole sector is bad.

Part of the issue is that ideology or uninformed assumptions can cloud journalistic inquiry. I'm worried that for some parts of the media, there is a prevailing bias against the use of offsets or private sector involvement in activities like conservation. The first wave of 'wild west' offsets and experiments with REDD+ that started 20-25 years ago had a lot of problems, but today the landscape is entirely different. We have internationally recognized standards that are based on the latest scientific understanding and undergo thorough peer review. We have public registries, independent ratings agencies and increasing levels of scrutiny.

For a corporation looking to meet its own climate targets, if it uses third-party validated high-quality carbon credits and when this is done alongside other science-based emissions lowering activities, this is a proven, measurable and impactful climate strategy.

Q | Who's your sustainable hero and why?

I love reading history so I'd say Alexander von Humboldt, the explorer and naturalist. He's considered the father of environmentalism and was one of the first scientists, even before Darwin, to champion the preservation of nature.

In the 1800s he put forward concepts such as human-caused climate change. He foresaw that without protecting nature, we would create future problems.

So I hope that we learn our lessons from history. Climate change is a slow growing but chronic issue. We are at an inflection point today and it's up to us to do something about it.

The Future Heroes

This magazine intends to showcase our sustainable heroes and heroines by celebrating their achievements and providing key insights into how they are shaping our future.

We look forward to partnering with you!


Jeff McDermott


PJ Deschenes


Duncan Williams


Andrew Horn


Damien Sauer


Alex Wotton


Alex Stein


Anoop Chaudhry


Takaki Kobayashi


Derek Bentley


Laurent Dallet


Pearse Davidson


Richard Hawwa


Michael Horwitz


Kanishka Kelshikar


Komu Kumar


Steve Megyery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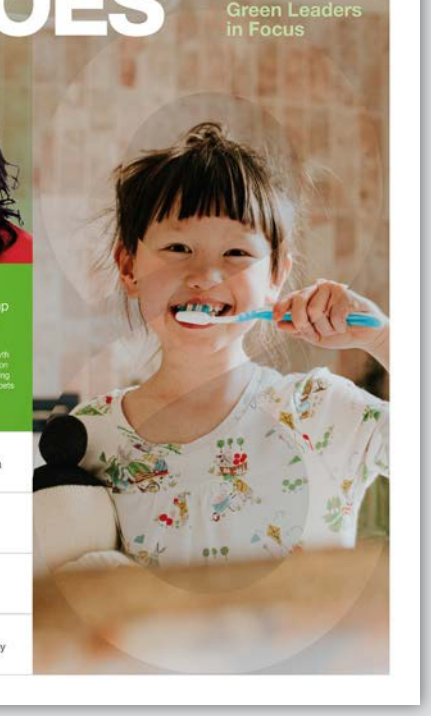
Green Leaders
in Focus


Green Investing
Hidetake Takahashi, Head of Energy & Eco Services, ORIX
Virtuous Circle
Prabha Parameswaran, Group President, Growth & Strategy, Colgate Palmolive
Natural Capital
Dharsono Hartono, CEO, PT Rimba Makmur Utama
Biodegradable Plastic
Niall Dunne, CEO, Polymateria
Energy Independence
Sébastien Clerc, CEO, Voltalia


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Niall Dunne, CEO, Polymateria
Niall Dunne, CEO of Polymateria, a UK-based maker of green packaging, is pioneering the use of biotransformation technology to eliminate the scourge of plastic pollution
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