

ISSUE 3 / SPRING 2023

# FUTURE

BUILDING A BETTER WORLD TOGETHER



**A BUG'S LIFE:**  
WHY INSECTS AND  
INVERTEBRATES  
ARE ESSENTIAL TO  
ALL LIFE ON EARTH

PLUS, INSIGHT FROM:

- **BCW GLOBAL**
- **FSC ITALY**
- **WILDLIFE WORKS**

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**ANDREA PIAZZOLLA**  
CHIEF PURCHASING  
OFFICER,  
SOFIDEL GROUP

# A GLIMPSE INTO THE FUTURE

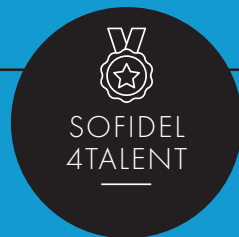
Sofidel Group cares deeply about the future of the planet – and its people. That's why we are committed to growing our supply chain digital magazine and showcasing inspiring stories from around the world that focus on sustainability.

In issue #3 we hear from Elena Faccio, Sofidel global creative, communications and CSR director; Paul Hetherington of nature conservation charity Buglife; Mike Korchinsky founder of Wildlife Works; Bernardo Bastien-Olvera, Ph.D. student at the University of California; and Madeline Patterson, SVP at global communications agency BCW, among others.

You can also read case-studies from Sofidel's suppliers and industry partners including Meva Energy, Metsä Fibre, BSB Grafica & Comunicazione and FSC Italy.

**Enjoy the read. And here's to a bright Future.**





# EDUCATION FOR THE FUTURE, TOGETHER: Sofidel4Talent focuses on young forestry professionals

**Elena Faccio**, global creative, communications and CSR director for Sofidel discusses the Sofidel4Talent initiative – part of the company's continued commitment to improving forest procurement processes, nature conservation, biodiversity protection and sharing a strong culture of sustainability with young generations

**T**he Sofidel4Talent initiative, says Elena Faccio, global creative, communications and CSR director for Sofidel, "is a project we all love". The company launched the initiative in Spring 2022 to celebrate the 15-year anniversary of its collaboration with WWF in Italy, she says. "We have a partnership with WWF that has been really useful for us and has helped us develop and grow responsibly and become aware of the challenges that we need to face as a humanity in the next years."

The partnership, says Faccio, helped Sofidel to understand further "what kind of positive impact we can bring to the world." More specifically, that meant focusing on biodiversity and "taking care of our roots". In order to do that Sofidel wanted to launch a training program for young forestry professionals that "reinforced their capabilities" so, in the future they could take care of our forests. "This is good for everyone on Earth."

**"WE HAVE A PARTNERSHIP WITH WWF THAT HAS BEEN REALLY USEFUL FOR US AND HAS HELPED US DEVELOP AND GROW RESPONSIBLY AND BECOME AWARE OF THE CHALLENGES THAT WE NEED TO FACE AS A HUMANITY IN THE NEXT YEARS... THIS IS GOOD FOR EVERYONE ON EARTH"**

## THEORY MEETS PRACTICAL KNOWLEDGE

Under the patronage of Italy's network of universities for sustainable development (RUS – Rete delle Università per lo Sviluppo Sostenibile), the three-day, free course is a fusion of theory and practical knowledge for the students. It offers an "immersive" experience in nature," says Faccio. "We wanted to address the mismatch that sometimes exists between university 'knowledge' and the world of work. We wanted to provide students and fresh university graduates with a good background and practical capabilities that could help them to find a job in the field of nature."

The main impetus for this, says Faccio, was the ticking clock of climate change. "Our forests have an important role to play. Nevertheless, every year in the world we lose forests the size of Portugal. Deforestation causes carbon emissions, increases droughts, and leads to warmer local climates. So, we wanted to give our



### VIDEO

You can watch the video interview here: [tinyurl.com/yszxs9d](https://tinyurl.com/yszxs9d)



The three-day, free course is a fusion of theory and practical knowledge



The main impetus for the initiative is "the ticking clock of climate change"



contribution to address this challenge.”

In Italy alone, where Sofidel is headquartered, one third of the country is covered by forest. But because of climate change, forests are becoming increasingly vulnerable. “So, in the future, there will be a huge need for professionals that are able of take care of our forests. This was the main goal of the project,” says Faccio.

**FORESTRY FEEDBACK**

The feedback from the students to this course, which launched earlier in 2022, has been incredibly positive, says Faccio. “They were really excited. The course took place in a beautiful place, at WWF’s Biodiversity Museum in Italy. It is at the center of a powerful, natural ecosystem, within the Alto Merse Reserve, in the province of Siena, Tuscany. But they were also excited for the content of the course and the training and because they were meeting field experts, WWF professionals and new friends that have the same passion for nature. There was

**"THE COURSE TOOK PLACE IN A BEAUTIFUL PLACE, AT WWF'S BIODIVERSITY MUSEUM IN ITALY. IT IS AT THE CENTER OF A POWERFUL, NATURAL ECOSYSTEM, WITHIN THE ALTO MERSE RESERVE, IN THE PROVINCE OF SIENA, TUSCANY. BUT STUDENTS WERE ALSO EXCITED FOR THE CONTENT OF THE COURSE"**

a good energy and a great exchange of ideas.”

So, how might the course itself evolve in the future? “We believe that Sofidel4Talent has been a great experience and also a good way to support the young people. We are currently thinking about how we can develop the project next year. We would like to keep working on the theme of ‘green jobs’. Next year, we will probably further develop this to the theme of ‘energy’ and target young professionals and students in the field of renewable energies. Climate change is one of the major challenges and we think it’s very important to support young people that want to work towards decarbonization,” says Faccio.

Sofidel’s continued commitment to improving the forest procurement process matters a great deal to the company, she adds. “This is really important for us. We want to have a supply chain that is sustainable from a social, environmental, and economical point of view. This commitment is really at the core of our activity. All the pulp that we use to make our products is 100% certified.

**"WE BELIEVE THAT SOFIDEL4TALENT HAS BEEN A GREAT EXPERIENCE AND ALSO A GOOD WAY TO SUPPORT THE YOUNG PEOPLE"**

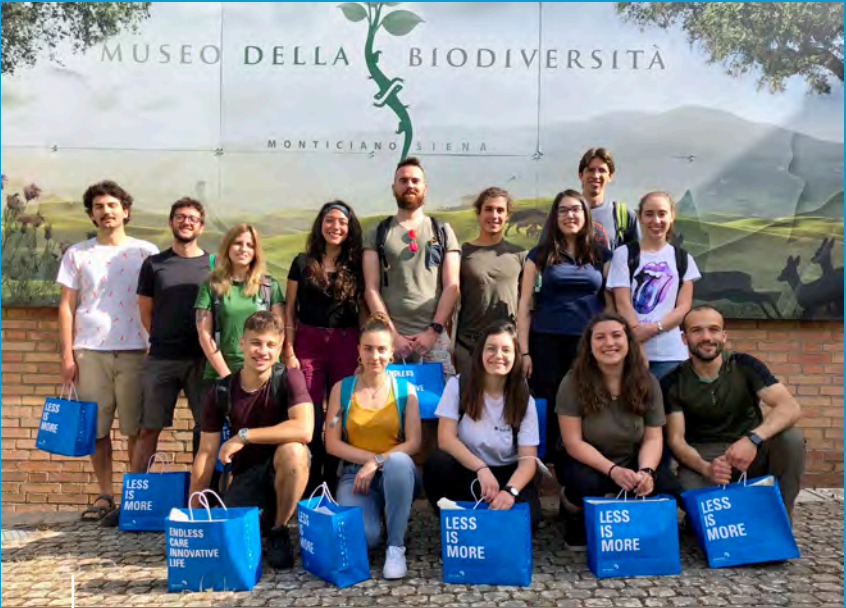


Elena Faccio, global creative, communications and CSR director, Sofidel

Our goal is zero deforestation. We want to maintain and continue developing a supply chain that does not cause deforestation in any of its phases. It’s the main goal, for this reason, to protect the forests and safeguard biodiversity and we are therefore happy to support young people that are committed to taking care of nature in the future.” ■

**FURTHER DETAILS:**

For more information about the Sofidel4Talent initiative, visit: [lanostracartamigliore.sofidel.com/sofidel4talent/](https://lanostracartamigliore.sofidel.com/sofidel4talent/)



The students were trained by field experts and WWF professionals

The Sofidel4Talent first cohort of students



# DELOITTE'S DEEP DIVE INTO ESG READINESS SHOWS COMPLIANCE IS ONLY THE FIRST STEP

Environmental, social, and governance (ESG) concerns continue to rise up the corporate agenda, as stakeholders demand that business strategy aligns with sustainability commitments. Sustainability reporting and disclosure is being taken more seriously than ever before, so *Future* looks at Deloitte's assessment of ESG readiness and how it is changing

**S**ustainability is permeating every aspect of business activity, but all too often it is thought of purely in terms of a company's environmental impact. In fact, environmental, social, and governance (ESG) issues all contribute to a firm's sustainability credentials, and the wave of regulations demanding more transparent and in-depth reporting on all those factors has made that clear to companies of all sizes and in all sectors.

The latest *Sustainability Action Report* from Deloitte, which takes a detailed look at ESG disclosure and preparedness, found that ESG is increasingly about business fundamentals for many companies. For instance, its latest survey data shows that 89% of executives are proactively making strides to hold themselves more accountable and drive trust with their stakeholders in an effort to better position themselves to thrive and differentiate over the long term.

The survey, published in December 2022, showed that 57% of companies have established a cross-functional working group to bring together senior people in finance, accounting, risk, legal, sustainability and other business divisions to drive strategic attention around ESG. This is a huge increase from the 21% that was reported just six months earlier.

## WALKING THE WALK

In previous years, many organizations seemed to be merely paying lip service to the values that underpin ESG. Greenwashing was a big trend at one point, but then came a period when commitment became much more serious. Now though, that commitment seems to be

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genuinely turning into concrete action.

Regulatory reporting requirements continue to play a major role in pushing this trend forward. US companies, for example, are starting to prepare for the disclosure requirements proposed earlier in 2022 by the Securities and Exchange Commission (SEC), and in Europe a comprehensive set of reporting standards for Scope 1, Scope 2 and Scope 3 emissions reporting is coming into force.

For many companies, these requirements are positioning ESG reporting as the primary method for assessing, organizing, and reporting their

current and planned sustainability initiatives. They recognize that ESG readiness and external assurance are valuable tools that can have a significant impact on a company's governance and reporting processes and controls.

With this in mind, many organizations are making great efforts to ensure that the reporting process is handled with the utmost accuracy and diligence. In fact, Deloitte found that virtually all (96%) of executives are planning to seek external assurance for the next reporting cycle – 61% have already done and 35% are about to do so for the first time.

## TOOLS, TIME, AND TRANSPARENCY

There is undoubtedly an unprecedented appetite for optimizing ESG reporting, and companies are actively working to meet the growing need for high-quality ESG performance metrics. This is not, however, a straightforward task.





Some areas of reporting are considerably more challenging than others. Particularly for large companies, calculating Scope 3 greenhouse gas (GHG) emissions – emissions that are not produced by the company itself, and are not the result of activities from assets it owns or controls, but for which it is indirectly responsible up and down its value chain – is particularly difficult.

An overwhelming majority of respondents (86%) in Deloitte’s survey reported challenges measuring Scope 3 GHG emissions, noting that access to specialist resources and more consistent industry standards would help them address that challenge. Only a very small percentage (14%) of respondents said that they faced no challenges.

Some 35% of executives surveyed reported that their greatest difficulty is achieving the necessary accuracy and completeness of data. A further 25% picked out access to quality data as their biggest challenge. In an effort to overcome these challenges, 99% of companies are somewhat or very likely to invest in more technologies and tools over the next 12 months.

Significantly, those companies that seek external assurance for ESG data – principally the larger companies in the survey – were revealed

**WHEN THESE VARIOUS CHALLENGES ARE OVERCOME, ACCESS TO TIMELY AND HIGHER-QUALITY DATA, AS WELL AS GREATER DISCIPLINE AND ESG PREPAREDNESS, CAN HELP UNLOCK TRANSFORMATION AND VALUE-CREATION OPPORTUNITIES**

to be more likely (40%) to cite challenges with data quality than companies that are seeking to obtain external assurance for the first time (27%).

When these various challenges are overcome, access to timely and higher-quality data, as well as greater discipline and ESG preparedness, can help unlock transformation and value-creation opportunities. The insight gained from ESG reporting can, in fact, drive strategic choices that can go a long way to addressing enhanced stakeholder expectations.

**REAPING THE BENEFITS**

Such is the importance of integrating ESG reporting into business strategy that larger companies are creating the new role of chief sustainability officer (CSO), rather than relying on the CFO to take charge as is the case in smaller companies. Whoever is in charge, their job is to not only ensure compliance with reporting standards, but also to secure the many benefits that can accrue.

**SUCH IS THE IMPORTANCE OF INTEGRATING ESG REPORTING INTO BUSINESS STRATEGY THAT LARGER COMPANIES ARE CREATING THE NEW ROLE OF CHIEF SUSTAINABILITY OFFICER (CSO)**

In Deloitte’s survey, respondents chose their top three expected outcomes, with talent attraction and retention (52%), gains in efficiencies (52%) and enhanced trust with stakeholders (51%) coming out on top. Not far behind, however, were elevated brand reputation (49%), risk reduction (48%), and premium pricing – pricing products higher than comparable brands – (48%).

Looking at combinations of selected outcomes, 19% ranked both increased efficiencies and return on investment (ROI) within their top three, while 17% ranked increased efficiencies, premium pricing of products, and ROI as their top three outcomes.

Notably, attracting talent and employee retention was the top anticipated benefit (58%) in

the life sciences and healthcare industry. Greater trust with stakeholders (58%) and premium pricing of products (58%) led the way for the oil and gas industry. Increased efficiencies, and improved ROI (58%) is the biggest benefit in the consumer products industry.

The data from Deloitte clearly shows that sustainability is not a box-ticking compliance exercise but a business opportunity for both large and small organizations. As climate change brings more risk and uncertainty, a strong focus on ESG will play a growing role in risk reduction and long-term execution on strategy. ■



**FURTHER DETAILS:**

For more information and to download a copy of the Deloitte report, visit: [shorturl.at/lyABM](https://shorturl.at/lyABM)



# A NEW ROUTE TO DECARBONIZATION FOR HEAT-INTENSIVE PROCESS

Meva Energy and Sofidel have partnered on a pioneering bio-syngas project that paves a new path for decarbonization in the paper industry and beyond



**Niclas Davidsson** is CEO of Meva Energy, whose new plant will deploy innovative technology to directly supply Sofidel's Kisa site with renewable energy from biomass

**P**aper production is the fourth most energy intensive industry in Europe and accounts for 296 million tons of greenhouse gas emissions globally. When it comes to decarbonization, the industry faces challenges across its whole supply chain, especially at the tissue paper drying stage. Tissue manufacturers require a strong supply of thermal energy and converting existing fossil fuel energy systems to electrical or hydrogen systems would mean a total infrastructure overhaul. A new way forward is needed.

When research proposals first suggested the possible application of renewable bio-syngas for thermal industry processes, leading renewable gasification technology provider Meva Energy recognized the potential to transform heat-intensive industries, starting with tissue paper production. Now, Meva Energy has signed a 10-year agreement with Sofidel to construct a renewable bio-syngas generation plant at Sofidel's plant in Kisa, Sweden. The plant will have a generation capacity of at least 4.2 MW and will facilitate a reduction of 8,500 tons of CO<sub>2</sub> emissions a year once fully operational, compared to the current carbon footprint generated by the consumption of liquefied petroleum gas (LPG).

## FIRST OF ITS KIND

"The vision is to achieve a very big reduction in fossil CO<sub>2</sub> emissions," explains

Niclas Davidsson, CEO of Meva Energy. Traditionally, fossil gas is combusted to dry paper in tissue mills. The new plant will deploy innovative technology to directly supply Sofidel's Kisa site with renewable energy from biomass (i.e. wood residues), helping work towards Sofidel's target to reduce emissions by 40% between 2018 and 2030.

The plant will be the first of its kind for Meva Energy. "This project has immense importance, not just for the site itself and our decarbonization ambitions, but also for us launching our new technology," says Davidsson.

While renewable electricity and hydrogen offer significant opportunities to move away from fossil fuels, they require complicated infrastructure modifications,

**"PRODUCING BOTH RENEWABLE GAS TO DIRECTLY REPLACE FOSSIL GAS AND BIOCHAR APPLIED AS A CARBON SINK ADDS UP TO A TOTAL NEGATIVE CLIMATE FOOTPRINT OF THE PLANT"**

Meva Energy recognized the potential to transform heat-intensive industries, starting with tissue paper production



many of which aren't yet available. Biogas is a much simpler option in comparison to other future technologies, and this project is a first step towards demonstrating its potential to energy stakeholders, including governments.

Alongside bio-syngas, the Kisa plant will also produce biochar (a residue, made of carbon and ashes, remaining after the pyrolysis of biomass). The result of biomass conversion, biochar is a solid material that can be used as a carbon sink, as well as having commercial value for use in soil improvement and animal feed. "Producing both renewable gas to directly replace fossil gas and biochar applied as a carbon sink adds up to a total negative climate footprint of the plant," explains Davidsson.

## TIMELY INNOVATION

At a time of unprecedented climate change and an energy crisis in Europe, energy transformation is more important than ever. As partners, Meva Energy and Sofidel share a spirit of innovation, demonstrating what private companies can achieve when they work together. "It is important to be willing to take the leap to pioneer solutions," says Davidsson.

"It's in [Sofidel's] vision and DNA to push decarbonization plans according to a scientific approach," says Daniele Biagi, technical machinery specialist at Sofidel. "The senior management was willing to sponsor this pioneering project." This scientific approach is spearheaded by

**"IT'S IN SOFIDEL'S VISION AND DNA TO PUSH DECARBONIZATION PLANS ACCORDING TO A SCIENTIFIC APPROACH... AND SPONSOR THIS PIONEERING PROJECT"**

the collaboration of the Department of Energy at Pisa University, which has run studies to support the project, demonstrating the potential of bio-syngas as a fuel to heat paper.

## THE KEY TO COLLABORATION

For a pioneering project of this scale, the working relationship is vital. "This project is characterized by a lot of transparency and mutual interest in being successful," explains Davidsson. "Dialogue and communication are very important."

"It was a perfect fit for both companies," Biagi adds. "Meva introduced their expertise in this field of bio-syngas production, while Sofidel has great knowledge about tissue paper production. We felt the team at Meva understood our concerns and our needs when it comes to producing net-zero products but also maintaining production."

Success at the Kisa site will have implications not only across Sofidel's operations but for the wider tissue paper

production industry and other heat-intensive process industries.

"This is a critical activity for us right now," says Davidsson. "We expect many visitors, not just from tissue paper production companies but companies from completely different industrial activities."

"There are interested parties from industries as diverse as aluminium production, copper production and food production. They all have something in common with Sofidel: the need for high-quality process heat that is often natural gas based." Furniture supplier IKEA has already visited the Kisa site, having identified the opportunity to transfer Meva Energy and Sofidel's innovative solutions.

"The [Kisa] site will remain an important reference point for us for those opportunities outside the tissue paper manufacturing industry. We were lucky to start with Sofidel," says Davidsson.

Construction at the Kisa site will be complete by the end of 2022, and commercial operation is expected to begin by April 2023. Members of all energy-intensive industries can look forward to witnessing the potential of decarbonization by bio-syngas in action. ■

## FURTHER DETAILS:

For more information regarding Meva Energy, please visit [mevaenergy.com](https://mevaenergy.com)



# SETTING NEW STANDARDS FOR SUSTAINABLE PULP PRODUCTION

Sofidel and Metsä Fibre are building on their long-standing partnership to maximize efficiency and cut out waste

Over the past 50 years, paper use has quadrupled. According to the Environmental Paper Network, the world now uses more than 400 million tons of paper per year globally. All paper begins its life as pulp extracted from trees, meaning that the entire supply chain for paper production depends on natural raw materials. As the demand for paper continues to increase year-on-year, manufacturers must ensure their practices protect the availability of these resources.

World leading pulp producer Metsä Fibre – part of Metsä Group, a cooperative of forest owners – is spearheading sustainable pulp production at its plants in Finland and working with Sofidel to pursue ambitious sustainability objectives. The two companies have a long-standing relationship since more than 20 years. “Our strategy is very much directed towards employing the best technologies available for the most efficient production,” explains Maria-Laura Rotatori, sales manager at Metsä Fibre.

In September, Metsä Fibre invited Sofidel to Finland to see first-hand how sustainability is implemented throughout the pulp production supply chain at its unique bioproduct mills. As Sofidel and Metsä Fibre take bold steps towards greater sustainability, innovative closed-loop systems will continue to improve energy and raw material efficiency.

## INNOVATIVE SUSTAINABILITY

By 2030, Metsä Fibre aims to achieve completely fossil fuel-free pulp production, and the company has a clear roadmap for reaching the goal.

“Sustainability is involved in all of the operations and is integrated in the process, from the forest to the end product,” says Marko Ruottinen, sustainability manager at Metsä Fibre. “Whatever we do, sustainability is always included in our actions.”

It starts with resource efficiency. This means carefully managing the use of not only wood but water, energy and bioproducts as well. Metsä Fibre’s mill design is based on using 100% of raw materials and enabling side streams to be turned into valuable biochemicals, bioenergy and other bioproducts. “The target is that nothing goes to waste,” explains Ruottinen. “We will utilize all raw materials and operate resource efficiently.”

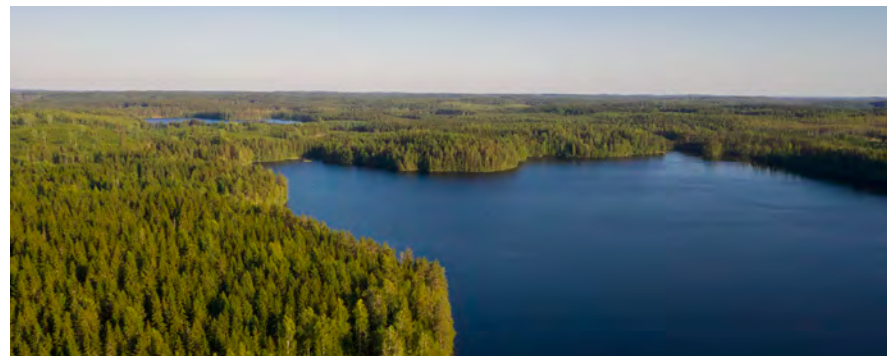
Using modern technology, Metsä Fibre’s Finland-based mills already produce

more bioenergy than they need, creating a surplus that the company sells to the national grid. In fact, for instance in 2021, Metsä Fibre accounted for 11% of renewable energy produced from renewable sources in Finland.

Annual goals and performance monitoring drive the constant development of Metsä Fibre’s mills. “We are investing in new technology and use the Best Available Technology (BAT) in our mills,” Ruottinen adds. “We want to be the front runner in the industry, with our new mills showing that this is the way to produce pulp.”

More than 75% of Finland’s land area is covered by forest. The forest is the source wood central to pulp production. Metsä Fibre uses Nordic wood from sustainably managed forests. “All our wood is traceable back to the forest,” says Ruottinen. “We have a chain of custody certificates and we know where the wood is coming from.”

It isn’t just a matter of responsible sourcing: Metsä Group has the goal to



World leading pulp producer  
Metsä Fibre partners with Sofidel



actively promote sustainable forest management and biodiversity. “Our experts help the forest owners in comprehensive wood trade, forest management and nature management services for sustainable forest management,” adds Ruottinen. After regeneration harvesting forests are always renewed and for every tree that is felled four new ones are planted. Finland has a long history of sustainable forest management, and the forest growth has exceeded the annual felling by 30% in recent years. In fact, the growing stock in Finnish forests has increased over the last 50 years.

## SOCIAL RESPONSIBILITY

For Metsä Fibre and Sofidel, sustainability doesn’t only mean protecting the environment. Social responsibility is prioritized as

extends across the stakeholder network. Sofidel also visited one of Metsä Fibre’s visitor centers, which are used to demonstrate how Metsä Fibre runs its business to customers and other stakeholders.

“We are communicative with our stakeholders and colleagues,” says Rotatori. “We make them aware of the importance of taking care of our environment.”

Metsä Fibre continues to work on shaping the future of sustainable pulp production. A new bioproduct mill in Kemi, Finland will more than double the company’s pulp production in Kemi, but will still stay below the emission limits of the current environmental permit of the existing smaller mill.”

The partnership between Metsä Fibre and Sofidel is a vital asset when it comes to meeting the climate challenge and achieving sustainability objectives. “If we work together, we can achieve something bigger than only focusing on our own processes, as well as achieve shared sustainability targets” says Ruottinen. ■

**“IF WE WORK TOGETHER, WE CAN ACHIEVE SOMETHING BIGGER THAN ONLY FOCUSING ON OUR OWN PROCESSES”**

well throughout the supply chain.

“We start from our own people,” says Ruottinen. “Our workers’ wellbeing and safety is the number-one topic in production.” Metsä Fibre also recognizes the role of its mills in the community, he adds: “The mills provide work and income for many people in the rural areas.”

By launching teaching campaigns, Metsä Fibre aims to educate young people on what it means to operate a sustainable forest supply chain. This education

## FURTHER DETAILS:

For more information on Metsä Fibre, please visit [metsagroup.com/metsafibre/](https://metsagroup.com/metsafibre/)



# MOVING PEOPLE: HOW TO COMMUNICATE SUSTAINABILITY EFFECTIVELY



**Madeline Patterson**, SVP at global communications agency BCW, also leads its U.S. ESG strategy team. In helping clients to convey their sustainability credentials and goals more effectively, the focus is always on “moving people,” she tells *Future*

**T**he strapline on BCW’s website is “moving people to move you forward.” It’s a mission statement the global public relations and communications firm takes extremely seriously, helping its clients to “navigate exponential change.” It has a particular expertise in supporting clients in communicating environmental, social, and governance (ESG) and sustainability goals and achievements, with Senior Vice President Madeline Patterson leading the charge in the U.S. Here she talks “advancing narratives” and why honest and transparent comms are always the right way to move people. BCW is an agency partner of Sofidel.

**Why must organizations work much harder to better communicate their sustainability credentials and goals?**

**Madeline Patterson:** There’s a lot of scepticism, rightfully, around sustainability goals and credentials, because unfortunately, there’s been a real lack of consistent data and transparency. So, companies must work to overcome bad actors and ill-informed companies that don’t have data or are making promises that they can’t keep. There’s a lot of scepticism in the space, especially for the average consumer, investor, or a supply chain partner who maybe

doesn’t understand some of the nuances of your business.

So, when that partner might hear that your company is working on net-zero, and they know as part of your supply chain that they can’t get to net-zero, they’ll be wondering, ‘How can you get to zero?’ There’s a trickle-down effect that can be overcome with more transparency and better data and context for that data. Having a strong communications program that includes those two things can help overcome some of these barriers.

**Why is it important that these goals are communicated transparently, honestly, and authentically?**

**Madeline Patterson:** It starts with building a foundation of trust, because you must be realistic about where you are and where you’re going. Companies will experience setbacks, or unforeseen events such as the global pandemic, where, maybe they must use more water or energy for safety reason, or perhaps in some locations, energy is no longer as renewable. There’s very little that businesses can do to influence that. All these factors are about the authenticity of being clear and honest on the limitations the organization is facing. That helps build trust. Through that, you can really explain why a certain key performance indicator is



trending up or down. That will help over- all your reputation but also lower your risk management.

When investors are looking at ESG, they're looking at ESG risk. Do you have strong governance? How are you managing the key issues for your business, whether it's carbon or water, biodiversity loss, or your supply chain management. The more you can do that transparently, honestly, and authentically, the better it is for all stake- holders: investors, customers, suppliers, and employees.

**What are the challenges that inevitably come with that?**

**Madeline Patterson:** Inherently a fear of backlash. But, we've seen in the communi- cation space companies that communicate upfront honestly and authentically about their challenges and give more detail than maybe they would otherwise, are seeing a positive effect. Customers understand that this can be hard, that a business is striving to meet a goal but just falling short. There could be an improvement in trust if you communicate that in a clear way.

Getting internal buy in and making sure all departments – from legal and inves- tor relations to the C-suite are aligned – is hard when there's a tough conversation to be had. I understand why corporates are hesitant to have that transparent, external storytelling, because there are inherent chal- lenges, but we can point to examples where

**"WHEN INVESTORS ARE LOOKING AT ESG, THEY'RE LOOKING AT ESG RISK. DO YOU HAVE STRONG GOVERNANCE? HOW ARE YOU MANAGING THE KEY ISSUES FOR YOUR BUSINESS, WHETHER IT'S CARBON, WATER, BIODIVERSITY LOSS, OR SUPPLY CHAIN MANAGEMENT?"**



companies acknowledge that they've made mistakes and it builds a lot of equity with their employees. That helps not only reten- tion, but also recruitment. Then that trust with those other stakeholder groups can really grow if you're able to overcome the communications challenges.

**Why do consumers care so much more about ESG goals now?**

**Madeline Patterson:** You'd be hard pressed to find a consumer who hasn't experienced or watched some of the climate crises that

**"CORPORATES ARE HESITANT TO HAVE TRANSPARENT, EXTERNAL STORYTELLING, BUT WE POINT TO EXAMPLES WHERE COMPANIES ACKNOWLEDGE THEY'VE MADE MISTAKES AND IT BUILDS A LOT OF EQUITY WITH EMPLOYEES"**

are happening. Every time there's a natural disaster, we're all reminded of what we're facing. Companies are being held respon- sible for their impact on the planet. Just making a good product or delivering a service doesn't cut it anymore.

So, there's a collective power that consum- ers have where they can decide to use their purchasing power for good, or to at least support businesses that they feel are on the right path. Consumers are acutely aware of a role they can play. Where they shop and who they support can make a difference.



**Good communications starts with building a foundation of trust**

**Why do business need to follow responsible practices and take a prag- matic approach to communicating them?**

**Madeline Patterson:** If you look at busi- nesses that are really prioritizing things such as carbon reduction programs, generally they're outperforming their peers. There are a few reasons for this that are empiri- cally proven at this point. Number one, employees want to work at these businesses, so they're getting and retaining that talent. Two, customers have a more positive senti- ment about that company. And three, inves- tors see lower risks for well managed and communicated businesses, so they're willing to invest more and give access to capital at a lower rate. Because these businesses are future-proofing and thinking ahead they are managing any risks they may face.

**How do you feel the whole landscape of PR comms in ESG will change later this decade?**

**Madeline Patterson:** I'm really encouraged by the trajectory of what I see. When I first

started in this space, about six years ago, we were seeing a lot of storytelling without many key issues, or material topics, really shining through. A client might talk about its pollinator program at the headquarters in its annual report, but it wasn't talking about nature loss in its supply chain. It might pick and choose stories that add value to the employee experience but are not really important.

Now I'm seeing more of a shift to really looking at those material topics and what's really impacting the business and where's the business having an impact. We just need to focus on those programs that are moving the needle against those key issues and topics.

If your business is very energy intensive and carbon is a huge issue, where are you moving the needle? What specific programs are you doing? It doesn't have to be a broad, sweeping global mandate. It can be something one market is doing that's successful. You need to communicate it so other markets know – but also, other businesses and suppliers – can learn from what you're doing well.

There can sometimes be a hesitance in waiting to communicate something until it's fully baked, but we're seeing progress. We don't have time to wait five years to see the numbers. Let's start having that dialogue in a transparent and honest way. Let's start building that trust and talking about it right away, authentically. Those are the two areas that we're moving, and we'll continue to evolve. As communicators we have a role to play in ensuring that we're finding those pragmatic, responsible stories. Sometimes it can feel like searching for a needle in a haystack at a big company before you can share those stories with partners, suppliers, and the media, but there is definitely progress. ■

**FURTHER DETAILS:**  
For more information, please visit [bcw-global.com](http://bcw-global.com)





## AN ALL-FEMALE DREAM TEAM PASSIONATE ABOUT PACKAGING DESIGN

The founders of  
BSB Grafica &  
Comunicazione

Drawing on their shared passion for creating high-quality packaging solutions, three accomplished female designers reveal how their company BSB Grafica & Comunicazione made its mark in a male-dominated sector

In the late 1990s, designers Barbara Baralla, Stefania Santini and Bettina Voss joined forces to set up their own studio in Italy, BSB Grafica & Comunicazione (BSB Graphics & Communication), specializing in brand packaging and communication.

On paper, their collective experience is impressive: Baralla is an applied arts instructor who graduated from the Art Institute of Lucca; Santini a graduate of the High School for the Arts in Lucca and the Academy of Fine Arts in Florence; and Voss graduated from the High School for the Arts in Lucca before completing a course in advertising graphics at the Cappelletto Academy and at the Fine Arts and Restoration Institute in Florence.

But, significantly, they shine as much in practice as on paper, with clients responding to their aspirations, determination and expertise. While setting up and establishing their business, they took on a variety of projects, including the first of many with the Sofidel Group, a partnership that's still going strong. Here, they talk about the challenges they faced and how they found inspiration along the way.



**Tell us about BSB's history. How did the company get established and what gap in the market did you spot at the time?**

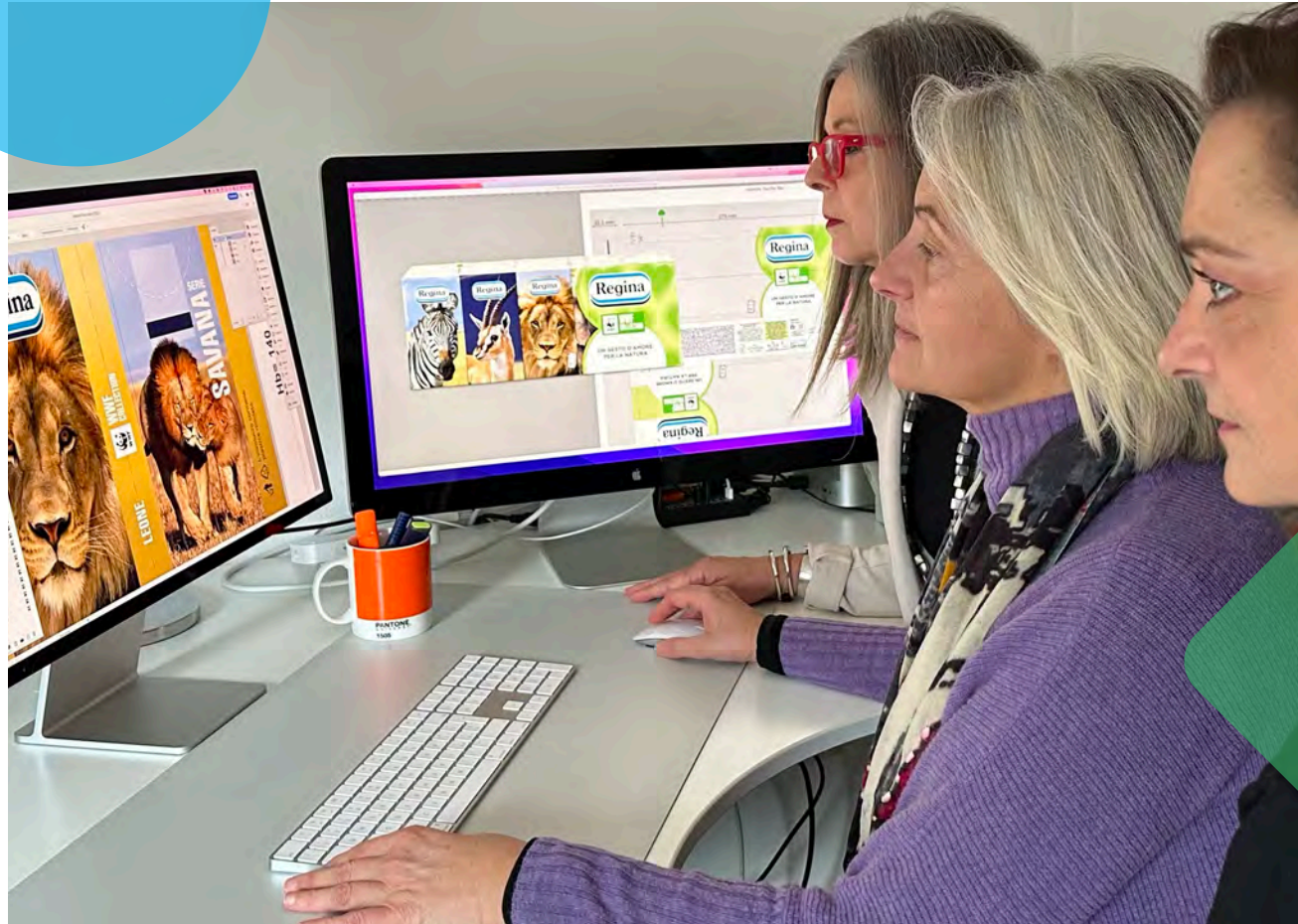
**Barbara Baralla:** We come from similar backgrounds; each of us spent time working in graphic design studios and agencies where we were able to evolve and grow professionally. Our paths crossed while specializing in the study and design of packaging.

In 1997, after spotting a gap in the market, we had the idea of creating BSB Grafica & Comunicazione, our own communications and graphics studio. Drawing on our relevant experience, we continued with our research and growth to further our goal of offering niche packaging solutions, taking our initial steps into the local and international markets. Now, 25 years after its launch, BSB is still going strong, which feels like a real testament to our success.

In those early years, technology was very different from today, and internet connections were still in their infancy. That's why we looked locally for future clients and identified the tissue paper sector as a possible path of professional development. By participating in and winning the tender put out by Sofidel Group for the restyling of the Regina Asciugoni paper towel packaging, we entered the world of Sofidel. Since then, we have collaborated on graphics projects for packaging and on their trade and consumer graphic support needs.

**What makes you a special company? What is your unique selling point?**

**Stefania Santini:** We are three women working together to find solutions to a broad range of daily challenges. This has allowed us to highlight, develop and refine every aspect necessary for a goal of full-circle professional growth. Our greatest strength lies in being a small-sized local enterprise capable of solving customers' problems in real time, providing timely and punctual answers.



**BSB say opportunities for female entrepreneurs have improved in the past 25 years**

**What are some of the challenges you have continued to face as an all-female SME in your sector? How has that defined what you do differently?**

**Bettina Voss:** The first steps we took were a veritable adventure, with no particular support to count on because we were an all-female team. And this is true for the exclusively technical part of creating the company, as well as for incentives of any kind. The beginning was a truly uphill but exciting climb. Despite the fact that we were a new, all-female company, our customers quickly perceived a highly motivated and professional team in a world that, up until then, was dominated by men.

**"DESPITE THE FACT THAT WE WERE A NEW, ALL-FEMALE COMPANY, OUR CUSTOMERS QUICKLY PERCEIVED A HIGHLY MOTIVATED AND PROFESSIONAL TEAM IN A WORLD THAT, UP UNTIL THEN, WAS DOMINATED BY MEN"**

**Stefania Santini:** We were able to make our way with determination, breaking moulds and carving out our own space, trusting in the positive outcome of our work. We feel we have succeeded in this: we have customers that are still with us after 25 years.

**Barbara Baralla:** We took our initial steps during the period of the first Apple PCs and with these, we immersed ourselves in the technological world that was different from colored paper, markers, and cutters. A path of mutual development towards a future that still belongs to us.

We like to think that our all-female vision is expressed in our work as a slightly different perspective towards the projects we undertake. Maybe our all-female stubbornness and pride, too, led us to always do things to the best of our ability, to demonstrate that we can keep pace with all aspects of the creative process, as well as the application of ideas.

**Does sexism and lack of opportunity for female executives still exist in your sector? How much progress has there been? How have attitudes changed for the better?**

**Bettina Voss:** Having to face this hindrance in our working life has made us more stubborn and resilient, incentivizing us to pursue our professional path with drive and determination. The need to demonstrate that we can live up to our role has made us more competitive, developing skills that have allowed us to stay in the market.

**Stefania Santini:** It is important to say that opportunities for female entrepreneurs have improved in the past 25 years. There is more talk of gender equality in the professional world, both on a legislative and social level. Small enterprises such as ours have grown in number and longevity, and the skepticism surrounding female entrepreneurship is less accentuated. However, there is still a long way to go to acknowledge professionalism and leadership based on merit rather than gender, so that they can become universal values in any field. We have demonstrated that we work well as a team, leaving any type of bias aside.

**Tell us about the projects you work on with Sofidel. Why does the relationship work so well?**

**Barbara Baralla:** In 1994 we started our collaboration with the Sofidel Group, who believed in our creativity and in our ideas. We have collaborated and are currently collaborating on important projects for the Regina brand, both for the Italian and European markets. It's impossible to list all of them, starting from the first project for the restyling of Regina Asciugoni 28 years ago, to the newest packaging in paper and recycled plastic of the major Regina line products for an environmental sustainability increasingly attentive to reducing the use of conventional plastic.

**Bettina Voss:** Many projects have also been realized for the Away-from-Home (AFH) and Private Label sectors. In 2020 we were entrusted with Nicky, another important brand for the company, for which we handle the packaging for the Italian and foreign markets. Our collaboration with the Sofidel Group goes back a long way because we have succeeded in supporting the company every day with concrete answers comprised of commitment, attention and creativity, while respecting the schedules requested.

**How does the issue of sustainability and social responsibility permeate these projects?**

**Stefania Santini:** The Sofidel Group has always been attentive to environmental issues. Respect for and protecting the climate, and, consequently, biodiversity, constitute a key challenge for everyone and for our company as well. In order to transmit this commitment to the end consumer, we have been involved in many projects, among which are the Regina WWF Collection handkerchiefs, in collaboration with the WWF in Italy. It was a very stimulating project that succeeded in transmitting the message of peril that our planet – and us, its inhabitants – are currently experiencing, featuring images of animals in danger of extinction as protagonists. ■

**FURTHER DETAILS:**  
For more informant on BSB Grafica & Comunicazione, please visit [bsbgrafica.com](http://bsbgrafica.com)



# HOW CONSCIOUS CONSUMERS ARE PUSHING BRANDS TO TAKE CARE OF FORESTS



Forest preservation is key for human lives, animal habitats and keeping global warming in check, but deforestation is still happening at an alarming rate. Consumers may have more power to safeguard forests than previously thought, **Diego Florian**, director of FSC Italy, tells *Future*

**F**orests, after oceans, are the largest storehouses of carbon and their health is essential in keeping global warming in check. More fundamentally, they are vital for human life, from the air we breathe to the wood we use, and the myriad of products derived from that wood. Forest degradation has been happening at an alarming rate for years, with the World Wildlife Fund (WWF) finding that two-thirds of global forest cover loss is occurring mainly in the tropics and sub-tropics. Between 2004-2017, more than 43 million hectares of forests were lost.

At the same time, consumers are becoming increasingly conscious of the products that they buy, with many only supporting environmentally conscious brands. Globally, 85% of consumers said they've started purchasing more sustainable options in the last five years, according to the *Global Sustainability Study 2021* from consulting firm Simon-Kutcher & Partners. Younger generations are even more likely to have shifted behavior, the study found.

To safeguard human lives and the planet in the future, policymakers, manufacturers and individuals need to take action to ensure that forests are protected, and our scarce resources are used responsibly. Governments have been slow to take appropriate action, and third-party actors and non-governmental organizations are now stepping in to ensure forests are protected. One of these organizations is the Forest Stewardship Council (FSC), which is setting the standard for responsible forestry worldwide. The organization provides certifications that can be found on millions of products and is a trusted mark of sustainable forestry.

It is partnering with organizations, such as tissue paper producer Sofidel, to help them procure products more sustainably and ensure value chains are environmentally friendly. We spoke with Diego Florian, the director of FSC Italy, to learn more about the FSC, its work, challenges it has encountered, and how the industry is changing.



**What are the overall aims of FSC worldwide? What is the organization hoping to achieve?**

**Diego Florian:** The global strategy for 2021-2026, published last year, aims generally to protect resilient forests that sustain life and recognize the value of forests. More specifically, by 2030, the FSC aims to have 300 million hectares covered by FSC certification; 50 of those hectares should be in the tropical areas and within smallholder ownership.

To do this, there are three main strategies that will be implemented: transforming the market of forest products and pushing for more FSC products in that market; catalyzing the change to move from business as usual to more responsible forestry for companies as they shift to more responsible procurement and production; creating solutions and tools to be deployed by FSC that can be offered to members. The dialogue between dedicated full-time staff and members has to be the base for frameworks developed for taking decisions and implementing solutions.

**How does FSC Italy take those overall values and implement them across the board?**

**Diego Florian:** We are one of the key countries in terms of market transformation, thanks to the high number of processing companies within the different value chains in Italy. We have many chain of custody certificate holders here, meaning companies that are between the forest and the finished product.

We're second in the world in terms of this, and first in Europe for belonging to the most diverse value chains from traditional wood, wood processing, and timber production to furniture production, to all the kinds of paper products, from tissue paper for hygienic, domestic and away-from-home use, to copy paper to printing to press, and we also work in packaging. We are asked to react very quickly, very professionally to a very demanding market.



**"BY 2030, THE FSC AIMS TO HAVE 300 MILLION HECTARES COVERED BY FSC CERTIFICATION; 50 OF THOSE HECTARES SHOULD BE IN THE TROPICAL AREAS AND WITHIN SMALLHOLDER OWNERSHIP"**

FSC Italy is a key country in terms of market transformation

But there are other areas we can contribute, like ecosystem services conservation within the certified forest, and therefore maintain and conserve natural services we get from those areas such as clean water, CO2 stocks and biodiversity.

**What are some of the primary challenges that your organization faces?**

**Diego Florian:** It's about alignment on standards and alignment on FSC requirements, rather than specifically on the implementation side, but it's more in supporting the objectives of operators. In facts, forests and related markets are constantly changing; the challenge is to keep up with new regulations, constraints and scenarios.

The biggest challenge for us is to be able to adapt our services and our activities to a diversified market. Developing effective initiatives for promoting the knowledge of FSC and FSC products is something that only a few operators do. Only a few companies will combine product certified production with product promotion. Our role is to sustain and support the market development, the consumers' commitment and awareness with specific messages, campaigns, or projects.

**Can you tell us why the topic of a forestry certification is such a vital one right now, and how ultimately certification is helping towards forest management and natural services conservation?**

**Diego Florian:** Forests are inextricably linked to the major issues of our present: climate change, sustainable production and consumption, creation of resilient communities.

So, the primary goal for FSC is to ensure to consumers, stakeholders, and policymakers that a specific kind of forest management system is going to safeguard the forest and ensure that its management is sustainable within environmental, economic, and social frameworks.

To do so, you need to use frameworks that are well recognized and trusted

**"SOFIDEL HAS ASKED FSC ITALY TO HELP THEM COMMUNICATE BETTER THEIR CHOICES AND DEVELOP CONSUMER CONTENT, AND WE'RE HAPPY TO DO THIS. IT'S OUR MANDATE. WE HOPE IT WILL CONTINUE ALSO IN THE FUTURE"**

globally. FSC certification sets rules that are rigorous but can be communicated simply to stakeholders. Citizens and consumers are now more heavily relying on commitments from companies and the use of third-party verification, rather than relying on governments, to ensure that products are delivered sustainably.

**On partnerships, why do the collaborations with Sofidel and the WWF in Italy work?**

**Diego Florian:** Sofidel is now an international member of FSC and national member of FSC Italy. Through the partnership between Sofidel and WWF, Sofidel decided to commit more to sustainable procurement, and to commit more to selecting the supply coming primarily from FSC-certified sources. Sofidel has asked FSC Italy to help them communicate better their choices and develop consumer content, and we're happy to do this. It's our mandate. We hope it will continue also in the future.

**What does the future of forestry certification look like?**

**Diego Florian:** The pandemic has been dramatic leverage for the demand of FSC-certified products, especially in the packaging sector. The demand for sustainable products, whether finished products or intermediate products, is growing. And I believe that this will reflect in a robust growth in terms of forest certification, or there will be also a growth in terms of FSC

certification where FSC is talking more and more about the circular economy.

There are external factors to consider as well, including the high rates of deforestation recorded in the world and, lately, the conflict in Eastern Europe that is limiting the possibility for FSC to remain a reference in Russia. And so, this will affect the growth of the certified areas.

Policies within the European Green Deal framework are moving in the same direction as the FSC because the European Union is requiring more and more impact-free or deforestation-free forest products. So, the European Union is raising the bar and we are following these processes very closely.

**What obstacles do you believe still remain?**

**Diego Florian:** There are challenges outside of the system that we will try to cope with and still be on the front line, no matter. It's not only consumers who are realizing the value with this kind of certification. Retailers and brands are also recognizing the value.

We have a growing number of companies – not only certified companies, but general operational companies – that want to invest in forestry as a tool to be more committed to preserving life on earth and to preventing the death of our forests. In this, certification may not be enough; instead, we need policies that favor this type of investments, or reward companies and individuals who want to engage in this type of path.

Finally, it is increasingly necessary to rely on tools that allow to distinguish those that are virtuous practices, verifiable and quantifiable in their impacts, from superficial and empty ones that lead to greenwashing. ■

**FURTHER DETAILS:**  
For more information on FSC International, please visit <https://fsc.org/en>





# BUG IN THE SYSTEM: why insects are crucial to our planet

Insects and invertebrates, says **Paul Hetherington** of Buglife, are “incredibly important, but so overlooked” in wider conservation work despite being, along with plants, the “building blocks upon which most of our lives depend”. His organization is trying to change that view



Paul Hetherington,  
director of fundraising  
and communications  
at UK-based nature  
conservation charity  
Buglife

Insects and invertebrates are far from pointless pests to be squished or poisoned says Paul Hetherington, director of fundraising and communications at UK-based nature conservation charity Buglife. Instead, despite being “so overlooked” and misunderstood in broader environmental circles, bugs are actually “incredibly important” to all life on Earth.

Hetherington likens the role of invertebrates to an unheralded division within a company that everyone relies on, but otherwise forgets is doing crucial work behind the scenes, so it remains out of the spotlight. “It’s like in a big business, where you have the finance team or administration teams.

Most people might think, ‘What on earth do they do?’ They might not be making sales, or a product, but if you suddenly got rid of them all, everything will start to fall apart.”

And the planet really would fall apart without invertebrates. It’s a good thing then that Buglife care so passionately about preventing the extinction of invertebrate species – a very real threat globally. Buglife is the only organization outside the US that supports all invertebrates. “Our overarching goal is no more invertebrate extinctions – basically a world where people and invertebrates can live in harmony,” says Hetherington.

## LOBBYING, CAMPAIGNING AND PRACTICAL CONSERVATION

While Buglife operates in all four of the home nations of the UK it has also done plenty of overseas work mainly in overseas territories such as like South Georgia, Saint Helena, Sri Lanka and Tanzania, as well as campaigning within the European Union, where it sits on the EU’s Habitats Forum. As well as lobbying work, it focuses on practical conservation work – captive breeding and creating the right habitats for some rare species, such as wildflower-rich areas for pollinators and peat bog restoration.

Buglife has had several wins on behalf of bugs. It is estimated that 1.5 billion aquatic invertebrates have been saved every



CREDIT: LEANNA DIXON



year following Buglife’s campaign to ban sheep dipping with synthetic pyrethroids (Cypermethrin). In 2010, Cypermethrin was permanently withdrawn from sale in the UK. “We found out that one drop gets into a stream and wipes out all invertebrate life for 10 kilometers downstream,” says Hetherington.

More recently, Buglife took up the baton on neonicotinoid insecticides – neonicotinoids are the most widely used insecticides globally. “We started the campaign by conducting synthesis reports and finding out about the damage, then got other larger partners on board such as Friends of the Earth. It led to a European ban on the use on virtually all crops for virtually all types of neonicotinoid insecticides.”

A more recent “battle” for Buglife is the fight to save Swanscombe Marshes, which is “probably the best site for invertebrates in the whole of the UK,” says Hetherington. “There’s almost 250 red-list type species on that site. There are plans to turn it into a theme park. We’ve put forward an alternative vision for it to become a giant nature reserve. We’ve managed to get it declared a site of Special Scientific Interest – but the battle continues.”

Buglife also jointly manages the Canvey Wick nature reserve, a 93-hectare Site of Special Scientific Interest on Canvey

Island in Essex, with the RSPB. “It’s a brownfield site [previously developed land not currently in use] very rich in invertebrate biodiversity. We’re probably unique amongst conservationists in that we’re very interested in brownfield sites because they have an ‘open mosaic’ format of habitats. Having lots of different little habitats spread over the whole place creates a perfect place for different bugs, but also for amphibians and reptiles,” says Hetherington.

CONNECTING THE BUGS

Buglife is also involved in the UK’s National Pollinator strategies. “We’ve mapped the B-lines network [a series of ‘insect pathways’ running through our countryside and towns – the ‘B’ stands for ‘Biodiversity’]. They are a sort of insect superhighways where you need to put connectivity back into the country. The highways are essentially steppingstones roughly half a kilometer apart because that’s about the maximum flight distance of some of our species,” says Hetherington. And with good reason – since the late 1930s, England and Wales has lost 97% of its flower-rich meadowlands – an area of land 1.5 times the size of Wales itself.

The abundant use of chemicals in farming since the 1960s – not just pesticides but herbicides too – have had a “massive impact” on England’s green and pleasant land, says Hetherington. “Herbicides have wiped out all of the native wildflowers that would normally have grown.”

The next significant problem for bugs – and the rest of us – is climate change. “Take for example bumblebees: they do not like hot climates. In the Mediterranean, there are only two species of bumblebees, but in the UK, we have 25 – they prefer that sort of temperate climate. As things warm up, they naturally want to progress northwards. If you look at the distribution of bumblebee species in the UK, the vast majority are now found in Scotland’s cooler temperatures, but there are a number of them that have got ‘trapped’ down in the south – the connectivity is gone. They can’t get

**"THE B-LINES NETWORK IS AN INSECT SUPERHIGHWAY WHERE YOU PUT CONNECTIVITY BACK INTO THE COUNTRY – ESSENTIALLY STEPPINGSTONES ROUGHLY HALF A KILOMETER APART BECAUSE THAT'S ABOUT THE MAXIMUM FLIGHT DISTANCE OF SOME OF OUR SPECIES"**



away from climate change.”

Climate change also affects river flies. In the last five years, locations in England where the species are primarily found have moved approximately one mile upstream due to micro-changes in the water temperature. “Within 20 years if something doesn’t happen with climate change, there’s an awful lot of river flies that you will only find in the higher mountainous parts of the UK. Other areas will no longer be able to support them. These flies are the building blocks of so much else. So many fish and birds depend on river flies, just as we depend on pollinators. All of these things are acting together,” says Hetherington.

Plants are also starting to flower before the bugs are ready to pollinate them, “which means very soon, they’re going to no longer be pollinated at all. So, we’re also putting some flower species at risk,” says Hetherington. “Multiple things that are impacting.”

THE LONG-TERM CONSEQUENCES

So, what happens if we lose sight of the importance that all invertebrates have to the planet?

“Eight out of 10 of our wildflowers would cease to be in existence if we just lost pollinators. They would no longer set seed and would disappear. One in every three mouthfuls that we eat is dependent on pollinators. Virtually every fruit, peas, beans, cucumbers, marrows, tomatoes... All we would be left with is a diet based on grasses: wheats, rice and potatoes. We either lose all of that, or we’d have to pay people to hand-pollinate. For what we produce in the UK alone, that would cost – at minimum wage – at least £2 billion a year. Imagine putting that on our grocery bills? People are already worried about inflation and the cost of living. If we lose our pollinators it would put things through the roof and most of the foods we really enjoy would become available to the

privileged only, or maybe on special occasions for the rest of us. That’s how dire the situation will be,” says Hetherington.

Then there’s a huge number of other functions that bugs carry out such as the improvement of soil performed by earthworms, wood lice and even slugs. Invertebrates also have a role in keeping our fresh waterways clean. Crane flies are a big source of food for birds, fish, and small mammals. We would have no chocolate without midges because the cocoa plant is exclusively pollinated by them.

“Everything has its place, and we rely on it. We just don’t realize we do,” says Hetherington. “Imagine what the world would be like if nothing had eaten any of the animal poo? Dung beetles and flies are basically responsible for getting rid of stuff like that. Blowflies dispose of carrion and dead bodies. It will be a pretty horrible place if these things aren’t broken down and turned back into nutrients, which then enables us to grow other things.”

HOW CAN WE HELP?

There is, says Hetherington, an urgent need for more large-scale research on insects to reverse the huge decline in bugs globally. The comprehensive studies we do have reveal alarming results. “Studies came back from Germany a couple of years ago saying

it was experiencing a 70% drop-off in insect numbers.”

In the UK, Buglife has got involved in Bugs Matter, a citizen science survey. It works by volunteers counting the number of squashed bugs on their car number plates for three months of the year, every time they make a journey. Using baseline figures first collated in 2004, Buglife’s survey in 2021 found there was a 59% drop in the abundance of flying insects. In 2022, those figures are showing a 64% drop. “Climatic conditions can affect year-in year-out results, but we are looking at somewhere in the region of a 60% decline in under 20 years. Things are looking pretty grim,” says Hetherington.

To combat this, as well as protecting and creating more brownfield sites and B-line networks, Buglife is advocating more scientific studies on the life cycles of insects, how they reproduce and breed, says Hetherington. “We know more about what’s happening on other planets in our solar system. It’s incredible how little research has gone into many of these species.”

On the positive side, though “the great thing is that we can all do something for bugs in small places that will help,” he says, including building more window boxes – a container for live flowers or plants that sits on the sill of a window – for bugs to incorporate into their insect superhighways and being mindful of the effect of our own ambient light pollution has on insects by only using outside lights when necessary.

“The reality though, is that to make a real lasting difference it’s going to need larger-scale global action,” says Hetherington. “It’s only by arresting everything globally that we’re really going to get stable insect populations. We need to convert people into realizing bugs are not our enemy. They’re our friends and we’re dependent upon them.” ■

We can all do something for bugs in small places that will help, says Buglife



**FURTHER DETAILS:**  
For more information, visit [buglife.org.uk](http://buglife.org.uk)





Bernardo Bastien-Olvera is a climate economist and Ph.D. student at the University of California

# WHY IT'S TIME TO READDRESS THE SOCIAL COST OF CARBON

New analysis suggests that the economic impact of a changing climate might be 10 times more significant than typical models assume. Climate economist and Ph.D. student at the University of California **Bernardo Bastien-Olvera** tells *Future* that climate justice's links to social injustice can no longer be ignored

**T**ypical analyses could be seriously underestimating the economic consequences of climate change. Researchers Bernardo Bastien-Olvera, Francesco Granella, and Frances Moore from the US and Italy set out to re-examine one of the fundamental assumptions economic models make when it comes to calculating the impact of carbon dioxide emissions: that annual temperature variations have no long-lasting impact on economic growth. Their study, published in *Environmental Research Letters* in August 2022, shows evidence that temperature changes had a persistent impact on GDP in 22% of the world's countries over 10-15 years. The social cost of carbon could therefore be 10 times higher than economists previously assumed.

## THE ECONOMICS OF CLIMATE CHANGE

Whether shifts in temperature have long-lasting impacts on economic growth is an unresolved question, and is often unacknowledged by financial models. Yet in order to set climate targets and make predictions about our economies as global temperatures rise, it is essential to know whether the impact of changes in temperature compound over time. It will inform how we calculate the social cost of carbon, a fundamental metric which aims to account for the total present and future damage to human wellbeing caused by carbon dioxide being released into the atmosphere and is used by governments for setting figures like carbon taxes.

Typical economic analyses rely on integrated assessment models, which are based on a set of economic assumptions, including that temperature changes have no persistent effect on GDP growth.

"This is one of those questions in which the scientific community has confused an absence of evidence [with] evidence of

**"MY STUDIES ARE TRYING TO GET THE FOOTPRINT OF CLIMATE CHANGE AND HOW IT AFFECTS WHAT WE CALL 'HUMAN WELLBEING'. THE OTHER ANGLE I LOOK AT IS: HOW CAN WE MODEL INTO THE FUTURE [HOW] DIFFERENT ECONOMIES ADAPT TO CLIMATE SHOCKS"**

absence," explains Bastien-Olvera, who led the study. Analysts typically assume that economies experience the consequences of climate change year-to-year but recover from each temperature change to start again 'from zero'. "This is a key assumption that not many modelers challenge."

Enter Bastien-Olvera and his team, looking to find evidence to challenge the way we calculate the social cost of carbon. First inspired by the infamous summer thunderstorms of Mexico City, Bastien-Olvera pursued an undergraduate course in Earth Sciences, with a focus on atmospheric sciences, before committing to the science of climate change.

"Another big passion for me is climate justice and how it's related to social injustice," he says. "There's a point where I could not ignore that anymore."

"In general, my studies are trying to get the footprint of climate change and how it affects what we call 'human wellbeing'. The other angle I look at is: how can we model into the future [how] different economies adapt to climate shocks?"

It is widely acknowledged that changes

in temperature affect human welfare in a broad set of ways, including impacting health, emotion, mood, and economic productivity.

A temperature event like a heatwave might have an immediate effect on productivity. "They can damage temporary assets like crops," says Bastien-Olvera. The question is whether the effects of annual temperature changes, or climate 'shocks', on GDP are likely to persist over at least a 10-year time frame and permanently change a country's economic trajectory.

"More intense, extreme weather events [...] can also damage capital assets, the things that we use as a productive base in our society, such as infrastructure, that will affect the future productivity of the country," explains Bastien-Olvera. "It can also damage natural capital. Wildfires in recent years have persistent effects that go beyond the year of the wildfire."

## UNTANGLING THE TRENDS

"I realized this was not a question for pure science anymore," says Bastien-Olvera. "I started to focus on how to incorporate social sciences and the disciplines I use in my research, which are geography and economics."

The team used novel research methodology to isolate persistent temperature effects from temporary ones. Previous research into the effects of temperature changes has been inconsistent, usually relying on classical economic techniques. Through advanced filtering, Bastien-Olvera's team ruled out minor changes to expose broader, slower climate trends and patterns, known as 'lower frequency temperature variation'.

"The way I see it, it's like an orchestra," says Bastien-Olvera. "Our daily and yearly weather, temperature and precipitation are the notes that get to our ears, but if we were able to disentangle the different instruments, the Earth systems and climate



10X

THE SOCIAL COST OF CARBON  
COULD BE 10 TIMES HIGHER  
THAN ECONOMISTS  
PREVIOUSLY ASSUMED

+0.1°C

A 0.1°C TEMPERATURE INCREASE  
IN AUSTRALIA WOULD LEAD TO  
A GDP REDUCTION OF 1%

22%

TEMPERATURE CHANGES HAD A  
PERSISTENT IMPACT ON GDP IN  
22% OF THE WORLD'S COUNTRIES  
OVER 10-15 YEARS

CO<sub>2</sub>

EMISSIONS COULD BE FAR MORE  
DAMAGING TO THE GROWTH  
OF GLOBAL ECONOMIES



systems, we would be able to see how these different rhythms affect our human system.

“The Earth has different cycles, not only year-to-year, like the seasons, but also cycles like El Niño-Southern Oscillation and Pacific decadal oscillation (PDO). Those different cycles affect different economic sectors differently.”

Using three data sets, Bastien-Olvera, Granella and Moore compared temperature shifts with World Bank data on the GDPs of more than 200 countries over six decades. GDP was selected as it is one of the components of human wellbeing, but it is an imperfect metric, says Bastien-Olvera: “We could see an increase in GDP in certain countries and there could be a decrease in human health, for example, which is not necessarily reflected in GDP.”

THE EVIDENCE

The team found evidence that temperature shifts are correlated with persistent positive or negative economic changes, which suggests that temperature has an impact on economic growth over time and not just economic productivity. Long-term temperature change was usually no more than 0.1°C, but correlated with a change in GDP growth rate in 22% of the countries studied.

The effects varied between countries, but countries that showed persistent negative impacts from temperature increases included Australia, Belgium, Costa Rica, Mongolia, Papua New Guinea, Paraguay, Peru, South Africa, Sri Lanka, Uganda, and Uruguay. For example, a 0.1°C increase in temperature over 10 years in Australia might result in a 1% decrease in GDP growth. Bastien-Olvera notes that these values can’t necessarily be extrapolated: we should not assume that a 1°C temperature increase in Australia would lead to a GDP reduction of 10%.

“We showed that the assumption that

**"ECONOMIES HAVE THIS 'MEMORY'. THEY RETAIN IN THEIR DYNAMICS THE CLIMATE SHOCKS THEY HAVE EXPERIENCED IN THE PAST... NOW THERE IS EVIDENCE THAT THESE IMPACTS COULD BE PERSISTENT. THE IMPLICATIONS OF THIS EVIDENCE MAY BRING US CLOSER TO THE ECONOMIC REALITY OF CLIMATE CHANGE"**

[there were no persistent effects on the economy caused by temperature variations] doesn’t stand up to the evidence. We can say it is not likely that the effects are only temporary,” says Bastien-Olvera.

The study adds that there is no clear link between persistent negative temperature impacts and country characteristics such as income or average temperature. “We didn’t see a clear relationship between persistent and negative impacts to warmer or poorer countries,” Bastien-Olvera explains. “Literature says that [a slight relationship] could be because lower-income economies are more reliant on agriculture. They really depend on the climate. It is likely to see that in contemporary shocks, but it doesn’t really determine whether a country experiences persistency in their impacts.”

GLOBAL IMPLICATIONS

Bastien-Olvera and his team suggest we might need to raise our estimations of the social cost of carbon. The cumulative effects of carbon dioxide emissions could be far more damaging to the growth of global economies than governments realize.

“What we were overlooking was that economies have this ‘memory,’” says Bastien-Olvera. “They retain in their dynamics the climate shocks they have experienced in the past.

“What we had before were calculations that just accounted for year-to-year increases in temperature and how that affected year-to-year economic growth. Now there is evidence that these impacts could be persistent.”

The implications of this evidence may bring us closer to the economic reality of climate change. “Once you implement that behavior into the system that calculates the social cost of carbon, the social cost of carbon could increase by ten times,” explains Bastien-Olvera.

Where do we go from here? Further study can examine the mechanisms linking temperature variation to long-term effects on GDP growth. Better understanding of the implications of a warming climate can help drive the changes needed to mitigate it. “I have seen a lot of grassroots movements raising their voices and their actions against extractive industries that are threatening their local environments,” says Bastien-Olvera. “I am definitely hopeful.” ■

FURTHER DETAILS:

Bastien-Olvera, Granella and Moore’s study, *Persistent effect of temperature on GDP identified from lower frequency temperature variability*: [tinyurl.com/nhjz4ret](https://tinyurl.com/nhjz4ret)



# PAYING FOREST COMMUNITIES FOR THEIR ECOSYSTEM SERVICES



Mike Korchinsky believes community-led REDD+ is a force for good



**Mike Korchinsky** founded Wildlife Works 25 years ago, with the aim of applying innovative market solutions to conservation projects all over the world. He talks to *Future* about how carbon markets are enabling local communities in the Global South to earn revenue from the global carbon credit marketplace for protecting their biodiversity and threatened forests



**W**ildlife Works' first conservation project was establishing Rukinga Wildlife Sanctuary in 1997 in the Kasigau wildlife corridor in South East Kenya, an 80,000 acre protection area that includes an eco-factory producing sustainable casual clothing. In 2005, Wildlife Works applied its market-based conservation model to fit the REDD+ model and created the Wildlife Works Kasigau Corridor REDD+ Project, which now covers 500,000 acres. It became the world's first Verified Carbon Standard (VCS) REDD+ 'mega project' and will result in the avoidance of more than 1.5 million tonnes of CO<sub>2</sub>-e (equivalent) emissions per year for the next 30 years.

Now Wildlife Works is the world's leading REDD+ (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) program development and management company, working with the REDD+ framework to reduce emissions from deforestation, increase sustainable management of forests and enhance forest carbon stocks in developing countries.

Mike Korchinsky believes that community-led REDD+ is a force for good, as well as providing an incentive for others to be a force for good. Here, he discusses the challenges and opportunities offered by a market solution to community-based conservation.

**How did you become involved in community-based conservation?**

**Mike Korchinsky:** When we started, we wanted to introduce a new model for wildlife conservation that was market-



based and focused on the needs of communities that share their environment with wildlife.

We tried many ways to connect market finance to conservation – not particularly successfully, I admit. But in the mid-2000s, along came REDD+, which we feel is a uniquely well-designed mechanism for the markets to engage in both climate mitigation and conservation through the preservation of forests.

We were well aligned with the idea of REDD+ from the beginning. We'd always planned that we were a business that would try and find a way to create sustainable solutions for wildlife conservation, working with local communities. We took that idea into the carbon market in Kasigau, and we were able to get that project through the international certification process as the first of its kind in the world.

Our goal is to introduce this model as a complement to traditional conservation. We're not seeking to displace traditional conservation – it has a very important role to play, but we think it has its limits. We're trying to provide an alternative in areas where the challenge is primarily an economic one of how do we invest in communities so they can preserve their wilderness and wildlife and see it as an asset.

**What appealed to you about REDD+ in particular?**

**Mike Korchinsky:** REDD+ is about rewarding people for doing the right thing. The value of a project under the REDD+ mechanism is based on really two elements: what kind of threat is the forest under, and how much carbon is in the forest?

The larger the forest, and the greater the threat, the higher the potential carbon value and the higher the cost to mitigate that threat. So, REDD+ is aligned with the real-world incentive that is needed in order to encourage people to invest in a different future.

**"OUR GOAL IS TO INTRODUCE THIS MODEL AS A COMPLEMENT TO TRADITIONAL CONSERVATION... WHICH HAS A VERY IMPORTANT ROLE TO PLAY, BUT WE THINK IT HAS ITS LIMITS"**

**Which projects have really defined Wildlife Works over the past 25 years?**

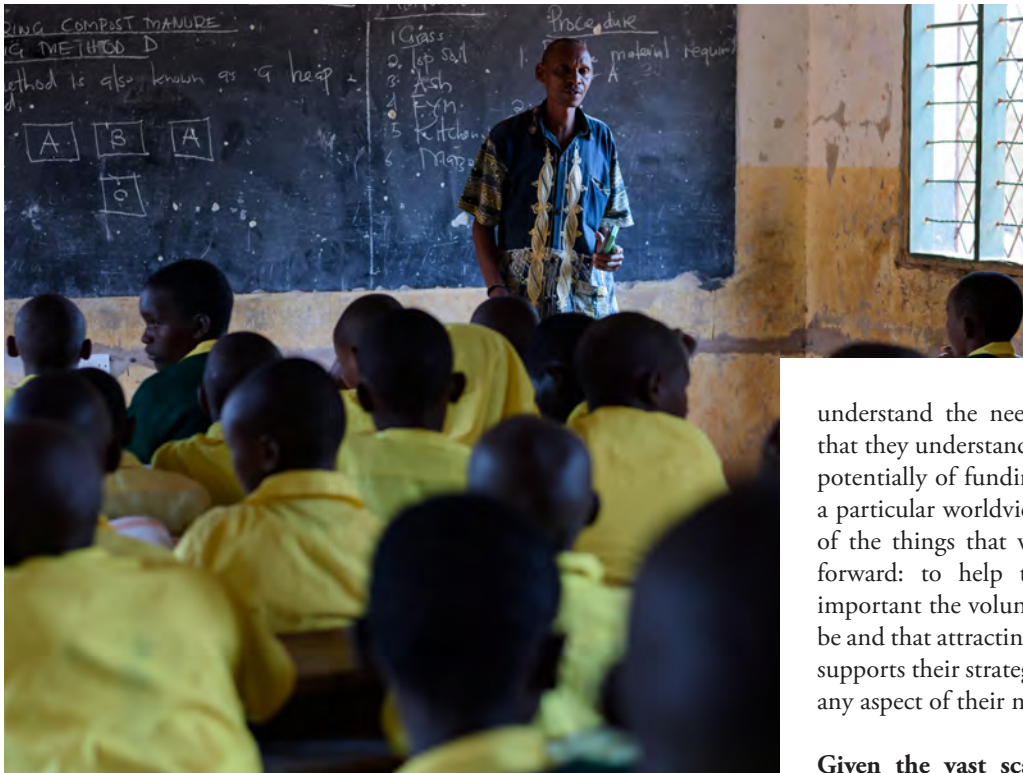
**Mike Korchinsky:** We always start with Kasigau and Kenya, because it was our first project. It set the tone for how we engage with local communities. It's also our best example of a mature project because the carbon funding has been running for nearly 15 years.

But then the most important strategically for us is our project in the Democratic Republic of the Congo (DRC). The Congo Basin Forest is the second largest tropical forest on Earth, behind the Amazon. But the DRC, 12 years ago, was perceived as a place that was difficult to work in because of the obvious challenges in a country that has very little infrastructure and has been neglected because of civil strife. It needed a solution like REDD+. The government has embraced REDD+ as part of its national development agenda, so this is the project we're probably most proud of.

**Where else has Wildlife Works been making an impact?**

**Mike Korchinsky:** The one place in which we have the most projects is Colombia, in South America. Colombia is another country that is very dangerous to work in because of the remaining rebel or guerrilla groups. But we work there with indigenous people who have been neglected by the global marketplace.

Then there's Cambodia, which is probably the country in which the national government has the biggest stake in REDD+.



**"I'M NOT SUGGESTING REDD+ IS THE ANSWER TO ALL THE WORLD'S WOES – BUT WE'VE SEEN HOW POWERFUL IT HAS BEEN TO CONNECT MARKET FORCES AND FINANCE TO THESE COMMUNITIES"**

understand the needs of the market, and that they understand there are other sources potentially of funding that will not impose a particular worldview on them. That's one of the things that we see as a need going forward: to help them understand how important the voluntary carbon market can be and that attracting corporate interest that supports their strategy, rather than dictating any aspect of their national policy.

**Given the vast scale and scope of the climate crisis, what makes you feel optimistic about the challenges we face?**

**Mike Korchinsky:** I'm an engineer by training and perhaps because of my logical worldview, I feel we have an obligation to invest in the Global South in ways they want us to invest, that will benefit all of us in the long run.

I'm not suggesting REDD+ is the answer to all the world's woes or all the deforestation – but we've seen it work. As an engineer, you have a hypothesis, and you test it, and if it works, you start to believe it. And we've seen it work and we've seen how powerful it has been to connect market forces and finance to these communities. We've lived through that as a company, so we know how powerful it is. And so that's what makes me optimistic. ■



The REDD+ framework was created by the UNFCCC Conference of the Parties (COP): <https://redd.unfccc.int/>

It has direct engagement with probably the highest proportion of the national forest estate under REDD+ funding now than any other country in the world.

Each country has its unique aspects, whether it's Amazonian biodiversity or elephants in India, or orangutans in Indonesia. For us, there's always a high conservation value in the places we choose to work within those countries.

**What additional action would you like to see from national governments to support Wildlife Works' initiatives?**

**Mike Korchinsky:** Many of these governments in the Global South have been willing participants in the aid model so they've got into a habit of allowing other governments to dictate their agenda based on funding. And what we're seeing now is a real desire to control their own future, through their own decisions, and only take the donor funding where it's in line with what they've already decided to do.

In the countries we have worked with, we are very happy to share with other governments to try and make sure they

**FURTHER DETAILS:**  
For more information on Wildlife Works, please visit [wildlifeworks.com](http://wildlifeworks.com)

PICTURES: DAREN CENTOFANTI; FILIP C AGOO, EVERLAND MARKETING; LISA KRISTINE; GEOFF LIVINGSTON



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Digital edition:  
[sustainable-procurement.sofidel.com/  
future-magazine](https://sustainable-procurement.sofidel.com/future-magazine)

Produced for Sofidel by:  
Progressive Content, part of GlobalData Plc  
[info@progressivecontent.com](mailto:info@progressivecontent.com)  
[progressivecontent.com](https://progressivecontent.com)

Printed by:  
IdeaPrint – Lucca, Italy



# FUTURE

BUILDING A BETTER WORLD TOGETHER

ISSUE 3 / SPRING 2023