ecoinvent

year-in-review
2023

Table 3

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Dear reader,

It has already been twenty years that you have had access to the ecoinvent database—twenty years that have seen massive changes that have taken the organization from a joint national research project between several Swiss research institutes to an internationally renowned association employing more than sixty people in the vibrant environment of Technopark in Zürich.

The journey has taken us from producing data mainly designed for researchers to providing a data pool that fulfills the needs of all kinds of sustainability objectives, including legal requirements. We've evolved from about 2,500 datasets covering Swiss supply chains to more than 23,000 datasets covering global supply chains.

Yet, at the same time, our core values remain unchanged: the high granularity of the data (i.e., the unit process thinking) and the related high transparency, the universal accessibility via a well-defined data format (i.e., the ecoSpold format), and the deep rootedness of ecoinvent in the Swiss federal research environment.

Outside of ecoinvent, the world has also transformed tremendously during these past 20 years. One of the global shifts that is most relevant to ecoinvent is the ever-increasing importance of environmental sustainability for governments and industries worldwide. These actors need robust data and insights in the pursuit of sustainability—data that ecoinvent is proud of and will continue to care for.

Throughout the past two decades, the ecoinvent association had the chance to grow, allowing us to steadily invest in a better, broader product and a more diverse team to further improve and adapt the core offering of ecoinvent: its database. We have a great team that is highly motivated and wants to continue to support our loyal, trustworthy, and continuously growing user community.

We are incredibly grateful to all who have contributed to ecoinvent's success over the past two decades. Whether you're a customer, a team member, or a supporter in any capacity, your role has been instrumental. The world's need for this information has never been greater, and we're committed to continuing on this path with your support.

**Sincerely,
Roland Hischier**
President of the Board

Letter from the Management

Dear ecoinvent community,

As we reflect on the past year's journey, we are grateful for the opportunities, challenges, and achievements that have shaped our path at ecoinvent. It has been a year of evolution, growth, and unwavering commitment to our mission of sustainability and environmental stewardship.

It has been a privilege to lead the remarkable team at ecoinvent. The ecoinvent Board's expansion of our management team marked a pivotal moment in our journey, signaling our collective determination to scale our impact and deliver on our promise to provide the most transparent and globally relevant environmental database in the world.

In today's rapidly evolving global economy, the demand for high-quality data has never been more critical for informed decision-making and strategic planning. As we reflect on the past year, it is evident that accurate, reliable, and comprehensive data is paramount for organizations striving to meet sustainability goals and regulatory requirements. High-quality data drives innovation and efficiency and enhances transparency and accountability in reporting environmental impacts.

Our 2023 initiatives included expanding our datasets and improving data accessibility, ensuring our stakeholders are equipped with the best tools to make impactful, data-driven decisions. We were thrilled to announce the release of version 3.10 of the ecoinvent database, which brings a wealth of new and updated data across various sectors. We also launched the new ecoQuery, featuring enhancements to our database portal designed to empower our users.

We also expanded as an organization. Our team has grown to over 60 dedicated and talented professionals whose expertise and commitment have propelled us forward. Together, we have embraced the challenge of building and refining our organization while simultaneously advancing our mission.

As we look to the future, we remain steadfast in our commitment to our core values and customers. Our mission remains at the forefront of everything we do, and we are dedicated to continuing our investments in our database and innovative data delivery solutions. We are grateful for the support of our stakeholders, partners, and customers as we strive for a more sustainable future.

Thank you for your continued trust and support.

Warm regards,
The Management Team

Nickolas Meyer
Chief Executive Officer

Emilia Moreno Ruiz
Chief Technical Officer

Noemi Haag
Chief Marketing Officer

20 Years of the ecoinvent Database

2023 marked a significant milestone for us: The 20th anniversary of our database. Over these two decades, ecoinvent has established itself as the world's most comprehensive and transparent life cycle database, revolutionizing how we understand and assess environmental impact.

1990

1990s
Beginnings at ETH Zürich

ecoinvent emerged as a response to the growing need for reliable Life Cycle Inventory (LCI) data in environmental assessments. Initially a project within the ETH domain, ecoinvent evolved over 25 years into the ecoinvent Association, a globally recognized authority in environmental data management.

1996
The BUWAL250 Data Pool

The genesis of ecoinvent lay in disparate efforts across Switzerland to compile LCI datasets, leading to the realization of a common, transparent database. The BUWAL250 data pool and the collaboration between ETH Zürich and Paul Scherrer Institute marked crucial milestones in this journey, laying the groundwork for what would become ecoinvent.

2003
Version 1.0 of the Database

The release of ecoinvent version 1 in 2003 marked a significant milestone, followed by subsequent updates and the launch of version 2 in 2007. With version 3 in 2013, ecoinvent expanded its scope to better support global applications, reflecting its growing relevance beyond Europe.

↘ watch our interview with Roland Hischier, President of the Board

2023
Version 3.10 of the Database

With a mission to foster the availability of reliable data and support sustainable decision-making, ecoinvent continues to evolve. Version 3.10 is released — the largest update in our history.

2000
The launch of ecoinvent

As the demand for high-quality LCI data increased, so did the need for consistency and maintenance, culminating in the establishment of the ecoinvent project. This initiative aimed to create a standardized, user-friendly database with a focus on supporting Swiss LCA work while also catering to European and global contexts.

2013
The Association is Formed

In 2013, recognizing its global impact and commercial activities, ecoinvent transitioned into an independent association. Comprising five leading Swiss research institutions, ecoinvent remains committed to providing high-quality, transparent data for environmental assessments worldwide. Version 3.0 is released.

2024

20 Years of the ecoinvent Database

2023 Highlights

As we turn the pages of our journey in 2023, we are proud of the achievements, collaborative endeavors, and advancements that have underscored our commitment to empowering data-driven decisions for a sustainable future. Here are some of the highlights from the past year.

RARA!

In 2023, ecoinvent underwent a transformative rebranding marked by a rigorous examination of its core values. A leadership workshop was convened, reflecting on the organization's evolution since its founding two decades ago. From this introspection emerged four guiding principles— RESULTS-DRIVEN, APPROACHABLE, ROBUST, and ADVENTUROUS— capturing ecoinvent's ethos and vision for the future.

These values encapsulate the organization's commitment to delivering tangible sustainability solutions, fostering collaborative engagement, ensuring data integrity, and embracing innovation. With this renewed focus, ecoinvent embarks on its next phase of growth.

We provide the most robust data-based insights to help customers make essential sustainability decisions.

results-driven

At ecoinvent, we are results-driven. We focus on achieving tangible outcomes that make a significant impact. This principle is rooted in three key attributes:

Purposeful
Pragmatic
Realistic

adventurous

Our adventurous spirit drives innovation and forward-thinking. It is characterized by the following attributes:

Optimistic
Ambitious
Creative

robust

Robustness in our work and data reflects our commitment to promoting decision-making for sustainability.
This means that we are:

Expert
Precise
Resilient

approachable

Our approachability is central to how we interact with partners, users, and the broader community. This principle encompasses the following attributes:

Engaging
Open
Confident

New Look, Same Mission

As pioneers in environmental data and life cycle assessment, we pursue innovation to better serve our users and partners.
Our rebranding signifies this dedication, with a new logo embodying technical robustness and environmental consciousness. This visual evolution extends to our design language, reflected in updated brand colors and icons across platforms.

Rooted in our core values of transparency, circularity, internationality, and approachability, our new identity amplifies our commitment to openness and traceability.

Transparency remains paramount, as it fosters trust, spurs innovation, and aligns with our mission to shape a greener future.

ecoinvent

ecoinvent

A New Home

In 2023, ecoinvent celebrated a pivotal moment with the relocation to a new office space, just one floor below our previous location in Technopark Zürich.

This move signifies our ongoing growth and expansion, providing ample space for collaboration and innovation. Beyond the practical benefits, our new office reflects the vibrant spirit of our team, mindfully decorated to inspire creativity and camaraderie. A standout feature is a captivating mural by Swiss artist Linus von Moos, alias Rips1, showcasing the breathtaking beauty of our planet's natural landmarks. This artwork serves as a reminder of our commitment to sustainability and our respect for the environment.

↘ **watch the creation of the mural**

Team Growth

In 2023, the ecoinvent team flourished, embodying a vibrant tapestry of international talent dedicated to advancing our mission of fostering high-quality sustainability data worldwide.

With great pride, we witnessed our team's evolution, swelling to seventy passionate individuals. We extend a heartfelt welcome to the twenty-nine new members who joined our ranks last year, each bringing fresh perspectives and expertise to our diverse ensemble.
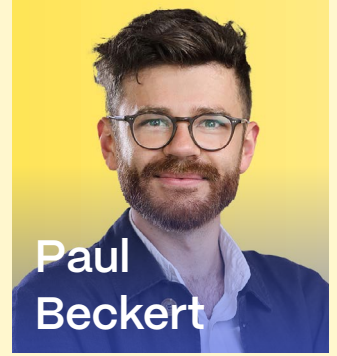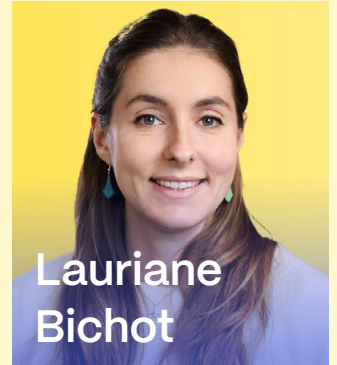
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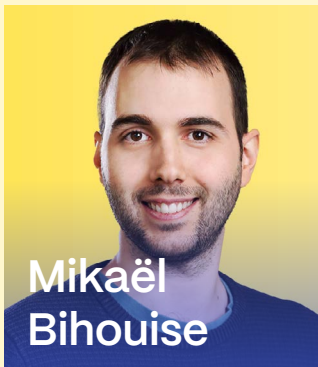
29 ↘

new talents

This expansion allows us to deliver top-tier sustainability data to our global community of users. Hailing from over twenty-four nations and united in our Zürich headquarters, we cultivate an environment of collaboration and innovation. Our team's diversity fosters a dynamic exchange of ideas.
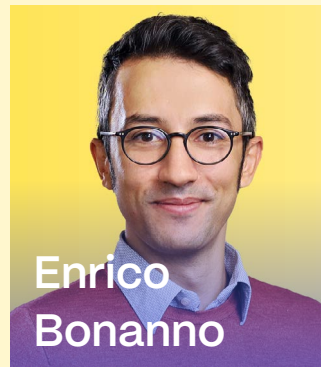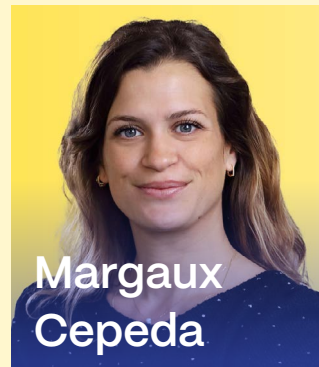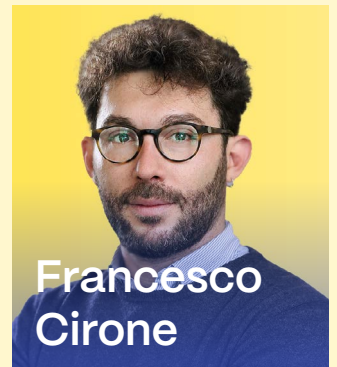
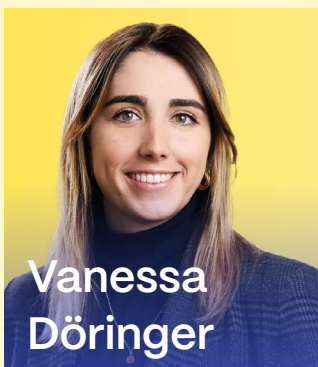Paul Beckert

Lauriane Bichot

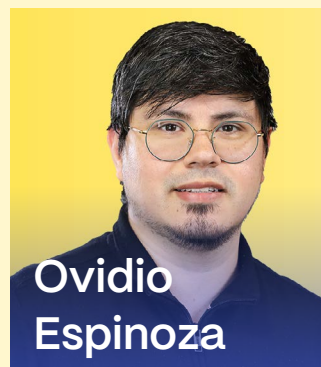Mikaël Bihouise
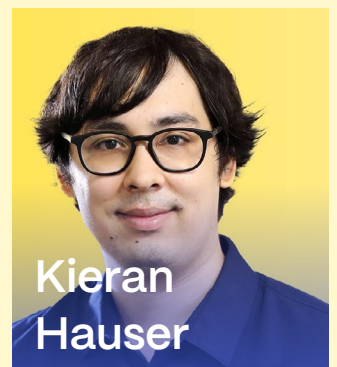
Enrico Bonanno

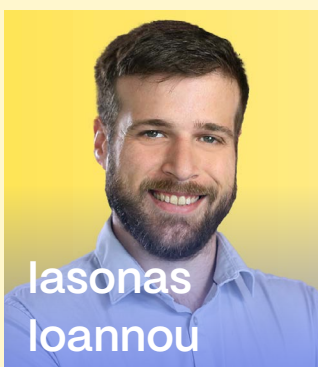Margaux Cepeda

Francesco Cirone

Vanessa Döringer

Ovidio Espinoza

Julian Georgiou

Kieran Hauser
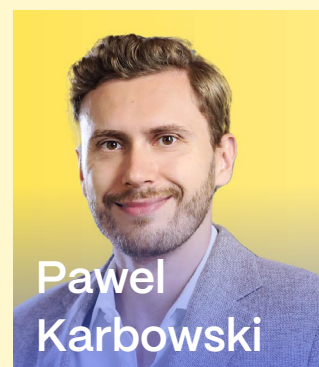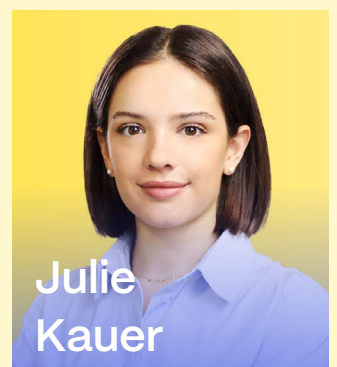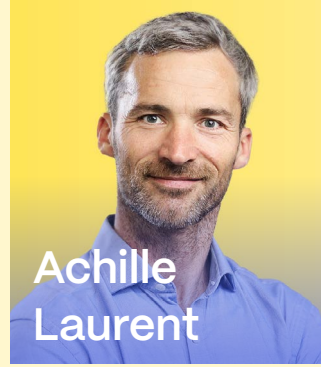
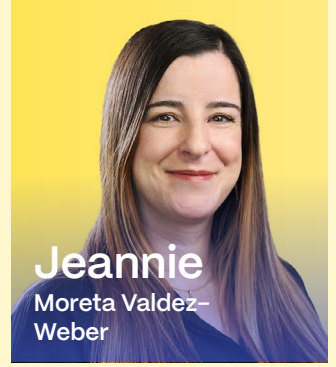Iasonas Ioannou
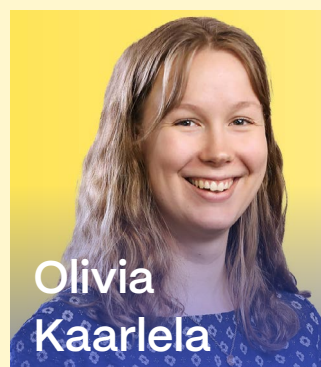
Olivia Kaarlela

Pawel Karbowski

Julie Kauer

Michel
Klüger

Sebastian
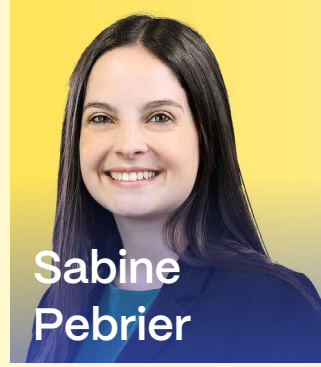Kunde

Achille
Laurent

Jeannie
Moreta Valdez–
Weber

a warm welcome

to our new colleagues
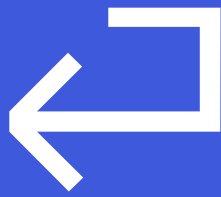
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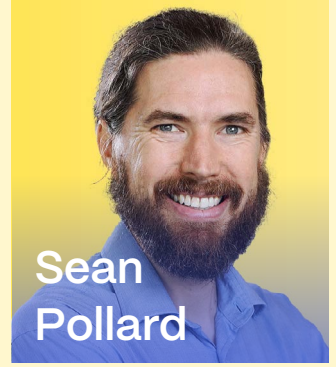
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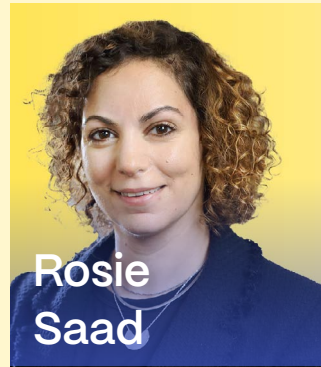
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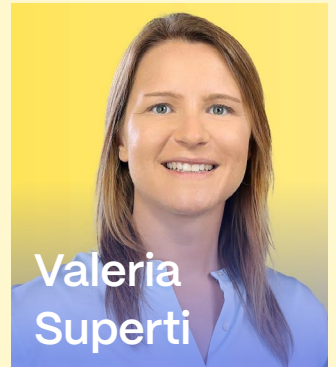
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Superti

Ana
Šušnjara
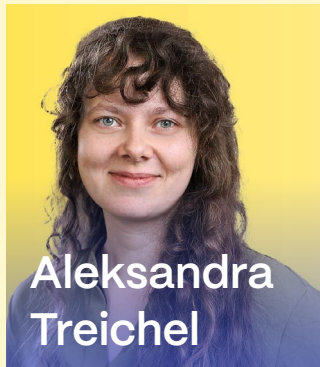
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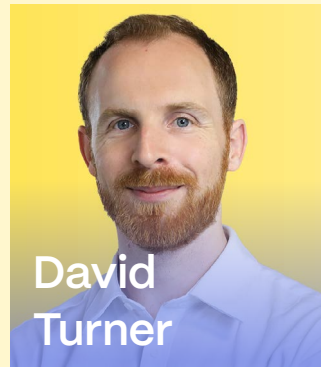
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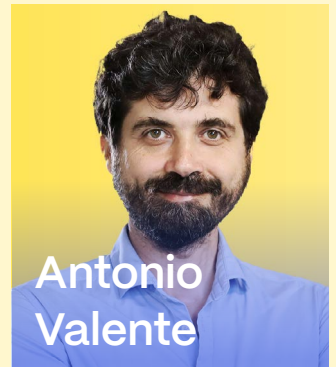
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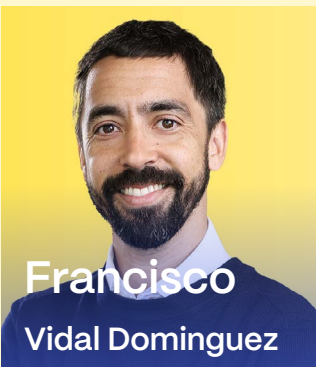
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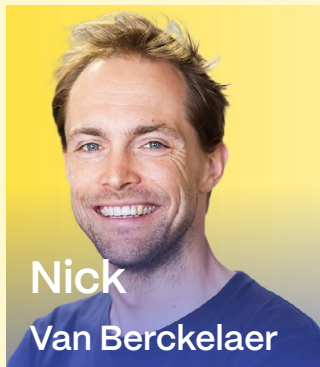
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Van Berckelaer
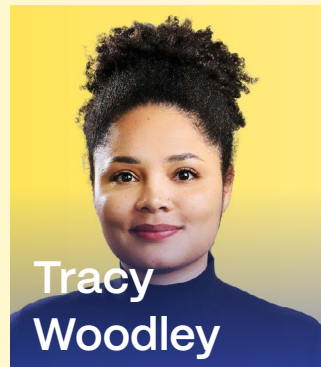
Tracy
Woodley

↘ see our
full team

Team Spotlight:
Chief Marketing Officer

Last year, we celebrated the promotion of Noemi Haag to the position of Chief Marketing Officer (CMO), marking a significant transformation in our leadership landscape.

Noemi, with her rich background in information technology and a penchant for strategic marketing, has been instrumental since joining in 2022. As a member of our management team, she collaborates closely with our Chief Technical Officer, Emilia Moreno Ruiz, and CEO, Nic Meyer.

With her expertise in visual communication and a keen focus on customer–centric strategies, Noemi will continue to shape the future phases of ecoinvent's marketing and communications endeavors, ushering in a new era of user engagement.

"I'm excited to be part of a growing organization in the sustainability market and I am proud that, together, we are making a difference for the future. It's a privilege to work alongside this vibrant team of extremely smart people and showcase our impact through user stories."

Team Spotlight:
Head of Software Product Development

In 2023, ecoinvent welcomed Nick Van Berckelaer as the Head of Software Product Development, overseeing the organization's software and product development initiatives.

With a background in engineering and extensive experience in scaling product development teams, ==Nick is instrumental in fortifying and streamlining our efforts to enhance our software infrastructure.==

Having co-founded a SaaS company and served as its CTO, Nick brings relevant expertise in business management and product development to our team. Over the past year, our software development team has grown to twelve members— nine engineers and three product managers— and is poised to drive innovation and efficiency that will support our database team in delivering high-quality sustainability data to our users.

"I'm honored to join the legacy of ecoinvent and thrilled to scale the lasting positive global impact we make. In 2024, we'll be expanding the capacity & capability of the software & product development team to achieve two goals. Empowering the data content team with the creation of our database by upgrading the data pipeline and serving the changing needs of our customers with new data publishing technology. This will shape up to a performant base on which we can later grow our impact space."
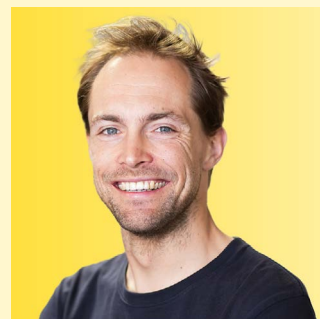
Database

Our database empowers stakeholders by offering clear visibility into environmental impacts, enabling informed decisions and meaningful action. With comprehensive documentation and traceable data, users can trust the integrity of our database.

Updated annually, the ecoinvent database reflects the latest data and methodological enhancements. Our stringent data quality guidelines ensure robust modeling methodologies, fostering trust and reliability. Together, these efforts uphold our commitment to transparency, providing stakeholders with the tools they need to navigate the complexities of sustainability and contribute to a greener future.

ecoinvent version 3.10

In November 2023, we released version 3.10 of its database, marking our largest update of datasets and products to–date.

This comprehensive release includes new impact assessment methods and updated data across sectors. Let's delve into the highlights of this significant update.
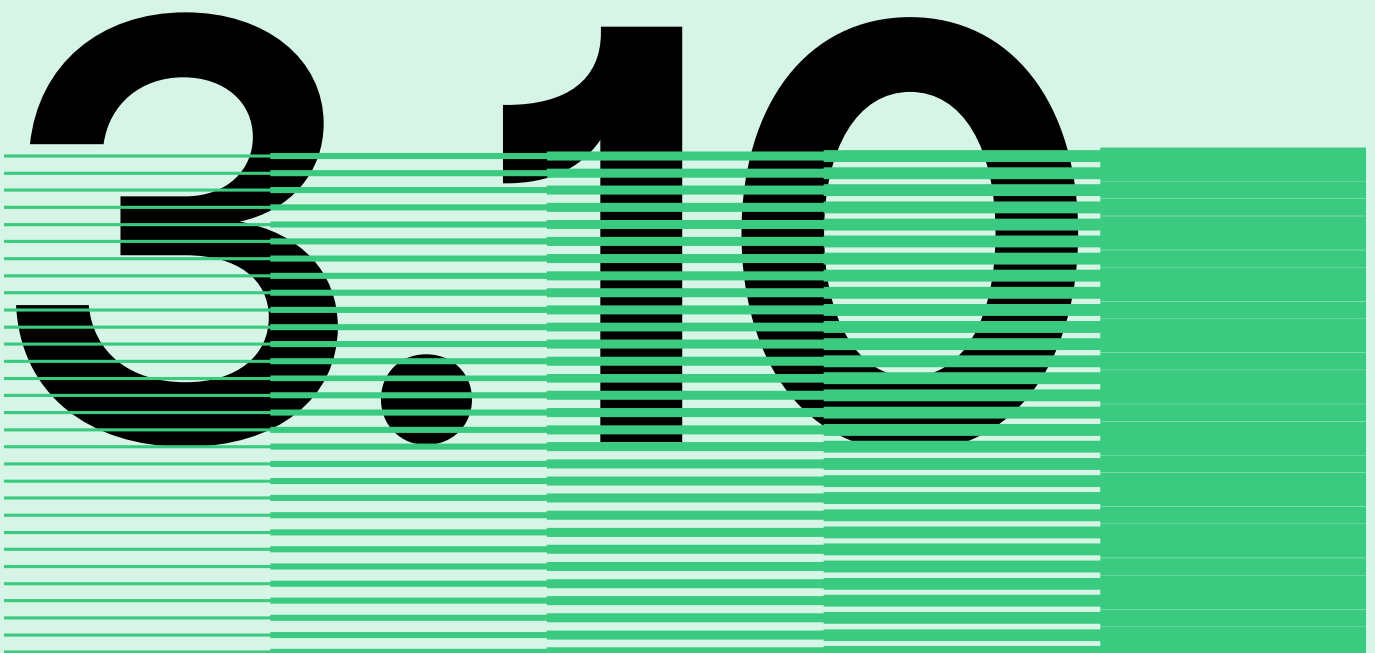
Agriculture

Version 3.10 introduces extensive data on new crop production from major agricultural countries, Australia and the United States. This includes crops like barley, maize, and wheat, enhancing the database's regional accuracy and breadth. Additionally, the update enhances support for FLAG/non-FLAG emissions, aiding users in assessing environmental impacts effectively.

Building & Construction

Significant enhancements in this sector include detailed information on clinker and cement production in Tunisia and Ecuador. The Swiss cement and clinker production sector also underwent updates, reflecting current production practices. These additions empower users with comprehensive datasets on construction materials production.

Chemicals

The Chemicals sector sees improvements in representing essential chemical precursors and their derivatives, with expanded coverage for ethylene, propylene, and methanol production. Data for chlorine, sodium hydroxide, and diisocyanates are updated, ensuring accuracy and relevance.
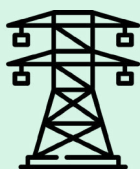
Electricity

Updates in version 3.10 reflect electricity market mixes up to 2020 or 2021 for specific countries. Harmonization efforts enhance documentation and meta-information, improving dataset reliability and usability.

Forestry & Wood

New datasets for bamboo forestry and pole production in Ecuador enrich the Forestry & Wood sector, offering insights into sustainable forestry practices.
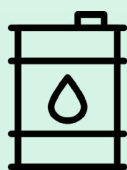
Fuels

Version 3.10 expands geographical coverage for oil and gas production, now encompassing forty-one regions worldwide. This update reflects the supply situation up to 2021, enhancing data accuracy and relevance.

Metals

Thermal spraying data and updated rare earth oxide prices enhance the Metals sector, providing comprehensive insights into metal production processes.

Pulp & Paper

New datasets for beverage carton production and updated corrugated board production datasets ensure the sector's relevance and accuracy.

Waste

The Waste sector undergoes significant updates, disaggregating over 450 solid waste treatment datasets. This detailed breakdown enhances transparency and enables a clearer understanding of waste treatment processes.

Version 3.10 of the ecoinvent database represents a significant milestone in providing high-quality environmental data. These updates underscore ecoinvent's commitment to advancing sustainability and supporting informed decision-making across various industries.
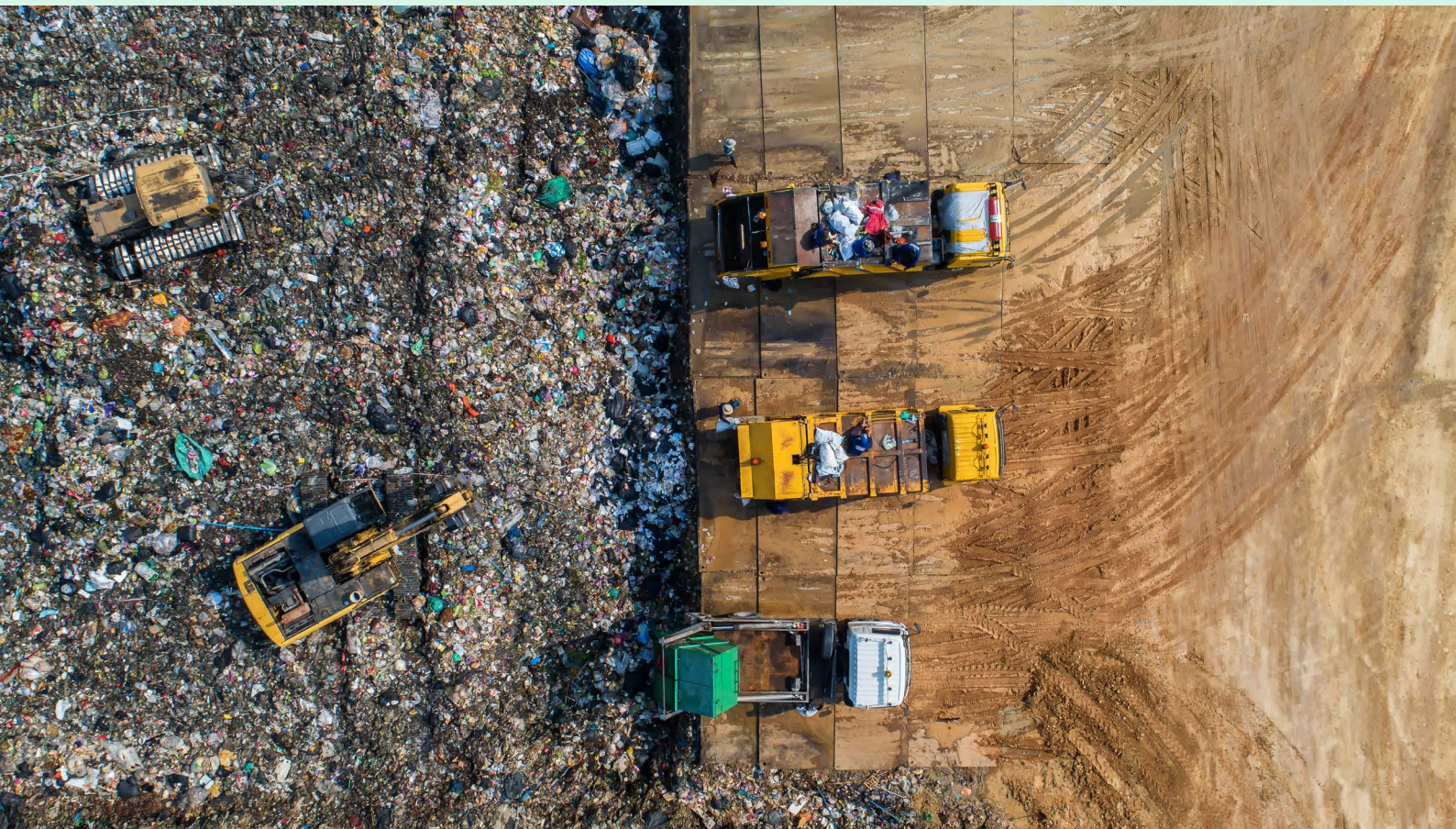
The New ecoQuery

In 2023, we introduced exciting enhancements to our database portal, aimed at empowering users with advanced tools for data navigation. Here's a glimpse of the new features:

— Enhanced search: Our upgraded algorithm offers lightning-fast responses and smart suggestions, streamlining content discovery.

— Direct contribution insights: Delve deeper into environmental impacts with new panels, revealing key supply chain elements influencing outcomes.

— Seamless supply chain navigation: Effortlessly explore upstream and downstream activities for a comprehensive view, facilitating targeted improvements.

These updates will further support users in their environmental analyses, empowering them to make more informed decisions and advance sustainable practices.

↘ **Explore the new ecoQuery**
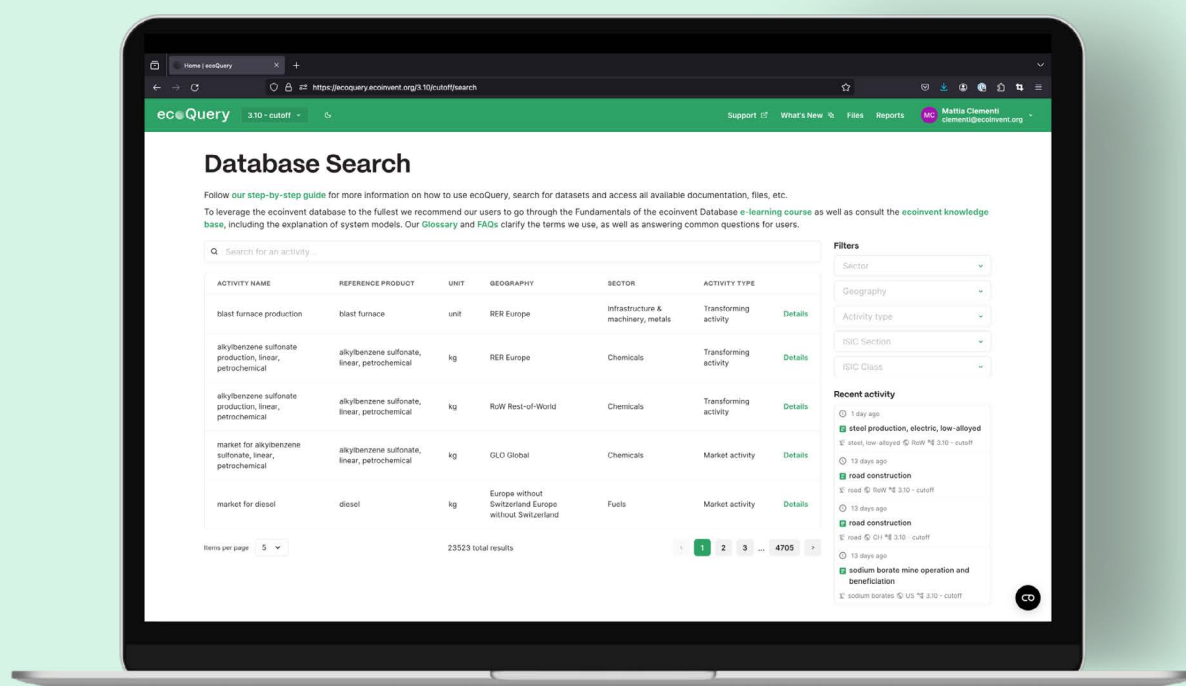
Events & Conferences

Throughout 2023, the ecoinvent team actively engaged in a diverse array of conferences, webinars, and workshops, showcasing our commitment to advancing sustainability and environmental assessment.

January

March

April

Roland Hischier (President of the Board), Simone Fazio (Project Manager), and Thomas Sonderegger (Project Manager) contributed to discussions on LCA and environmental assessment at SETAC Europe in Dublin.

Emilia Moreno Ruiz (CTO) presented at the European Parliament in a Panel for the Future of Science and Technology (STOA) workshop on climate labeling, emphasizing the importance of reliable climate data for informed consumer choices in Brussels.

May

Emilia Moreno Ruiz presented at the Royal Society's "Transforming Our Future" conference in London, stressing the role of transparent data when assessing the sustainability of research.

September

Thomas Sonderegger presented at the 11th International Conference on Life Cycle Management (LCM 2023) in Lille, France. Emilia Moreno Ruiz's keynote address at LCM 2023 underscored our database's pivotal role in the journey to carbon neutrality.

ecoinvent proudly sponsored Brightcon 2023 at the Luxembourg Institute of Science & Technology.

Paul Beckert (Data Analyst) presented at the 18th Life Cycle Assessment Workshop in Darmstadt, Germany.

October

Nic Meyer (CEO) presented at the Sustainability Reporting thematic event that we co-hosted with GreenBuzz Zürich and Swisscom in Zürich, Switzerland.

December

Events & Conferences

Presentations by our team members from the past year include:
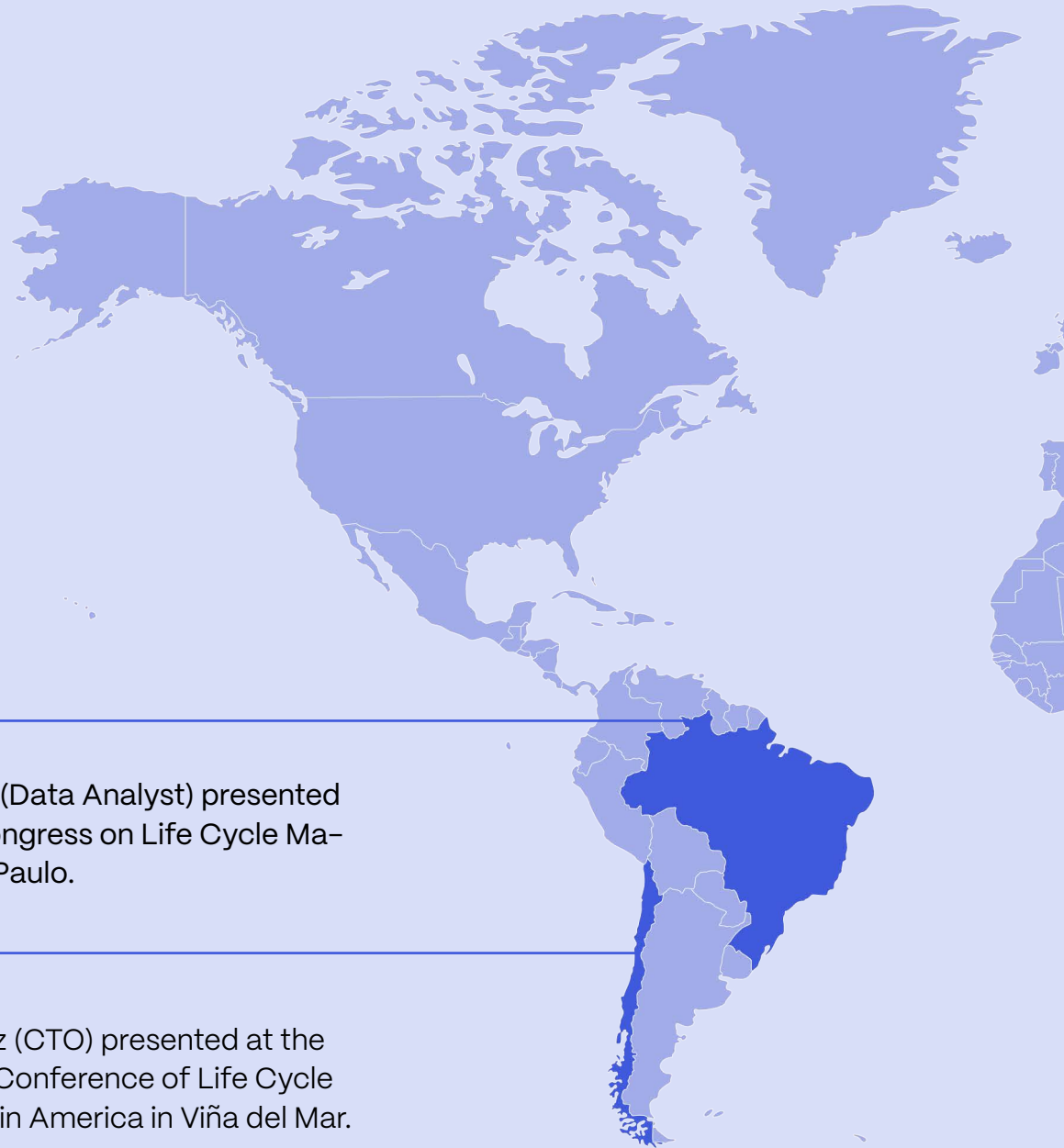
↘ Brazil

Daniela Baumann (Data Analyst) presented at the Brazilian Congress on Life Cycle Management in São Paulo.

↘ Chile

Emilia Moreno Ruiz (CTO) presented at the 10th International Conference of Life Cycle Assessment in Latin America in Viña del Mar.

↘ Switzerland

Emilia Moreno Ruiz and Chris Mutel (Product Manager) presented at the 84th Swiss Discussion Forum on Life Cycle Assessment in Zürich.

Avraam (Database Content Analyst Lead) presented at the AQC LCA+ Kick-off event in Geneva.

↘ **Sweden**
Carl Vadenbo (Project Manager) presented at the Swedish Life Cycle Center Network Conference in Gothenburg.

↘ **Australia**
Nic Meyer (CEO) presented at the 11th Australian Conference on Life Cycle Assessment in Coolangatta.

Nikolia Stoikou (Data Analyst) presented at the 4th Symposium on Circular Economy and Sustainability and the 10th International Conference on Sustainable Solid Waste Management.

↘ **Greece**

Thomas Sonderegger (Project Manager) participated in the ORIENTING General Assembly in Bologna.

↘ **Italy**

Events & Conferences

Partnerships

In our commitment to fostering excellence in life cycle inventory data and database management, we engage in collaborative efforts with other organizations around the world. By sharing knowledge, developing methodologies, and contributing to publications, we advance environmental assessment practices and promote industry-wide standards across diverse sectors and stakeholders.

Partnerships are integral to our mission of sustainability. With a global network spanning various industries, ecoinvent is a trusted authority in environmental life cycle assessments. From multinational corporations to esteemed universities, our partners share our dedication to sustainable practices and reliance on transparent, high-quality data. In 2023, we welcomed new partners, furthering our collective effort to advance sustainability. These collaborations underscore our commitment to fostering a more sustainable future through shared expertise and resources.

Agroscope

In August 2023, ecoinvent and Agroscope proudly announced the renewal of their partnership, uniting their expertise to bolster sustainability in the agriculture and food sectors.

Leveraging Agroscope's extensive LCA knowledge and ecoinvent's robust database infrastructure, the collaboration aims to furnish high-quality data, enrich software tools, and inform decision-making processes, thereby contributing to global sustainability objectives.

This renewal underscores a shared commitment to methodological advancement, data consistency, and closing critical gaps in agricultural LCA. Together, ecoinvent and Agroscope pledge to facilitate easier access to Swiss-specific LCA information, foster knowledge exchange, and ensure the utmost quality assurance in life-cycle inventories.

↘ Read the press release

Mærsk Mc–Kinney Møller Center for Zero Carbon Shipping

In January 2023, ecoinvent solidified its collaboration with the Mærsk Mc–Kinney Møller Center for Zero Carbon Shipping (MMMCZCS) through a Knowledge Partnership Agreement, marking a pivotal step towards accelerating the maritime industry's decarbonization.

By joining forces, ecoinvent and the MMMCZCS pledge to contribute long–term strategic collaboration and expertise, leveraging ecoinvent's world–leading environmental data to support the MMMCZCS mission.

This partnership aligns with ecoinvent's core belief in providing high-quality, accessible data for environmental assessments while reinforcing the MMMCZCS commitment to driving sustainable innovation in the maritime sector. Together, they aim to deepen understanding, foster collaboration, and catalyze actionable solutions for a more sustainable maritime future.

↘ **Read the press release**

↘ New
Partnership
Climate TRACE

Climate TRACE is a coalition of nonprofits, tech firms, and universities aiming to accelerate climate action by meticulously tracking greenhouse gas emissions worldwide using satellite imagery, AI, and data science. Their approach allows for the identification of human-caused emissions with unprecedented speed and detail.

We partnered with Climate TRACE to enhance environmental data accessibility. This groundbreaking initiative aims to merge robust datasets for a sustainable future.

↘ **Read the press release**

↘ New
Partnership
GreenBuzz Zürich

In February 2023, ecoinvent became a Corporate Partner of GreenBuzz Zürich, aligning with their mission to drive sustainability through networking and events.

Highlight:

— Thematic Event: Leveraging Data in Sustainability Reporting for Competitive Advantage

↘ **Read the blog post**

Partnerships

GreenBuzz Zürich: Leveraging Data in Sustainability Reporting for Competitive Advantage

↘ New Partnership
IKEA

This strategic collaboration contributes to IKEA's innovative, science-based sustainability journey and leverages ecoinvent's data for sustainable decision-making across industries.

↘ New Partnership
Volvo Cars

We're proud to collaborate with Volvo Cars, a sustainability-driven automotive leader, providing essential ecoinvent data for informed, carbon-conscious engineering decisions.

↘ New Partnership
Watershed

Teaming up with Watershed, the climate platform, ecoinvent strengthens climate action in the expanding Watershed Ecosystem, empowering companies for sustainability.

↘ **Read the press release**

↘ **discover all of our partners**

Our Data in Action
Partner Spotlight: Makersite

Sustainability has become a key consideration for businesses across the globe, with consumers demanding products that have minimal environmental impact. Life Cycle Assessment (LCA) is a vital tool that enables businesses to understand the environmental impact of their products over their entire life cycle. The ecoinvent database represents key economic activities on a global, regional, and national level, providing LCA practitioners with background data that is highly relevant to their systems.

The partnership between ecoinvent and Makersite is a powerful combination of LCA expertise and cutting-edge digital technology. Leveraging the combined strengths of both organizations provides a comprehensive solution for sustainable product development. ecoinvent's database provides inventory data for complete supply chains, while Makersite's platform enables teams to collaborate, monitor, and optimize product sustainability, compliance, and cost in real time.

To highlight how ecoinvent data is used across Makersite's products by their customers, we spoke with Fabian Hassel, Makersite's VP of Services.

Interview with
Fabian
Hassel
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What is Makersite?

Makersite is a cloud-based AI software solution combining more than 140 external data sources and automatically generating digital twins of every product and process used by an organization and its value chain. The digital twins provide granular insights across more than 40 criteria, including GHG emissions, supply risk, costs, health & safety, and regulatory compliance. With that, product development, procurement, and experts can analyze products, suppliers, and materials across the dimensions of sustainability, cost, risk, and regulations.

Founded in 2018 by CEO Neil D'Souza, the Stuttgart-based company has a team of over 50 employees across Europe, the United States, and Asia and a customer portfolio that includes major companies such as Microsoft, Schaeffler, Cummins, and Vestas.

How do you use databases like ecoinvent in your platform?

Databases like ecoinvent are incredibly worthwhile for our customers. The database allows Makersite to adapt every dataset to our customers in detail. The important thing really is that there is a possibility to customize the generic database.
So, for example, instead of mapping a generic electronic data set, we can take the ecoinvent data and modify it to our clients' supply chain situation set in a fully automated fashion. This changes the value of result precision and risk evaluation drastically.

There are databases that give you similar data sets as ecoinvent, but they're different in that they show you opaque results. Let's take steel as an example. In ecoinvent you see a steel dataset and how it is produced. With other databases you can only see the

result. There's no information about the process that happened to make the steel. Without this step, you lose the possibility to customize the data to the customer's situation.

What role does Makersite's AI play here?

ecoinvent alone is a generic and transparent database. Our software and AI play a critical role in bringing that data together with customer data. Our technology automatically customizes data from ecoinvent and 140 other databases onto the customer's product and supply chain data. We can thereby ensure that the result that our customers use has the highest precision possible – not only for one product but for the whole product range of customers.

How do Makersite's customers use ecoinvent data?

The ecoinvent database can be applied everywhere as needed. It allows you to modify and adapt data in any necessary composition. These possibilities are incredibly valuable. Technology, transparency, and the ecoinvent database together form the next evolutionary stage of sustainability assessments.

What is the Makersite team looking forward to in the next year?

We closed a significant Series A round at the end of 2022 to scale the business in Europe and North America. Partner integrations like the one with Autodesk will be a core technology focus for the near term, next to working with integrators and value-added resellers, unlocking further scale.

"Databases like ecoinvent are incredibly worthwhile for our customers. The database allows Makersite to adapt every dataset to our customers in detail."

What are the greatest challenges that Makersite's customers are looking to solve?
Customers use Makersite to get to Net Zero, accelerate their product design, and build more resilient supply chains. Sustainability managers, product engineers, and procurement officers all have their own overlapping challenges with reaching the aforementioned goals. They mostly lack insight into the deep-tiers of their supply chains, the possibility to collaborate with each other and with suppliers, have a lack of and dependency on sustainability experts, scattered or non-existent material and supply chain data, etc.

Makersite's AI and Knowledge Graph-powered platform is a powerful solution for managing complex products and supply chains. With its ability to clean, connect and enrich cross-departmental data with third-party sources, it removes the dependency on sustainability, cost, and risk experts. The platform provides an array of product and supply chain-related information across sustainability, cost, and compliance metrics. Our AI algorithms automatically detect and connect product components and manufacturing processes to the right supply chain data from a harmonized and hyper-connected database, which solves one of the most time-consuming problems of mapping data to multiple sources at a granular level. The result is a detailed, extremely specific view into deep-tier supply chains, giving users a better understanding of environmental footprints, should-costing, and compliance risks at an unprecedented speed.

Could you please provide some examples of how Makersite's customers leverage your technology to meet their sustainability goals?
A leading global supplier to the automotive and industrial sectors for over 75 years set a target of achieving a CO_2 reduction in their supply chain by 2040.
To achieve a climate-neutral supply chain, the company aims to reduce the carbon footprint of its raw materials by 25% by 2030. The challenge is that 90% of the raw materials used to make electric motors are sourced from China with little to no deep-tier insight into emissions. A common challenge faced by many manufacturers today. The company had developed an optimized supply chain that was just as reliable as its current China-centric one. However, they were left wondering if this new supply chain is any better in terms of the carbon footprint?

Again, they were faced with the challenge of no deep-tier visibility into supplier emissions. Using the Makersite supply chain and materials database, a digital twin was developed in a matter of weeks, of the company's electric motors' current and optimized supply chain. The supply chain team was then able to visualize and compare the CO2e at each stage of the process and identified three separate variables which contributed to CO2e in their current supply chain. Of the three variables, the electricity used in the processing of raw materials was shown to significantly decrease the CO2e of the new optimized supply chain. Mainly due to the switch from a Chinese manufacturer to one in Norway.

↘ Learn more about Makersite

Partnerships

Partner Spotlight: Thermoplan

In pursuing sustainability, businesses across diverse industries increasingly recognize the imperative to integrate environmentally conscious practices into their operations. Swiss coffee machine manufacturer Thermoplan AG is a pioneering company at the intersection of innovation, sustainability, and industry-wide impact.

As a global player with a presence in over 80 countries, Thermoplan has been a family-owned and operated business for 50 years. Blending Swiss craftsmanship and environmental consciousness, Thermoplan has incorporated sustainability as a central part of the company's commitment to quality in producing fully automatic coffee machines for professional use.

Thermoplan utilizes comprehensive life cycle assessments powered by the ecoinvent database to gauge the environmental impact of their coffee machines. In this interview, Matteo Trachsel, Head of Sustainability at Thermoplan, sheds light on the pivotal role of ecoinvent data in shaping sustainable practices within the company, exemplifying how life cycle assessments are critical tools for fostering a greener future across various sectors.

Can you tell us about Thermoplan, its core business activities, and what motivated the company to focus on environmental sustainability?

At Thermoplan, we develop and produce fully automatic coffee machines for the B2B business, whether for the catering industry or other companies. We stand for the highest Swiss quality. As a family business founded in 1974, we are globally active and supply customers in over 80 countries. We achieve this with more than 200 certified sales and service partners worldwide. At our headquarters in Weggis, in the canton of Lucerne, we employ over 500 people.

Enjoying premium coffee and producing the highest-quality fully-automatic coffee machines is a luxury. Thermoplan is doing its part to ensure that future generations can enjoy these same privileges.

Building on the three pillars of people, product, and planet, we respect each other, optimize and reduce resources where appropriate, and improve our products to benefit our customers and the environment with the help of the latest technologies. We are committed to fair social and environmental conditions throughout the supply chain.

How did the partnership with ecoinvent come about, and how does Thermoplan utilize ecoinvent data to enhance its sustainability practices?

During the calculation of our first corporate carbon footprint for 2019, together with the support of Carbotech, we came into contact with ecoinvent for the first time. Soon after, we decided to bring the knowledge of calculating corporate carbon footprint and life cycle assessment in-house. We bought our own license and used your data with

Brightway and activity browser.

Can you elaborate on how Thermoplan integrates Life Cycle Assessment (LCA) methodologies into its product development and operational processes?
Life cycle assessments are integral to our development process for new machines. Since the first screening LCA, where we found that the use phase of our machines is critical in terms of emissions, we have also used the results for our Technology and Innovation Center to set directions. We see that the life cycle assessment results are essential information for us, our customers, or when we participate in tenders. For this reason, we are very transparent about the results and emissions of our coffee machines. We want to share the results of our LCA with our customers and let them know where we have improved and where they can influence the emissions themselves.

How crucial is high–quality and transparent data, like that provided by ecoinvent, in making informed sustainability decisions at Thermoplan?
Without a database with high–quality and reliable data like ecoinvent, it would be almost impossible for us as a smaller company to calculate LCA. Most of the emissions data we use comes from secondary data like ecoinvent, as we see that most of our suppliers are not yet ready to provide us with primary data. Based on this average data from ecoinvent, which we consider to be very accurate because it represents an average of the market, we are quietly making big decisions about optimizing our coffee machines in the future.

**Interview with
Matteo
Trachsel**
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Can you provide specific examples of how ecoinvent data has influenced Thermoplan's business decisions?

Based on the ecoinvent data and the results of our LCAs, we allocate resources in our Technology and Innovation Center to work on new optimizations of our machines regarding the use phase. We have also launched major research projects with universities based on these results.

In what ways has the application of LCA contributed to reducing the environmental impact of Thermoplan's products and operations?

We have already implemented some new software features in our machines that will allow us to save up to 20% of our energy consumption. We have also implemented many initiatives, called ImpactProjects, to optimize our corporate carbon footprint. We optimized our inbound logistics by switching to a single logistics partner. We achieved significant energy savings by installing LED lights on all factory floors. We installed 25 EV charging stations and car-sharing parking in the best location for our employees' commuting emissions.

Most of these impact projects are prioritized based on the results of our corporate carbon footprint calculations.

What are some of the challenges Thermoplan has faced in implementing sustainable practices, and how has the company's approach evolved over the years?

Implementing sustainable practices is always a change process, like any new requirement in an organization. It is important to have support from the top down and to get early adopters up to speed. Our goal in sustainability is to have a deep implementation in the company. It takes a little more time, but it's the only way to have a sustainable business.

What metrics or KPIs does Thermoplan use to measure its sustainability progress?

When we look at our corporate carbon footprint, we always calculate both the carbon footprint and the ecological scarcity (UBP). Both impact categories have the same key points, and we only use carbon emissions for internal and external communication for simplicity. We have an internal dashboard, which we update monthly, that shows our emissions for all Scope 1–3 topics. This dashboard also shows us if we are on track with our reduction plan and is presented to executive management every quarter. For our products, we also use carbon emissions as a key indicator. We transparently communicate these emissions to our customers, who include them in their carbon accounting.

What are Thermoplan's short-term and long-term sustainability goals?

Our sustainability covers all areas of sustainability: people, product, and planet. We have directions and subdirections in all three and set targets for each. The most straightforward topic to set targets and measure is related to our products and the planet with carbon reduction targets. We will reduce our emissions by 50% until 2030 compared to the base year 2019, and we will be net zero by 2050.

"Without a database with high–quality and reliable data like ecoinvent, it would be almost impossible for us as a smaller company to calculate LCA."

How does Thermoplan engage its stakeholders in its sustainability journey?

We see sustainability as adding value for all stakeholders, specifically for our customers. We have large corporations as customers that have ambitious carbon reduction targets. If you look at the emissions of large coffee chains, the primary emissions of their footprint go through our machines, where we have an opportunity to make it better or worse. By reducing the emissions of our products, we have a direct impact on their carbon footprint. This puts us in an important position. To show our improvements and the carbon emissions of our machines, we have published a Product Environmental Report for all our machines, which is publicly available on our website. In this report, we show emissions at the part level.

Looking forward, how do you see the role of LCA and the use of comprehensive data evolving in Thermoplan's sustainability strategy?

We definitely see our data-driven approach to sustainability becoming more important in the future. With this approach, we can argue why we are developing certain features and machines based on reliable data like ecoinvent. Having correct and consistent data over time is also crucial for our carbon reduction path.

What advice would you give to other companies looking to integrate sustainability into their business model?

When integrating sustainability into your business model, the most important thing to consider is how you can deliver real value to your customers and the environment. This is often easier said than done. A detailed understanding of emissions and customer needs is key to provide real value. New business models can be implemented that, for example, help achieve an effective circular economy.

On a personal note, what does leading sustainability efforts at Thermoplan mean to you?

As in every job I do, passion is the most important thing. At Thermoplan, I can combine my passion with my daily work. My passion goes to building new things, like implementing new indicators and strategies in a company and motivating people to achieve something together. On the other hand, I often ski or climb in the mountains, and I see the direct impact of climate change. I also hear many people saying we should do something, and with my job, I can now make a real impact, even on a small scale.

↘   Learn more about Thermoplan

Partnerships

Publications

Publications allow us to share our insights, methodologies, and advancements, fostering collaboration, and bolstering credibility within the environmental assessment community. We proudly showcase the expertise of the ecoinvent team members whose work was featured in high-profile publications last year.

Journal of Life Cycle Assessment, Japan

In November 2023, we proudly announced a featured article in the Japanese Journal of Life Cycle Assessment titled "ecoinvent – An Introduction to the LCI Database and the Organization Behind It."

Authored by Emilia Moreno Ruiz (CTO), Lucia Valsasina (Database Content Lead), Carl Vadenbo (Project Manager), and Avraam Symeonidis (Database Content Analyst Lead), the article provides an insightful exploration of ecoinvent's evolution, core features, and global impact. As we commemorate a decade of organizational growth and two decades of our database's influence, this article exemplifies our ongoing dedication to advancing sustainability through robust data and collaborative partnerships. We extend our gratitude to the Institute of Life Cycle Assessment, Japan (ILCAJ), for their invaluable collaboration in this endeavor.

↘   **Read the full paper**
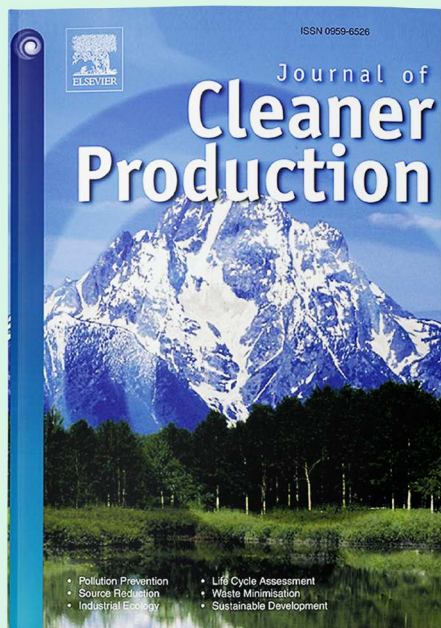
Journal of Cleaner Production

In August 2023, a paper co-authored by Thomas Sonderegger (Project Manager) as part of the ORIENTING EU research project was published, titled "Addressing sustainable development goals in life cycle sustainable assessment: Synergies, challenges, and needs," in the latest issue of the Journal of Cleaner Production.

This paper explores integrating sustainability assessment frameworks, focusing on the United Nations' Sustainable Development Goals (SDGs) and the life cycle sustainability assessment (LCSA) framework. It highlights limited integration between the two and proposes strategies to establish a coherent connection, emphasizing the importance of aligning LCSA metrics with SDG goals for comprehensive progress toward sustainability.

↘ **Read the full paper**

Looking Ahead

To our valued partners, users, collaborators, and stakeholders, we extend our heartfelt appreciation for your unwavering support and collaboration throughout the year. Your contributions have been instrumental in our mission to expand our database and initiatives, amplifying our global impact.

As we reflect on the achievements of 2023, we eagerly anticipate the opportunities and challenges that lie ahead in 2024. With great optimism, we embark on the journey ahead, confident that together, we will achieve even greater heights. Thank you for being an integral part of our journey towards a more sustainable future.

The best is yet to come!

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