A BLUEPRINT FOR SUSTAINABLE LIVING

2023
ACTIVITY
REPORT

European Investment Bank | Group

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European Investment Bank Group Activity Report 2023
A blueprint for sustainable living

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Published by the European Investment Bank.
Printed on FSC® Paper.

pdf: QH-BF-24-001-EN-N ISBN 978-92-861-5645-8 ISSN 2599-686X doi: 10.2867/899768
eBook: QH-BF-24-001-EN-E ISBN 978-92-861-5638-0 ISSN 2599-686X doi: 10.2867/128

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FOREWORD
BY THE PRESIDENT

A blueprint presents drawings, dimensions and notes. Our annual activity report, *A Blueprint for Sustainable Living*, **draws** vivid pictures of the beneficiaries of European Investment Bank projects. It includes data on the **dimensions** of our massive overall investment and the importance of our loans to each of our beneficiaries. It **notes** the EU policies and expertise that lead us to make each of our investments.

The European Investment Bank's blueprint for Europe is based on a vision of an innovative future, a green future, a future of equality – and a future that does not end at the borders of the European Union. This report highlights the detailed analysis of technical developments in artificial intelligence, healthcare and biotechnology that lies behind our investments in revolutionary new technologies. It presents our commitment to building a green economy and to backing the new ideas for clean technology that are so desperately needed if we are to contain climate change, worldwide. It illustrates the importance of investment in the infrastructure that moves us from place to place, where our children are educated, and where everyone is safe from harassment. It displays the impact of our work beyond the European Union through in-depth stories of our projects on the ground in partner countries in Africa and elsewhere. And it presents the culmination of 12 years of leadership from Werner Hoyer, whose second term as president ended at the close of 2023. I am proud to be his successor.

From this blueprint, **we are already constructing Europe's future**. You can see the evidence in the data on our lending and borrowing. You can look ahead to the massive commitment represented by our Group Operational Plan for the period 2024 to 2026. Everything here illustrates our ambition – to shape this future for the benefit of everybody in Europe, for our neighbours, and for our partners everywhere.

This report illustrates that the European Investment Bank is more crucial to Europe and the world than ever before. I am delighted to become part of this great project as I take on the role of president and enthusiastic about the prospects for the years ahead.

Nadia Calviño

FOREWORD BY THE PRESIDENT

2023 HIGHLIGHTS

EIB GROUP IN 2023

INSIDE EU	€78.3bn
OUTSIDE EU	€9.5bn
TOTAL	€87.8bn

EUROPEAN INVESTMENT BANK IN 2023

INSIDE EU	€66.5bn
OUTSIDE EU	€8.6bn
TOTAL	€75.1bn

EUROPEAN INVESTMENT FUND IN 2023

INSIDE EU	€14.0bn
OUTSIDE EU	€0.9bn
TOTAL	€14.9bn

The European Investment Fund (EIF), part of the EIB Group, specialises in risk finance to support micro, small and medium-sized enterprises and stimulates growth and innovation across Europe. It provides financing and expertise for sound, sustainable investment and guarantee operations. EIF shareholders include the EIB, the European Commission, public and private banks and financial institutions.

THE EIB'S IMPACT

6.7 million MWh
Annual energy savings

11.6 million
New 5G subscribers

1.2 million
Students in educational facilities benefitting from finance

21 700 MWh
Electricity generation capacity from renewable energy sources

46 600 GWh
Electricity produced from renewable energy sources

13.8 million
Households that can be powered

42 988 km
Power lines installed/ upgraded

13 million
Smart energy meters installed

130.6 million
People benefitting from improved health services, including vaccination

17.3 million
People benefitting from improved urban and municipal infrastructure

254 million
Additional passenger trips on public transport

Over 13 000
Alternative fuel stations

2.6 million
People with new waste collection systems

1.9 million
People with improved sanitation

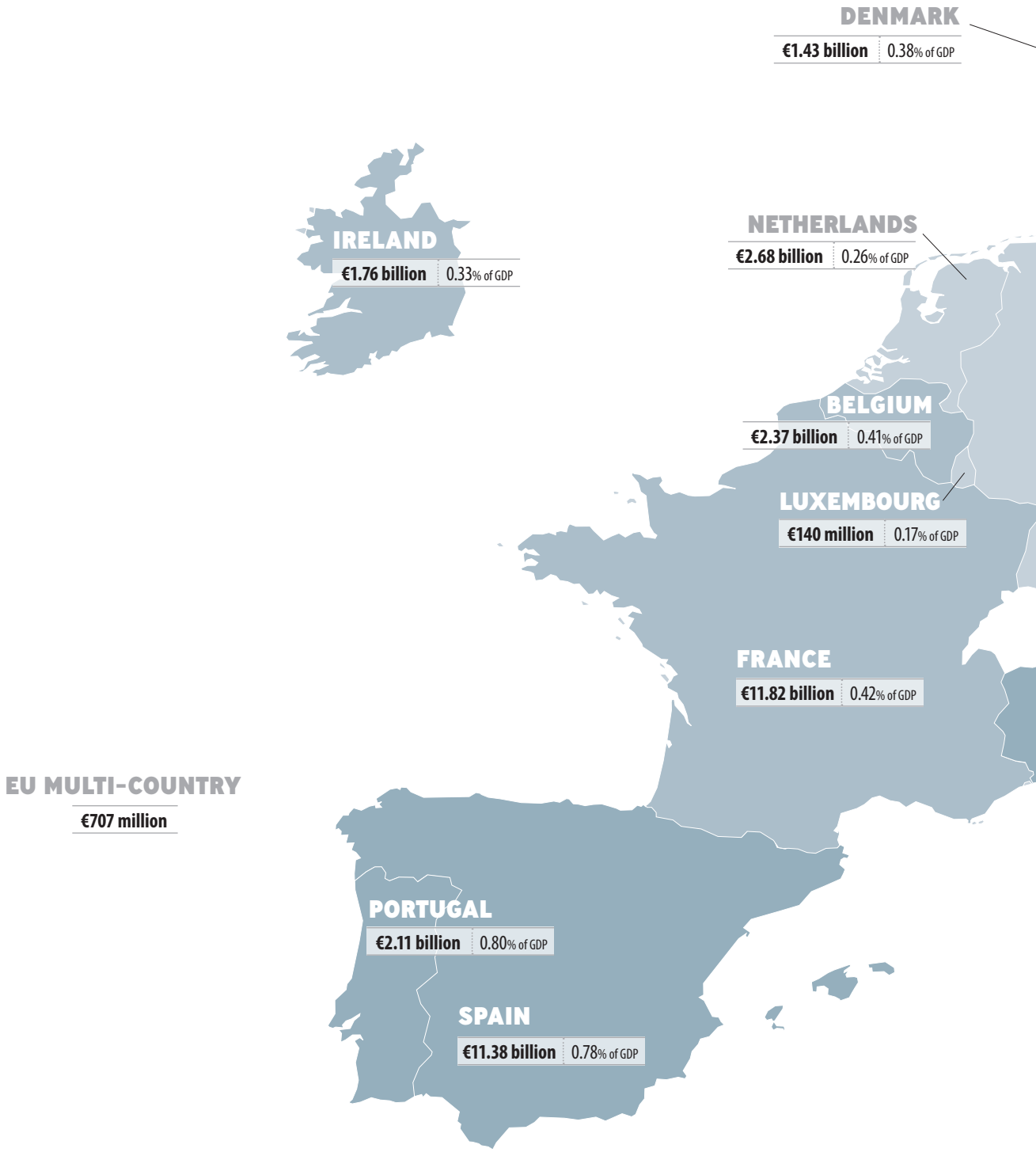
4.9 million
People with safer drinking water

1.5 million
People facing reduced flooding risk

12 million
People facing reduced exposure to drought

Figures are expected outcomes of financed new operations signed in 2023 for the first time, based on available data at this stage. All figures are unaudited and provisional.

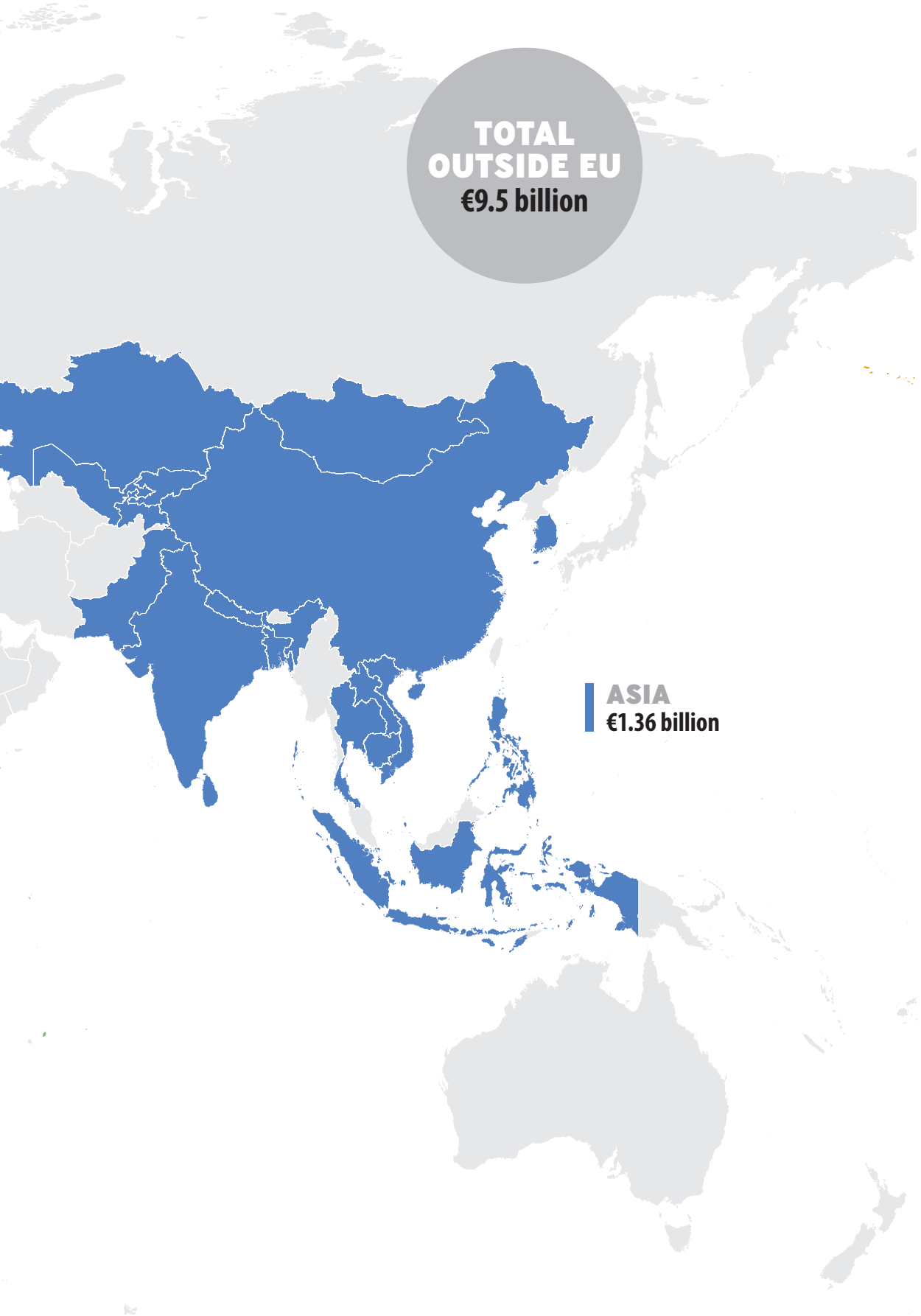
THE EIB IN YOUR COUNTRY



Darker colours signify higher investment as a percentage of GDP.


FINLAND
€992 million 0.35% of GDP
SWEDEN
€2.90 billion 0.53% of GDP
ESTONIA
€540 million 1.41% of GDP
LATVIA
€82 million 0.20% of GDP
LITHUANIA
€654 million 0.89% of GDP
POLAND
€5.10 billion 0.68% of GDP
GERMANY
€8.63 billion 0.21% of GDP
CZECH REPUBLIC
€1.87 billion 0.61% of GDP
SLOVAKIA
€293 million 0.24% of GDP
AUSTRIA
€1.26 billion 0.26% of GDP
HUNGARY
€490 million 0.25% of GDP
SLOVENIA
€359 million 0.57% of GDP
CROATIA
€464 million 0.61% of GDP
ROMANIA
€4.12 billion 1.28% of GDP
BULGARIA
€1.1 billion 1.17% of GDP
ITALY
€12.19 billion 0.59% of GDP
GREECE
€2.53 billion 1.14% of GDP
MALTA
€30 million 0.16% of GDP
€257 million 0.86% of GDP
CYPRUS

THE EIB IN YOUR WORLD



The European Investment Bank does not endorse, accept or judge the legal status of any territory, boundaries, colours, denominations or information depicted on this map.

Following EU sanctions against Syria in November 2011, the EIB suspended all loan and advisory activity in the country. However, the EIB is part of the Syria core donor group monitoring the situation under EU and UN co-leadership.

DESIGNS FOR TRANSFORMATIVE DEVICES

"Geopolitical tensions impacted the European innovation ecosystem heavily in 2023 – including its funding. The EIB continued to provide essential support to early-stage and highly innovative companies across Europe, in strategic sectors such as life sciences, space, climate, artificial intelligence, and quantum computing. The EIB has become a clear leader in this crucial market segment. Our direct support allowed many innovative SMEs to stay in Europe, created jobs, and safeguarded know-how that often originates from excellent European universities and research centres. The investment community is looking more and more to the Bank as a potential lead investor. This is exactly the catalyst role that we are aiming for in a segment with a large market gap."

Yu Zhang, head of Industry 4.0 and life sciences, EIB

"Our financing has a strong impact on the lives of EU citizens. Investing in research, innovation and development is critical for every sector of the economy. The EIB plays a crucial role in promoting innovative and sustainable projects that drive economic growth and, thus, improve the lives of people in the communities they serve. We are proud of these transactions."

Gilles Badot, director, Adriatic Sea and Iberia, EIB

"This year has seen Advisory playing a critical role in supporting individual companies and projects to get prepared for financing, and in supporting the development of a strong ecosystem in key high-tech sectors. We link up promoters, investors and the European Commission. This includes sectors from space to cybersecurity, and hydrogen to defence."

Juan Magaña-Campos, head of corporate finance advisory, EIB

Innovators examine the processes that others take for granted. They question them, and they develop a better path. A path so much better that when everyone else sees it they wonder how they could have missed it themselves. The European Investment Bank looks for these innovators, and gives them the tools to create and to transform how we go through our lives. From our hospitals to our breakfast tables, these innovators make our lives better.

WHEN PAPERWORK IS LIFE AND DEATH

A German health startup uses artificial intelligence to cut time spent on medical paperwork and improve patient care

In the early 2010s, Wieland Sommer was a young, enthusiastic radiologist who had just started working in one of Europe's biggest hospitals, LMU Klinikum in Munich. It didn't take him long to realise that instead of focusing on his patients, he spent most of his time on paperwork. "My time could have been used better," he says. Then, he had an idea: use digital technology to standardise reporting and minimise time spent on documentation.

It's an idea that could have a big impact. After all, the average doctor spends more than a third of their working hours on paperwork. And even though Europe has a better than average ratio of doctors to inhabitants compared to the rest of the world, 40% of these practitioners are close to retirement age. Europe has a looming shortage of physicians, and doctors need to make each hour count.

Radiologists like Sommer are particularly in demand. Due to an ageing population, more and more medical imaging is needed, but over 80% of health systems report radiology shortages. And radiologists lose a lot of time reporting, because of outdated methods of documentation. "We usually start with a blank document," Sommer says, "look at the images, and dictate our analysis." Every doctor has their own style and there's little standardisation.

In 2014, Sommer founded his startup, Smart Radiology. He worked with software engineers to develop templates that could be updated regularly, so that clinicians always have access to the most relevant information.

Digitalising healthcare

After a decade, the company has expanded beyond radiology and rebranded as Smart Reporting. It has more than 80 employees, including a significant number of clinicians, while its software has more than 15 000 users in over 90 countries. **The European Investment Bank is supporting Smart Reporting's expansion with €15 million in venture debt financing, backed by the InvestEU programme**, which helps innovative European companies mobilise investment and supports the European Union's sustainability agenda. "There's still a lot of efficiency to be gained in the healthcare sector, and we see this software as not only a great solution for that, but also as a step forward for much-needed healthcare digitalisation," says Gergely Krajcsi, the EU bank loan officer working on the project.

The company says its software can save up to 90% of the time doctors spend on documentation, as well as cutting 30% of the time referring physicians spend interpreting non-standard reports. It's literally a matter of life and death, after all. Research has shown that introducing standardised reporting in pathology led to a 4.3% reduction in patient mortality. "Another reason why we're financing the company," adds Cristina Niculescu, a European Investment Bank life sciences specialist, "is because it has the potential to improve healthcare through a data-driven approach that makes diagnoses easier and more accurate."

SCIENCE FICTION TO SCIENCE FACT

New graphene brain implant to treat neurological disorders

The idea of implanting computer chips into human brains has a long history in science fiction. A quick search of the Internet Movie Database reveals that there are at least 55 movies and television shows featuring brain implants. Now, however, chip implants in the brain are set to join a growing list of technology that has gone from science fiction to science fact and, perhaps within this decade, will bring revolutionary solutions to meet a growing medical need. Spanish startup INBRAIN is starting human trials of an implantable brain chip made of graphene, a highly conductive revolutionary material that's 200 times stronger than steel and only one atom thick. "The great advantage of graphene is that it allows us to make a minimally invasive, highly biocompatible chip system that has incredible sensitivity and neural signal resolution with low power requirements," says Carolina Aguilar, INBRAIN's chief executive.

Graphene is essentially a single layer of carbon atoms arranged in a hexagonal lattice structure. One million times thinner than the width of human hair, it is a two-dimensional material with exceptional mechanical, electrical and thermal properties. Optically transparent yet dense enough to be impermeable to gases and exceptionally strong, it has great potential in a number of fields, including electronics, energy storage and biomedicine.

INBRAIN's chip contains a skin-like neural interface processor made of graphene and a wireless rechargeable neural processor that, together with advanced machine learning software, enables neural signals in the brain to be mapped, decoded, and modulated. The system can identify irregular electrical signals in the brain, which in the case of Parkinson's disease cause uncontrollable shaking, rigidity or postural imbalance. It then emits electrical pulses to modulate these and thereby control symptoms in real time. In the future, the system will also be able to decode thought-to-speech in patients with post-stroke aphasia or other paralysing disorders. "The potential is huge," says Valeria Iansante, a life sciences specialist at the European Investment Bank, which **signed a €20 million venture debt loan to INBRAIN in 2023** to back up potential future cash needs on top of the company's successful venture capital fundraising. "The potential impact of this technology for the treatment of neurological disorders like Parkinson's – and also potentially epilepsy or even depression – is so great, we believe they merit the financing now."

The European Investment Bank is not alone in recognising the potential of INBRAIN's technology. Europe's oldest pharmaceutical company, Merck, signed with the company in 2021 to cooperate on bioelectronic vagus nerve therapies to treat chronic diseases, such as inflammatory disorders.

Barcelona-based INBRAIN is a European success story for publicly funded research and Barcelona's high-tech scene. The company was spun out of the Catalan Institute of Nanoscience and Nanotechnology in Barcelona, with a research programme that was funded by the European Union's Graphene Flagship, a €1 billion ten-year research programme launched in 2013 to promote and coordinate graphene research across the European Union.

EVER-INCREASING CIRCLES

Plastic made with fossil fuels is a major contributor to climate change, and plastic waste is a serious environmental problem. Infinity Recycling has picked up the plastic gauntlet

Jeroen Kelder spent most of his career in corporate finance and investment, where he backed small and medium-sized companies and invested in key economic sectors such as healthcare and renewable energy. With the increasing focus on circularity, he realised many of the things he had learnt could be applied to resource transition and, in particular, to plastics. "Only a low percentage of plastic is being recycled in Europe," says Kelder. "We currently lack the solutions to adequately recycle our end-of-life waste, so a lot of it ends up either incinerated or sent to landfill, which is a pity because 7-9% of the world's CO_2 comes from plastics. Reducing this should be low-hanging fruit."

The technology to carry out advanced recycling has been around for years, but operations have been "sub-scale, too costly and inefficient. And given the disruptive nature of a transition from a centralised, linear economy to a distributed circular economy, the incumbent industry is unlikely to embrace change," Kelder says. "What the sector needs is independent risk capital and hands-on support."

That's why Kelder came to the European Investment Fund in 2019 to test the thesis of his investment firm, Infinity Recycling. In 2023, **the EIF invested €50 million in Infinity Recycling's Circular Plastics Fund**, one of its largest investments in a first-time fund. The result: the fund is well on the way to reaching its €150 million target size.

Plastic has a massive climate footprint and poses a serious threat to ecosystems and habitats, representing 80% of all marine pollution. Despite the negative impact of plastic waste, the use of plastic is expected to triple by 2060. The Circular Plastics Fund, one of the first European funds to focus on plastic recycling, is pioneering advanced recycling technologies that can address the issue and enable the transformation of plastic waste back into its original state for use as a raw material, closing the industrial loop.

"The European Investment Fund's meaningful commitment to the fund is expected to have a strong signalling effect and aligns with our objective of building a specialised European investor ecosystem in key underserved climate and environmental policy areas," says João Ramos, an investment manager in the European Investment Fund's equity investments and guarantees team.

The European Investment Fund has continued to ramp up its investment activity in climate and environmental impact funds and, in 2023, expects to commit close to €1 billion in over 25 venture capital and private equity funds, doubling its 2022 investment. Through its fund commitments, the European Investment Fund seeks to address persisting funding shortfalls in key and underserved markets by supporting new funds in the energy, agrifood, circular and blue economy sectors. The acute lack of capital for late-stage growth and the scaling of climate and environmental technologies has also been an area of attention, with the European Investment Fund supporting a number of new funds addressing this critical segment of the market.

VENTURE CAPITAL TO EASE SCALE-UP FINANCING

The European Tech Champions Initiative will fund the scale-up of European technology companies – and develop the European venture capital market

Promising European startups often struggle to raise the capital they need to expand and mature.

A quarter of European venture capital deals have at least one US investor. Startups are forced either to move abroad to the deep capital markets in the United States and Asia or sell themselves to larger rivals with deeper pockets. The number of venture capital funds with €200 million to €500 million to invest is three times greater in the United States than in Europe. The number of funds in the €500 million to €1 billion or more range is six to eight times greater in the United States. As a consequence, startups are typically able to raise up to five times as much in the United States as in Europe.

To bridge this investment gap, the European Investment Bank Group built an investment platform to boost venture capital in Europe, the European Tech Champions Initiative.

Managed by the European Investment Fund, the subsidiary of the EU bank that offers equity financing and focuses on smaller businesses, the European Tech Champions Initiative has secured an initial €3.75 billion of commitments from Germany, France, Italy, Spain, Belgium and the European Investment Bank Group.

The initiative will help European late-stage venture capital funds emerge and grow so that they can channel much-needed scale-up capital to promising European innovators.

The European Tech Champions Initiative is expected to make between ten and 15 investments in large venture capital funds of around €1 billion. It seeks to mobilise more than €10 billion of investment in innovative companies in their growth stage.

The initiative will also focus on developing an asset class to attract institutional investors and help maintain a continuous flow of funding to European scale-ups.

The size of the fund is expected to grow with new commitments over time.

“Innovative businesses need to be able to find the equity capital they need, right here in Europe,” says Marjut Falkstedt, chief executive of the European Investment Fund.

INNOVATIONS YOU SHOULD HEAR ABOUT

Italian hearing care firm Amplifon invests and digitalises to serve a growing population with hearing problems, while Ireland's Neuromod develops a tinnitus treatment

Marco Giachetti wasn't yet 40 when he began to lose his hearing. "When I was with family or friends, more and more often I would isolate myself, because I found it challenging to participate in conversations," says Giachetti, who is now 67. "Noisy environments were hard to handle, and so was going to the cinema or theatre."

He turned to Amplifon, a global hearing care retailer based in Italy, where an audiologist, or hearing specialist, fitted him with a device. Giachetti is not alone. About 1.5 billion people have some degree of hearing loss, and 430 million people – over 5% of the world population – suffer from disabling hearing loss. This number is expected to pass 700 million by 2050. Untreated hearing loss costs nearly $1 trillion a year globally in terms of health sector and societal costs, productivity loss and educational support. Investment in devices that improve the lives of sufferers is important, as populations grow older.

Investing in health

In July, the European Investment Bank signed a €300 million loan with Amplifon to help the company continue innovating, digitalising and improving its services. "It's an investment in the silver economy," says Radek Ossowski-Barbetti, the European Investment Bank senior loan officer who originated the deal. The investment will benefit Amplifon's customers in Europe and around the world, but much of the investment will be in cohesion regions, in line with Europe's policy of investing in its economically weaker regions to raise living standards.

Amplifon aims to use data to create "a more personalised audiological experience," says Enrico Vita, Amplifon's chief executive officer. "With the data we collect, we can get to know our customers better and gain insights into how they use their hearing aids. And with this information, we can improve our service, for example through personalised follow-up treatments and remote care."

> "Noisy environments were hard to handle"

Tackling tinnitus

Another auditory affliction that affects 10-15% of the global adult population is tinnitus, a phantom sound that has no external source. It is usually described as a ringing sound, but some people experience it as a high-pitched metallic whistle or roaring or buzzing. A company in Ireland, Neuromod Devices, has developed a device that pairs tongue and sound stimulation to help attenuate tinnitus. The company calls this dual mode stimulation "bimodal neuromodulation."

In March, the European Investment Bank signed a €15 million venture debt agreement with Neuromod to help it further develop the device and to begin commercialising in additional European countries.

PROBING FOR BREAST CANCER

A Polish firm develops innovative diagnostics for breast cancer that provide results in less than one hour

Magdalena Staniszewska and Marcin Staniszewski have invented a potentially revolutionary device to detect breast cancer. But the idea didn't start with breast cancer at all. It started with the eye… and NASA.

Magdalena, an immunochemist by training and a cell biologist by passion, was working at the prestigious Pierce Lab at Harvard Medical School in Boston in 2012, researching ocular diseases. Marcin had recently graduated from Akron University in Ohio with a master's degree in engineering. He was collaborating with NASA on a project using new composite materials for spacecraft engines, and he got interested in the possible applications of fibre optic technologies in space. Dinnertime discussions focused on science. The couple came up with the idea of using photonics to detect the presence of markers for various diseases in the body without having to remove cells or tissue. Instead, fibre optics could be used to measure disease markers, such as those floating around a tumour, inside the body in real time. "That was how we developed the idea of making a novel diagnostic tool for measuring something in real, living tissue," Magdalena Staniszewska recalls.

Their company, SDS Optic, has spent the last decade developing a diagnostic tool, inPROBE. Inserted into the body, in less than an hour it detects the presence of an aggressive type of breast cancer called HER2 positive. That compares to the days or weeks women wait for the results of a traditional biopsy. Early diagnosis improves the success of recently developed treatments for HER2 positive cancer.

"Cancer caught our attention because there was a great need," says Staniszewska, chief science officer at the company. Cases were rising globally, even among young women. "It was really frightening, and for me, obviously, it was close to my heart."

A nano-size fibre sensor is contained in a very thin biopsy needle that is inserted in the body near the tumour or potentially cancerous cells. The hair-thin sensor measures the presence of a biomarker, which makes the process safer – and much less painful and invasive than a traditional biopsy. Data gathered by the probe are transferred via fibre optics to a diagnostic device that determines whether cancer is present by the levels of certain markers, such as the HER2 protein.

Breast cancer is the number one cancer among women, with roughly 2 million cases diagnosed and more than 650 000 deaths each year, says Rebecca Verdin-Pol, an investment officer in the European Investment Bank's life sciences and biotech unit. **The European Investment Bank is providing SDS Optic with €10 million in venture debt financing, backed by an InvestEU guarantee**.

"Being able to diagnose in real time with very high accuracy is really game-changing," Verdin-Pol says.

POWERED BY THE SUN

A Spanish company develops the first solar-powered, fully electric, unmanned drone, unlocking new uses in intelligence and surveillance

Robert Miller is a veteran of the aerospace industry who has developed and used flying machines for geospatial sensing, communication, and environmental study. He spent years researching technologies for surveying areas of dense vegetation, such as jungles, forests and maritime borders. Such surveillance is significant for both civilian and defence purposes. But different environments, such as dense foliage, can make it tricky to collect, understand and analyse information.

Miller realised that combining information from various sensors was crucial to overcoming this problem. But that required a slow-speed aircraft capable of long flights and steady movement, enabling the cameras and sensors to gather much more detailed, useful information through images of a higher fidelity. Such technology, however, had yet to be developed.

Everything changed in 2016 when Bertrand Piccard and André Borschberg completed the first-ever journey around the world on a solar aircraft. The aircraft was exactly what Miller was searching for and he saw its potential to revolutionise the air defence industry. Skydweller, a company founded by Miller and his partner, John Parker, acquired the aircraft developed by Piccard and Borschberg in 2019, along with the related intellectual property assets. "The aircraft is lightweight, has remarkable endurance due to its solar-powered nature, and it is slow because it operates like a glider," says Massimiliano Manfreda, who was one of the first nine people to join Skydweller when it was founded. "The only limit was the pilot. Our first big idea was to remove the pilot and transform the aircraft into an unmanned system."

> **"Our first big idea was to … transform the aircraft into an unmanned system"**

Skydweller, together with its Italian technology partner, Leonardo, plans to release the drone commercially in 2024. **The European Investment Bank is backing Skydweller with a €30 million venture debt loan, signed in November 2023**. The financing is supported by a guarantee from InvestEU. "No other solar-powered drone can carry similar payloads," says Björn Werner, an economist at the European Investment Bank who worked on the deal. "Powered by a combination of sun and batteries, the unmanned air vehicle will remain airborne for days without needing to land or refuel, unlocking new possibilities.

With a massive wingspan of 72 metres, the aircraft exceeds the size of passenger planes like the Airbus A330. The wings are covered with nearly 300 square metres of photovoltaic cells to harness renewable solar energy. The aircraft also features four batteries capable of stocking 7 075 kilowatt hours of energy, equal to the batteries of two Tesla electric cars.

Solar-powered drones could revolutionise aviation by paving a way to decarbonise long-distance flights. Because the aircraft are able to fly for an extended period of time and cover more ground, they are useful in remote areas where traditional sources of power may be scarce.

The European Investment Bank's support will enable the company to further improve the technology and make the aircraft commercially available. "It will also help the company become a leading provider of unmanned aircraft," says Fabrizio Morgera, a senior investment officer at the European Investment Bank.

NICE, GOOD AND QUICK

Italy's first fully digital, cloud-based bank finances small businesses in the Mezzogiorno – particularly those with a focus on climate action

Founded in 2019, and led by Corrado Passera, a former Minister of Economic Development, the cloud-based bank illimity has grown fast and become an incubator of groundbreaking initiatives like b-ilty, Italy's first online lending programme for small businesses. "We wanted to overcome the constraints of traditional corporate banks and help overcome some of the day-to-day hurdles that small entrepreneurs currently face," says Passera.

A €100 million loan from the European Investment Bank signed with illimity in April will enable b-ilty to invest that amount in small businesses based in the Mezzogiorno, Italy's south and islands, and in companies that help fight climate change. It's the second time the innovative company came to the EU bank for financing, after a 2021 deal that was designed to counter the economic impact of COVID-19 on small businesses.

While Italian retail banks embraced digitalisation some time ago, corporate banks are only now coming to terms with digital. Launched in February 2022, b-ilty's digital banking platform includes a whole range of services for small businesses, including streamlined loan applications and seamless accounting and reporting. Companies have a comprehensive view of all their assets and can access their financial metrics in a matter of seconds.

"Small businesses are able to focus on important business-critical tasks, rather than on time-consuming paper-based banking processes," says Roberto Stasi, a loan officer at the European Investment Bank who has worked on the illimity deals.

The favourable conditions of the European Investment Bank loan to b-ilty are passed on to small businesses – 30% of the resources will benefit small companies in EU cohesion regions, in particular Molise, Campania, Puglia, Basilicata, Calabria, Sicily, Sardinia, Abruzzo, Umbria and Marche.

"For us that's a great way to help a European regional bank grow and to foster more green finance for smaller projects," says Tatiana Bosteels, the European Investment Bank economist working on the deal. "We would like to engage in a long-term relationship with b-ilty to finance more and larger climate action projects in the future."

Digital bank with a human result

It's crucial to tap the enormous potential of small businesses. So illimity doesn't just lend them money, but actively participates in their growth strategies. b-ilty focuses on the needs of the historically underserved 1 million small businesses in Italy. b-ilty can provide support to various businesses across Italy, without the overheads created by physical branches. The platform can quickly analyse dozens of indicators, providing clear credit answers to small entrepreneurs. Within a few days a company knows whether it's entitled to a loan, and why.

"We like doing nice, good things and doing them fast," says Passera.

A STAY OF CHICK EXECUTION

Dutch company offers hatcheries a quick, low-cost way to crack the problem of identifying male chicks before they emerge from their eggs

Wouter Bruins was looking for a real-world problem to solve. For his master's thesis in cell biology at Leiden University, he needed to come up with an idea that could potentially grow into a startup company. Bruins looked for inspiration among the farmers of his native Randstad region of the Netherlands. One day, a farmer was showing Bruins around the henhouse when he stopped and pointed to the chickens. "For every hen you see here, we killed a rooster, a male chick," the farmer told Bruins. "And I hate that we are doing this."

The farmer was referring to the estimated 6.5 billion male chicks culled globally each year, usually when they are barely a day old. Egg producers, which also breed laying hens, lack a quick, low-cost way to determine the sex of an embryo before the chick hatches. When the chicks finally do emerge, farm employees verify the sex and then remove the females. The males are promptly killed, either by being dumped in a shredder or, if they're lucky, in a gas chamber. "From all the problems I wrote down from all the people I interviewed, I decided to go for chick culling," Bruins says. "It's a topic that combines technological and business challenges, but also ethics. When you see it, you feel in your stomach that this is not okay."

> "This is one of those obvious problems that need to be solved"

Bruins hunkered down in his apartment in Leiden to work on a solution. He founded In Ovo with a fellow student in biomedical sciences, Wil Stutterheim, and the two have been working for the last 12 years on a fast, cheap way for farmers to determine the sex of a fertilised chick egg. The result is the Ella machine, which determines the sex of an egg from the ninth day of incubation by piercing the shell and extracting a tiny sample of fluid. The first machine was successfully tested in 2020, enabling 300 000 chicks to hatch without a single male being killed. Now, In Ovo is scaling up, and plans to have ten machines running in the hatcheries of egg producers by the end of 2024.

"If you are a biologist and you understand genetics, and you have a connection with the agricultural sector, this is one of those obvious problems that need to be solved," says Diogo Machado Mendes, a senior economist in the European Investment Bank's bioeconomy division. **The EU bank is supporting In Ovo with a €40 million venture debt investment that is backed by an InvestEU guarantee**.

Low-cost, fast tests

Here's how the machine checks the sex of the chicks. It punches a tiny hole in the egg with a needle and removes a small amount of liquid from the sac where the embryo deposits waste. The hole is then immediately closed with glue. The machine determines the sex, in about one second, by using a mass spectrometer to test the sample for a unique biomarker that In Ovo discovered. Then it sorts the eggs by sex. The female eggs are put back in the incubator until they hatch on the 21st day. The male eggs are sent to a separate company that uses them as an ingredient in pet food.

A typical hatchery produces about 20 million chicks a year, Bruins says. In Ovo's challenge was making the tests cheap and accurate enough for hatcheries to implement them. While the technology to determine an embryo's sex was available a decade ago, it was too expensive to use. "I almost felt by intuition that this could be pretty big," he says. "It was something I could spend a lot of time on, trying to solve the issue."

> **It's a topic that combines technological and business challenges, but also ethics**

In Ovo is trying to develop the technology further to be able to test eggs on the sixth day, instead of the ninth. In addition to determining an embryo's sex, In Ovo also monitors a chick's health during the incubation period. The funding from the European Investment Bank will enable the company to further improve the machine, roll out more machines and support additional innovations for the poultry sector.

Hatcheries save a significant amount of labour, too, because most chick-sexing is done by hand. The price of testing a fertilised egg is negligible, which is important in the high-volume, low-margin business of producing eggs for consumption. "The culling of chicks is really harsh to see," says Céline Rottier, the loan officer at the European Investment Bank working on the project. "But the question is, can you find a solution that farmers are willing to implement? I think they might have cracked the problem."

DESIGNS
FOR A GREEN EUROPE

"Food insecurity, climate change and biodiversity losses are global market failures. They justify enhanced attention to investment in the bioeconomy sector by public financing institutions. In 2023, there were pressures on food and biomaterials production costs triggered by extreme weather events and geopolitical instability. Our focus has been on projects that support farmers and small businesses along the agricultural value chain, as well as innovation on climate-smart practices and technologies, the reduction of the environmental footprint of the food value chain, sustainable and inclusive rural development, and sustainable fuels and material produced from food and biomass residues. Alongside this work, we contributed to the response to the destruction of biodiversity and natural resources by forest fires, among other things, with continued significant finance for forestry and natural capital."

Felipe Ortega Schlingmann, head of bioeconomy, EIB

"The EIB plays a key role in supporting cities that are implementing ambitious integrated urban development strategies. This is how cities become more resilient to the challenges they face – population flows linked to the war in Ukraine, natural disasters, social conflicts, environmental phenomena, climate change, and the current effects of the financial and economic crises."

Leonor Berriochoa, lead engineer, urban development, EIB

"Climate action and environmental sustainability targets set and operationalised through our Climate Bank Roadmap have been surpassed ahead of time for the second year running. These results continue to be supported and enhanced through tailored financial products and forward-thinking policy, such as the groundbreaking EIB approach to the just transition in developing countries. I'm proud to be part of a public bank that is making a difference."

Stephen O'Driscoll, head of environment, climate and social policy, EIB

Every aspect of our present lives exists in the shadow of climate change and environmental threat. Projects and developments that once were thought of as operating in discrete sectors or industries must now incorporate the necessity of energy efficiency or energy generation into their regular functioning. Our cities, factories and construction sites must be sustainable. The European Investment Bank's policies put us ahead of the crowd in backing clean, green technologies – and in promoting the application of these technologies to every area of human endeavour.

"Water is the invisible enabler for a transition to a green economy. By 2050, over 40% of the world's population will live in river basins under severe water stress. Water insecurity is likely to increase food price spikes and conflict. There is an urgent need for increased public and private investment in the sector. The projects we finance address market failures and alleviate investment gaps, so that scarce resources are used to build climate-resilient water systems and maximise long-term impact."

Karine Measson, head of water management, EIB

GREEN AND HUMANE

Kraków is upgrading urban infrastructure to make a greener city for residents and aid Ukrainian families

For a long time, air pollution cast a dusty shadow over Kraków's beauty, damaging the quality of life of its residents. To change that, Kraków is working on an urban plan to transform into a climate-neutral and smart metropolis. "We want to be perceived as a city of innovation, a scientific and research and development centre, a leader in sustainable urban development and climate action," says Andrzej Łazęcki, director of Kraków's department of municipal management and climate.

Kraków also faces unexpected infrastructure pressure because Russia's invasion of Ukraine brought approximately 270 000 refugees to the city. These arrivals created a bigger demand for public infrastructure and services, such as education, healthcare and housing. Despite the war in a country less than 300 km away, Kraków didn't give up its ambitious climate goals. Instead, it wants to hit two targets at once – make the city greener and upgrade and renovate Kraków's urban infrastructure to accommodate the needs of its citizens and the Ukrainian arrivals. "We can learn a lot from Kraków's approach to dealing with climate change and the current humanitarian crisis," says Leonor Berriochoa, a senior engineer at the European Investment Bank, who worked on a €130 million (PLN 585 million) loan to the city signed in 2023. "It could inspire many other cities to follow suit."

For cities to prosper and grow, urban development is necessary. It can also help cities to adapt and deal with a humanitarian crisis. "Every city can host a limited amount of people," says Katerina Zisimopoulou, a senior urban specialist at the European Investment Bank. "So, when thousands of people arrive, education, transport and other existing infrastructure cannot respond to the needs of the growing number of inhabitants, causing conflict, lack of resources and rapid deterioration of public services and infrastructure."

Urban development projects, which build new public infrastructure and upgrade existing ones in an inclusive and integrated way, are important for meeting the needs of the population like education, healthcare and employment.

Facing a humanitarian crisis

Local authorities adjusted their urban development plan in response to the growing needs of Kraków's citizens and the Ukrainians who made new lives here in recent years. "We focused on the integration of the newly arrived Ukrainian population and their inclusion in all public services, which needs to be extended to accommodate the newly arrived people," says Elżbieta Żurek-Kois, director of the department of social affairs and health at the Municipality of Kraków.

Building new urban infrastructure and upgrading existing facilities requires significant investment, careful planning, and time. The financial burden is increased by the greater need for essential services and infrastructure to meet the demands of the refugee population. To support Kraków's efforts, **the European Investment Bank approved a €334 million (PLN 1 500 million) framework loan – the €130 million deal signed in August was the first tranche**. The financing is part of the Ukraine Solidarity Package Programme, an initiative that aims to finance urban and regional investments in EU Member States in response to the Ukraine war. "People in Kraków have been working very hard to deal with the humanitarian crisis but at the same time to build a greener city," says Marcin Futera, a loan

> **It could inspire many other cities to follow suit**

officer at the European Investment Bank. “Thanks to the framework loan, we can finance various projects of different sizes and kinds all across the city.”

Building a greener Kraków

The municipality has significantly renovated and improved the energy efficiency of its buildings. This includes, among other measures, the insulation and replacement of windows and doors and the installation of LED lighting, thermostatic valves and air purifiers. So far, 43% of the 323 public buildings managed by the city have been completely renovated and 34% have undergone slight to moderate energy efficiency and renovation operations.

Krakow’s approach is also distinguished by the inclusion of citizens in the decision-making process. The municipality organised two citizens’ panels, in which residents and experts could discuss the development of sustainable transport, as well as the reduction in energy consumption and the use of renewable energy sources. The panel’s recommendations are binding.

“By engaging all our citizens in the process, we help build environmental consciousness and learn exactly what their needs are,” says Łazęcki, the municipal manager. “We can make the city more inclusive and comfortable to live in, and at the same time more resilient to unpredictable situations.”

A SUSTAINABLE HOSPITAL

NETHERLANDS HOSPITAL RENOVATION CUTS CARBON EMISSIONS

The Haaglanden Medical Centre is one of the top clinical hospitals in the Netherlands. But many of its buildings require renovation to ensure good care and improve its environmental footprint. The Hague hospital, known as HMC, signed a €110 million loan in June with the European Investment Bank to refurbish two of its main sites with the latest medical equipment and supplies, as well as new heating and cooling systems. The goal is to cut carbon emissions by 64%.

Besides the energy savings, the work will keep residents healthier, of course. The centre has more than 170 000 patients a year who come from across the Netherlands to be treated by its trauma, neurology or cancer specialists. Meanwhile, simply switching to a heat pump system in the winter and hybrid cooling equipment in the summer will make a big difference in energy consumption at the hospital. “By investing in heat pumps and hybrid cooling to reduce energy consumption and lower costs,” says Martijn Wiesenekker, chief financial officer of the hospital, “we also take the opportunity to look at our environmental impact.”

MASONRY BLOCKS THAT EAT CARBON

Four companies from Belgium get together in a local, circular economy project using by-products of steelmaking to create a masonry block that cuts carbon dioxide emissions

If there was ever a product that turned a problem into a solution, it's the innovative masonry block developed by four Belgian companies. Most concrete blocks are made with cement, which causes greenhouse gas emissions. The innovative Belgian block is made with carbon dioxide gathered from other industrial processes. It eats carbon dioxide and turns it into something useful.

Cement production is the source of 2.4% of global carbon dioxide emissions from industrial and energy sources. So the four companies, who all have facilities near Liège, are together developing a product that could have significant implications for the battle against global warming. "Our project is very innovative," says Antoine Gregoire, development manager at Prefer, one of the four companies. "It is circular and local."

> "Our project is very innovative. It is circular and local"

Here's how it will work. When one of the companies, Lhoist, heats stone to make lime, it creates carbon dioxide. Instead of letting the carbon dioxide escape, it will send the gas down a pipeline run by Fluxys, a company that usually works in the transmission of natural gas. The 2 km pipeline will arrive at Prefer, which makes concrete materials. Orbix, which develops sustainable materials for the construction and steel sectors, will take the slag left over after Lhoist's lime is used for steel production by another company. It will ship the slag to Prefer by boat. Finally, Prefer will bring the slag and carbon dioxide together to make a block. Specifically, the carbon dioxide will be used to harden the block, which the companies call CO2ncrEAT, because it effectively eats CO_2.

But development of an innovative industrial project is very expensive. The four companies put the cost at €7.5 million. So they wanted to get backing from the Innovation Fund, a European Commission funding programme for innovative, low-carbon technologies. They received support from experts on the European Investment Bank's Innovation Fund team. "We had to show that the project is economically viable, taking into account the contribution of all four members of the consortium," says Matthieu Banal, a European Investment Bank finance advisor who worked with the companies.

The European Commission sends project applications to the EIB Innovation Fund team, which consists of experts from the Bank's Advisory Services and the Projects Directorate, for financial and technical assistance. The EU's European Climate, Infrastructure and Environment Executive Agency pre-selected this project for a grant of €4 million under an Innovation Fund call for small projects. **The grant agreement was signed in May 2023 and the project got underway in June**. "Without the grant, it would be too expensive to develop the manufacturing process for these blocks," says Gregoire. "The risks linked to the innovation and the capital expenditure needed to build the factory are too high."

WORKING WITH NATURE, NOT AGAINST IT

Nature-based solutions for flood mitigation in Greece

Powerful storms struck Thessaly in northern Greece causing severe flooding not once but twice in September 2023. "We were lucky that no one died during the second storm, because the first one completely wiped out our network of early warning sensors," says Harry Kalliaras, an advisor to the mayor of Trikala, a city of about 80 000 in northwest Thessaly. The storms destroyed 150 homes and severely damaged more than 1 000 in the city centre and nearby villages. After the second storm, life in the 3 000-year-old city ground to a halt for days as authorities ordered residents to stay indoors and inspected the safety of the city's 12 bridges across the Lithaios river. The cost to the region, known as the breadbasket of Greece, is already estimated in the billions.

Thessaly is no stranger to floods. Large-scale construction to canalise rivers by building concrete embankments and dykes began in the 1930s and huge changes to the landscape continued until the 1970s with land reclamation. Now, however, the glaring failure of these approaches to protect against increasingly frequent extreme weather events caused by climate change is prompting the region to consider a dramatically different approach: removing the concrete and letting nature do its work. "I remember that 40 years ago there used to be basins near the river that retained floodwater," says Kalliaras. "Since then, the approach has been to try to restrict the river and just block off the natural ways out that it used to use when there were floods and there's been a lot of building close to the river. If these natural basins had still been there, it's obvious that the damage to the town would have been less serious."

> **"If these natural basins had still been there..."**

That natural approach is the recommendation of a study financed by the European Investment Bank and led by Global Infrastructure Basel and WWF Greece, which was at the centre of discussions with stakeholders in 2023. "We need to work with nature, not against it," says Aimilia Pistrika, a senior water engineer at the European Investment Bank.

Study pushes nature-based solutions in Greece

According to the pilot study, nature-based approaches to flood management in the region, such as widening rivers and connecting them with their floodplains, creating riparian forests and removing structures built to control or obstruct the flow of rivers, would be far more efficient than relying on new or rehabilitated "grey" flood protection infrastructure, such as dykes. According to the report, the carbon storage value of the nature-based approach alone, estimated at €12.8 million, would be larger than their cost of implementation (€6.8 million) and a hybrid approach (€9.3 million).

Nature-based approaches to flood mitigation, however, face certain challenges. "The whole process takes time," says Catherine McSweeney, who works in the European Investment Bank's civil society division. "We've been organising outreach events and meetings with authorities and stakeholders for two years now. But we've learnt a lot on this project and believe that we've developed an approach that can be accelerated, scaled up and replicated elsewhere."

A FRESH IDEA

CrowdFarming's direct-selling model promotes fresh food and sustainable agriculture that cuts emissions and delivers profits to small, organic farmers

When brothers Gabriel and Gonzalo Úrculo inherited their grandfather's orange plantation in Valencia, Spain, their family advised them to sell the money-losing farm. But they decided to give it one last try. They started by selling to intermediaries such as cooperatives or large buyers, as their grandfather had always done. But they weren't earning enough to cover their costs. They decided to create a website, Naranjas del Carmen, to sell directly to consumers across Europe. The website sold fruit to friends in Germany and Austria, but it expanded steadily by word of mouth. When Deutsche Welle, the German public broadcaster, did a story about the orchard, orders exploded. Demand was so strong Naranjas del Carmen couldn't meet the orders.

> **"We are deeply committed to the concept of 'farm to table'"**

Farmers in the same area of Spain who had witnessed this success reached out for help setting up their own online sales system. Gonzalo and Gabriel had put their finger on a major market gap: a massive demand from consumers and farmers to connect directly. In 2017, the Úrculo brothers founded CrowdFarming to provide farmers with the services – software, web design, logistics, customer services, marketing and agronomic support – Naranjas del Carmen had developed over the years to sell directly to final consumers. "CrowdFarming was born as a one-stop-shop for farmers who want to create their own direct sales channel," says Román Martínez de Aragón, head of strategy at CrowdFarming. "We take care of that complexity, so that farmers can focus on growing, producing and harvesting their food."

CrowdFarming is helping to digitalise the agricultural sector in Europe, which is made up largely of small producers that don't necessarily have the means or expertise to sell directly to consumers via a website. The site represents 300 farmers from 15 countries, mainly in Europe. Customers have the option of ordering boxes of fruits and vegetables or products like honey and cheese. They can even adopt a tree, a plot of land, or an animal and commit to receiving its produce. To boost the company's work on its digital platforms and software, **the European Investment Bank signed a €15 million venture debt loan with CrowdFarming in September 2023, backed by the InvestEU programme**.

"Farmers, who were usually price-takers from supermarkets, now have the power to set their own prices, creating a paradigm shift in the industry," says Jérôme Marcelino, the senior loan officer in charge of the investment for the European Investment Bank.

Tasty and good for the planet

CrowdFarming only features farmers producing organic food and farmers transitioning to organic. Agronomists carefully select the farmers who sell on the platform, ensuring they apply the highest sustainability, quality and production standards. María Martínez Hijano, who is from Málaga, persuaded her family to convert their fourth-generation farm to organic produce when she took it over in 2017. She started selling mangoes via the CrowdFarming platform in 2020, with huge success. "We've been able to grow and innovate towards a style of farming that is increasingly integrated with the environment," Hijano says.

> **A one-stop-shop for farmers who want to create their own direct sales channel**

Unlike some supermarkets, CrowdFarming does not store its produce for weeks or spray it with antifungal chemicals to make it last longer. Fruit and vegetables sold on the website are picked according to client orders, and fruit and vegetables are left on the trees or bushes until they are just ripe enough to ship. In conventional farming, food is harvested when it's convenient for an intermediary, such as the supermarket, and produce can spend months in ripening chambers or industrial refrigerators.

While CrowdFarming's approach helps ensure its products are flavourful, it creates work for farmers, who previously would just harvest crops once a year and then ship them to intermediaries or supermarkets. With CrowdFarming, farmers need to plan out several harvests.

Farmers are willing to do this additional work, because of the benefits of direct selling. They can anticipate their revenues months in advance, and their margins are higher than in traditional sales networks. Citrus fruits, for example, can fetch two to four times what they receive in conventional stores. For the customer, prices are on a par with those in organic supermarkets in western and northern European countries.

"We are deeply committed to the concept of 'farm to table,'" says Cristina Domecq, head of sustainability and impact at CrowdFarming. "The moment you order, CrowdFarming and farmers spring into action, picking, packing and shipping the freshest organic produce directly to your doorstep. It's all about delivering real, unadulterated freshness."

Disrupting the food chain

In 2022, CrowdFarming conducted a study to quantify the impact its model had on carbon emissions and food waste. The study compared the journey oranges took from farms directly to the consumer's home with classic supermarket distribution. It found that direct sales resulted in 20% lower emissions than in the supermarket model. It also showed that only 3% of food was wasted in the supply chain, compared with 22% in the supermarket model.

CrowdFarming has a team of about 200 people, mainly software developers, working to improve the platform. They also maintain in-house logistics software called "CrowdSender," which enables the company to efficiently manage orders, grouping them by region and ensuring trucks are fully loaded, so that deliveries are made in the most cost-efficient and environmentally friendly manner.

Thanks to the European Investment Bank's financing, the company will be able to continue to innovate in its business model, processes, digital applications and software, says Alejandro Raboso Campos, an advisor at the European Investment Bank. And that promotes more sustainable and equitable food production.

"It is rare to come across a project with such direct and tangible results on the ground," says Raboso Campos. "It is good for the farmers, the consumers, and the environment."

GIGAWATT ON THE ROOF

Logistics company CTP turns the roofs of its facilities in the Czech Republic and elsewhere into massive solar power farms, cutting costs and emissions for its tenants, and boosting its own profits

Renewable energy can turn even the owner of a small house into an electric company – just put some solar panels on your roof and sell the energy you don't use to your local utility company. For a company with 11 million square metres of rooftop, that makes for a mouth-watering prospect. Europe's largest listed logistics property owner and manager, CTP, is covering the roofs of its buildings with solar panels, so that renewable energy will become a substantial part of the company's business, alongside developing new buildings and operating business parks. The next step in CTP's move into energy is to put solar panels on the roofs of its buildings in every country in which it operates. It's a significant stride because, though CTP shares are listed on Euronext Amsterdam, the bulk of its business is in Central and Eastern European countries such as the Czech Republic, Slovakia, Hungary and Romania. "We see energy as the third business unit within the company," says Maarten Otte, who heads investor relations from CTP's Prague office. "Solar is the first step in that, but it goes much further, right on to providing electric vehicle charging stations for our tenants, energy management, and energy storage."

> "It's contributing to Europe's strategic autonomy"

The company projects that it will have as much as 400 MWp of capacity on its buildings by the end of 2026. MWp stands for "megawatt peak," which is a measure of the output of power from a source that may vary, such as sunshine. And with plans to double its portfolio and, therefore, its effective roof space in the coming years, CTP could be generating 1 GWp in these countries by the end of the decade. That's a major step towards the decarbonisation of countries where emissions are still high.

Rooftop solar and European strategic autonomy

CTP's properties, which are used as logistics centres and by some light industrial clients as venues for production, also provide European locations for companies that might otherwise have been forced to look for space in, for example, Asia, keeping important industries in Europe and shortening supply chains. "CTP is bringing companies back from Asia," says Jan Morawiec, a loan officer for the European Investment Bank. "It's contributing to Europe's strategic autonomy."

After the industrial supply disruptions caused by the COVID-19 pandemic and the energy shortages that followed Russia's invasion of Ukraine, this strategic autonomy is crucial to Europe's future. The strategic contribution is one of the reasons the European Investment Bank signed a €200 million loan with CTP in September 2023 to finance the solar project mainly in the four Central and Eastern European countries, as part of the European Investment Bank's €45 billion contribution to REPowerEU.

The solar panels are good for the climate. They also make financial sense – for CTP and its tenants. "It gives them a competitive advantage over other logistics companies that don't integrate energy supply into their rental contracts," says David González García, lead engineer for energy transition programmes at the European Investment Bank.

REPOWERING EUROPE

Three Spanish renewable energy projects strengthen Europe's energy autonomy by building solar and wind capacity, and transmission networks

Jaime Celaya had always wanted to work in the renewable energy market, because of its impact on society. So, following his studies and some early professional experience, he joined Iberdrola, the largest energy company in Europe by market capitalisation and a leader in renewables. In his role as a business developer, he evaluates, selects and implements new energy projects that will help Iberdrola reach its goal of zero emissions by 2040.

"It is a very dynamic and active sector, with new technologies, new mechanisms and new techniques appearing day to day," he says. "Every day, I learn something new and acquire more knowledge."

In the coming years, Celaya will be working on Iberdrola's ambitious plan to build an extensive network of 19 solar photovoltaic power plants and three onshore wind farms across Spain, Portugal and Germany. "We have an abundance of sunlight, water and wind, which are the essential components for renewable energy production," he says. "Investing in these resources and renewables is crucial for countries to reduce their greenhouse gas emissions."

> "Investing in these resources and renewables is crucial for countries to reduce their greenhouse gas emissions"

With nearly 2.2 gigawatts capacity, the new installations will have the potential to generate up to 4 terawatt-hours of electricity. This is equal to the average annual energy consumption of more than 1 million households. 70% of the plants will be located in rural areas affected by the industrial transition to net zero, and regions where the per capita income is lower than the EU average.

"We offer training to people in these regions, giving them the knowledge and skills to operate, build and work in solar power plants and wind farms," Celaya says. "The new projects will foster growth and employment in these areas, making it possible for them to develop more projects."

Ensure a stable supply of energy

Incorporating renewable energy into our grids is difficult because they don't generate electricity consistently. Unlike fossil fuel or hydropower plants that generate electricity on demand, solar panels and wind turbines rely on weather conditions and location. This means they produce varying and partially predictable amounts of electricity, making it hard for our energy grids to maintain a stable and consistent supply. This is the so-called renewable integration challenge.

To tackle this issue, some of Iberdrola's photovoltaic projects will include hybridisation with a battery system – combining two different sources, like wind and solar, with energy storage to ensure a more stable and reliable power supply.

"With hybrid systems, we construct photovoltaic plants near a wind farm," says Celaya. "When there's no sunlight, we can generate power with the wind. Also, when there's no wind, we can generate power from the sun. This way, we use the same infrastructure and avoid the need for additional construction. Using batteries, we can save extra energy from the wind and sun and put it on the market when there's no wind or sun or when they're not generating power."

The European Investment Bank is providing a €1 billion loan to Iberdrola to co-finance the construction of the 22 renewable energy plants in Spain, Portugal and Germany, in a deal signed in June 2023. Called a "framework loan," it can finance a range of projects.

"This type of financing offers stability, flexibility, and long-term funding for multi-project renewable energy operations," says Luis Cañete, a senior loan officer who worked on the deal at the European Investment Bank.

The operation is part of the EU bank's financing package in support of REPowerEU, a European Commission plan developed in response to Russia's invasion of Ukraine that aims to reduce EU dependence on fossil fuel imports and accelerate the green transition.

An innovative way to finance energy projects

Red Eléctrica de España is another company that will contribute to Spain's energy transition. It plans to expand and reinforce its transmission network, which transports electricity from power plants to homes, businesses and industries. These investments are part of Spain and Red Eléctrica's Transmission Network Development Plan 2021-2026 which aims to:

- integrate future renewable generation facilities, enabling Spain to reach its 74% renewable electricity target by 2030
- improve the reliability of the 220 and 66 kilovolt networks
- reinforce the interconnections with Portugal and France
- improve the cost efficiency and reliability of supply in the Spanish power system, including in the Balearic and Canary Islands

The European Investment Bank will support Red Eléctrica by acquiring green senior bonds and green hybrid bonds worth €500 million issued by the company under the Red Eléctrica Green Finance Framework. In January 2023, the Bank acquired €41.5 million of the inaugural green hybrid bonds. This transaction, under the InvestEU programme, was the first public transaction under the Bank's green bond purchase programme.

"Green bonds and green hybrid bonds can fill the climate funding gap, while promoting the use of capital markets," says Raquel Cuervo Salvador, a bond financing officer at the European Investment Bank. "They provide numerous benefits to renewable energy projects, including expanding the investor base, reducing execution risk, increasing funding availability, and our stamp of approval and signalling effect."

The project is expected to help reduce greenhouse gas emissions and create employment opportunities in less-developed regions of Spain.

"We can save extra energy from the wind and sun and put it on the market when there's no wind or sun or when they're not generating power"

> **Green bonds and green hybrid bonds can fill the climate funding gap**

A new burst of renewable energy for Spain

Solar power plants will play a crucial role in the energy transition. They capture the abundant energy from the sun to generate electricity without emitting greenhouse gases, which is essential to reducing our reliance on fossil fuels.

Backed by the InvestEU programme, the European Investment Bank is providing a framework loan of up to €1.7 billion to Solaria to support the construction of 120 solar photovoltaic power plants in Spain, Italy and Portugal, in a deal signed in September 2023.

Founded in 2002, the Spanish company aims for 5.6 gigawatts of capacity in full operation, which would amount to 9.3 terawatt-hours a year. This is equal to the energy use of nearly 2.5 million households. This clean energy will reduce greenhouse gas emissions by 3 million tonnes of CO_2 a year.

"Developing a 5.6 gigawatt pipeline of renewables across Spain, Italy and Portugal will impact these countries and the European Union's efforts to tackle climate change, while increasing energy security," says Elena Cuadros, a renewable energy engineer at the European Investment Bank. "With more than one-third of the solar farms in less-developed regions, the project will also boost employment where it is most needed."

DESIGNS
FOR AN ENGINE OF EQUALITY

"Education and training are fundamental to the strengthening of the European Union's innovative potential, its competitiveness and social cohesion. The right set of skills is more important than ever in the green and digital transition. That's why the Bank fosters investment in quality education and training – to prepare our people and our schools for future challenges."

Patricia Castellarnau, head of education and public research, EIB

"EIB Advisory translates complex policy objectives into market reality. In 2023, EIB Advisory supported half of EIB lending operations and some key cross-cutting initiatives at the European Investment Fund, such as the push to achieve gender equality in the European venture capital and private equity industries. We helped clients cope with the energy transition, with developments in social housing, quantum computing and gender equality, and with the building of the European new space market."

Hristo Stoykov, director, Advisory Services, EIB

"Our core activity is downstream advisory work on climate projects. We advise companies on how to shape business proposals into economically viable, technically feasible, bankable operations that are better positioned to access funding from the EIB, the European Commission, the market – or all three. We also conduct upstream thematic studies that identify market inefficiencies and funding gaps. And we organise capacity-building initiatives such as sector consultations and outreach events to promote EIB advisory services and products."

Juliet Dow-Madu, head of manufacturing, energy and transport, Advisory Services, EIB

We are preparing for a world in which change shows no sign of slowing down. The European Investment Bank works to ready all of us to cope with – and thrive in – the world as it will come to be. Our children need better schools, and those schools must contribute to a net-zero economy. We must make it convenient for everyone to move from place to place without emitting great clouds of carbon. And we must do this by building well-grounded transport systems and mobility industries, so that the people they employ will flourish, even as the wild ride of change rolls on.

"Project finance has contributed some of the most iconic EIB success stories, such as motorways and railways that closed bottlenecks in the Trans-European Networks and drew private capital to accelerate critical investments. Our mandate evolved into sectors such as renewable energy, where we made a significant contribution to the emergence of the European offshore wind industry. Lately, our role as the EU climate bank takes us into energy interconnectors, battery manufacturing for green mobility, and emission reduction in hard-to-abate sectors such as steel and fertilisers. Some of these projects are real trailblazers on Europe's path to sustainable competitiveness."

Matthias Woitok, head of project finance (East), EIB

BOOSTING LEARNING, SAVING ENERGY

A renovation will make over 200 Rome schools more energy efficient, but first the city needed help planning the vast project

Rome is a city full of history. Its heritage buildings are a true treasure for art lovers and tourists alike, but not so much for students. Many young learners in Rome attend schools in buildings that date back to the 19th century. Some of these old schools are run-down, badly insulated, and poorly equipped to face the threats of a changing climate. That's why the city is embarking on its biggest investment in education renovation for decades, aimed at making over 200 schools more energy efficient and sustainable.

But renovations on the oldest building stock are much harder to do. "Complex upgrades are particularly difficult," says Linda D'Amico, an architect in the City of Rome Public Works and Infrastructure Office, because antique buildings need to be protected and preserved.

The City of Rome is responsible for a huge number of educational buildings. It has 1 144 nurseries, kindergartens, primary and lower secondary schools. These schools are by far the biggest energy consumers among Rome's public buildings, accounting for as much as 95% of total municipal energy consumption. An effective energy efficiency programme could save money and cut carbon emissions. "School buildings are voracious energy consumers," says D'Amico.

The right advice at the right time

The renovation is supported by grants from the Italian government, European Union funds under the Italian national plan for metropolitan cities, which is called PON Metro, and a €150 million credit line approved by the European Investment Bank in February 2023. The city requested advisory support from the EU bank to devise a plan and make the most of these resources. "Our comprehensive set of technical, financial and methodological advisory services will help the City of Rome implement and monitor this project in a timely manner," says Alexander Linke, a senior advisor at the EIB who worked on the project.

Like many young learners getting new clothing at the beginning of the school year, some of the schools in Rome will get new thermal insulation coats, with high energy efficiency. All the selected schools will get new windows, doors, lighting, and updated heating systems. Newer builds will also be equipped with photovoltaics and heat pumps. "This is the biggest investment in educational buildings in decades. Our partnership with the EU bank helps the City of Rome step up its climate action for the sake of a green transition that heralds fresh opportunities for cities," says Roberto Gualtieri, the mayor of Rome.

With this project, Rome aims to slash costs and emissions on its way to becoming net-zero by 2030. "The investment will not only have a strong environmental impact," says Andrea Durante, who worked on the credit line for the European Investment Bank, "but also a tangible social impact, improving schools from the suburbs to the heart of the city."

D'Amico, the city's architect, highlights the importance of the project in children's lives. "We want to send them a strong signal that they matter," she says.

SCHOOLS FOR THE SUBURBS

Madrid builds schools in its new suburbs, reducing social inequalities in education and helping the city become greener

A city is like a family – when it grows it needs more space to accommodate everyone. And, like a family, it also needs somewhere to send the kids to school.

Spain's capital is one of Europe's fastest growing cities. Madrid's population is growing more than twice as fast as the rest of Spain, making it the most densely populated region in the country. Entirely new neighbourhoods keep emerging at the city's outskirts. The children in these new neighbourhoods need schools, so the Comunidad de Madrid plans to build new schools and renew old ones to provide quality public education for an estimated 58 000 students. "Education is a pillar of our society," says Rodrigo Robledo Tobar, general director of financial policy and treasury of the region of Madrid. "This will be an investment in the next generations, in our future."

Education to meet demand

In Spain, public schooling is free, with high take-up rates in nursery, primary and lower secondary education. But once students reach upper secondary school, demographic factors play a large role in determining which students continue their education. Students are more likely to drop out if they are from families with lower socioeconomic status who are living in poorer neighbourhoods with longer commutes to school.

> "These people need access to schools close to where they live"

Investing in education infrastructure will help meet the current demand for more schools – and the Madrid region's future need for skilled individuals, which are the backbone of every economy. "These people need access to schools close to where they live," says Robledo Tobar. "They should not have to travel 30 minutes or an hour to get their children to a school in the city centre."

The suburbs are growing because of increased population. But people are also moving there because apartments are more affordable. "The areas where most of the new infrastructure is going to be located are in the suburbs which are growing the most," says Silvia Guallar Artal, an economist in the education and public research division of the European Investment Bank. "They are the newest areas and also not as wealthy."

The European Investment Bank is supporting the Madrid project with a €250 million loan, signed in March 2023. "Thanks to this loan, we are able to provide educational services to families that are living in the suburbs," says Robledo Tobar. "They no longer have to move to the city centre, which is expensive, and this will further reduce inequalities between people."

NEW TRAINS, NEW LINES, NEW TECHNOLOGY

From Munich to Monopoli, innovative financing solutions for trains generate lower emissions and commuting times, as well as high-technology maintenance in Germany and Italy

Like two-thirds of all regional train passengers in Bavaria, Christine often takes the Munich S-Bahn, the regional train network of Germany's third-largest city. The journey from her home in Pasing, 10 km from Marienplatz in the city centre, however, can be unpredictable. "It's very crowded and there are a lot of delays," she says. "Normally it should only take 20 to 25 minutes, but sometimes it can take me up to an hour."

Christine is not alone. Across Germany almost one in three rail passengers reached their destination with a delay of 15 minutes or more in 2022. The S-Bahn Munich rail network is prone to delays because every S-Bahn train entering or leaving central Munich has to pass through a single trunk line, the Stammstrecke, one of the busiest in all Europe. This leaves the network susceptible to bottlenecks and delays. Work is underway on a second trunk line. Though it will take years to complete, recently ordered new generation trains promise some quick improvements.

Acquired through an innovative €2 billion leasing arrangement financed by the European Investment Bank and UniCredit with a guarantee from the Free State of Bavaria, the new 200-metre trains, which are the same length as Germany's high-capacity InterCity trains, will be the longest regional trains in the country. Highly energy efficient, the 90 new electric trains, built by Siemens Mobility, will feature extra-wide doors for easy and faster access and an LED information strip running the length of the train. "We're hoping that these more comfortable and reliable trains will help convince people living on the outskirts of Munich to leave their cars at home and take the train," says Alexander Gerum, project manager of S-Bahn Munich at Bayerische Eisenbahngesellschaft, which plans, finances and manages regional passenger rail transport in Bavaria.

Unique financing for Italy's trains

Other countries in Europe are also prioritising rail transport as an important part of their decarbonisation strategies. In March 2023, **the European Investment Bank signed an innovative financing arrangement totalling €3.4 billion** for the modernisation of the Palermo-Catania railway line in Sicily, which will slash current travel times between the two cities by a third. The financing package includes a unique €1.3 billion 50% counter-guarantee backed by InvestEU. This guarantees the so-called advance and performance bonds that contractors must secure from banks to reassure developers that they will be protected in case of default.

"It's the first time anywhere that we have provided counter-guarantees of this kind and we are now aiming to replicate this initiative on different projects and in other countries," says Giovanni Inglisa, a senior loan officer at the European Investment Bank who covers financial institutions.

> **We're hoping that these more comfortable and reliable trains will convince people ... to leave their cars at home and take the train**

Under this unique financing arrangement, developed in conjunction with Ferrovie dello Stato Italiane, Italy's national state-owned railway holding company, the counter-guarantee will generate guarantees from other financial institutions resulting in a total of €2.6 billion to implement construction contracts and subsequently start work. In addition to this, the European Investment Bank will also lend €800 million directly to Italy's Ministry of Economy and Finance.

Digital transformation in Italy's train technology

Financing new trains and upgrading rail networks are just part of the European Investment Bank's support for the rail sector and the European Union's Sustainable and Smart Mobility Strategy, which aims to double rail freight and triple high-speed rail activity by 2050. In September 2023, **the European Investment Bank signed a €20 million loan (another €10 million has been approved and will be signed in the coming months) to finance research and development at MerMec**, an Italian firm specialising in advanced technologies for rail transport (signalling, measuring trains and systems, electric traction and telecommunication), urban electric mobility, and industrial applications. "The digital transformation of the railway sector is a key enabler for improved efficiency and safety," says Matteo Fusari, a lead engineer at the European Investment Bank. "But it's not just about collecting data through remote sensors. It's about processing the data quickly and providing actionable insights."

One of the most promising technologies being developed by MerMec is a train car that detects and reports on the location of rail line defects, while travelling at high speed. It uses a combination of visual and magnetic resonance imaging, and the data is recorded and processed on the train car before being transferred to managers monitoring the network remotely.

The European Investment Bank loan will support MerMec's research and development operations in Monopoli, a relatively less-developed region of Puglia, which benefits from EU cohesion funding. The loan will support skilled employment in research and development, including 280 full-time positions every year over its four-year life and 400 new permanent jobs.

CHARGING UP

A gigafactory for lithium-ion batteries in France will create jobs and boost the European battery industry to drive cleaner mobility

Anastasia Walch-Guinebert has always enjoyed solving problems. She also found the continuous innovation in the field of energy transition fascinating. That's why she works as a process engineer at the Japan-headquartered Automotive Energy Supply Corporation (AESC). At the big, international battery company, she improves the production of batteries for electric vehicles to ensure that they are safe, high-quality, effective and environmentally sustainable. "This job allows me to have a positive impact on the environment," she says, "and the world around me."

With AESC planning to operate a battery gigafactory in Douai, in the Hauts-de-France region, by 2025, her role will take on even greater importance. The factory will produce advanced lithium-ion batteries for Renault's ECHO 5 (the new electric version of the R5, Renault's iconic city model from the 70s and 80s) and its crossover utility vehicle, the 4Ever. In its initial phase, it will have a combined capacity of up to 9 gigawatt-hours, with the ability to power 200 000 electric cars each year. By 2030, the facility is expected to produce batteries for electric vehicles with an annual capacity of between 24 and 30 gigawatt-hours.

The European Investment Bank is financing the AESC investment through €337.2 million in direct loans to the project, and up to €112.8 million in indirect loans to participating commercial banks, signed in September 2023. "AESC is bringing its state-of-the-art know-how to France to contribute to the sustainable development of the battery industry in Europe," says Olivier Kueny, a senior loan officer at the European Investment Bank who worked on the deal. "The project will also support the reindustrialisation of the Hauts-de-France region, known as the new 'Battery Valley,' and accompany Renault's strategic transition." The AESC investment is made under InvestEU, a European Commission programme that aims to trigger more than €372 billion in additional investment in Europe from 2021 to 2027.

What is a gigafactory?

Gigafactories are colossal manufacturing hubs, where companies usually produce electric vehicle batteries, renewable energy storage solutions, and related technologies. They specialise in producing one popular product on a large scale, unlike regular factories which are smaller and may cater to a variety of manufacturing needs. In Douai, AESC's gigafactory will focus on the mass production of lithium-ion batteries for electric vehicles.

Batteries are indispensable in our modern world. They offer portable power. They store and deliver renewable energy, charge our electronic devices, and drive our transition towards climate neutrality. Global demand for batteries is rising rapidly and is set to increase 14 times over by 2030.

And Europe will need its own sources of batteries in case a major international crisis disrupts global supply chains, the way COVID-19 did. "Europe will need to scale up its battery production capacity to meet its emissions reductions for the green transition," says Christian Schepens, a lead engineer in the sustainable and digital industries unit of the European Investment Bank.

> **"Europe will need to scale up its battery production capacity to meet its emissions reductions for the green transition"**

ROLL WITH THE ROBOTS

A Dutch company believes robotic charging could make electric mobility much more attractive. Here's how Rocsys adapts medical technology to speed the green transition

For many years, Crijn Bouman never understood why companies put so much time into making electric cars, while no one did much to improve the charging process. Driven by a passion for electric mobility, he decided to do something about it. "I think electric mobility is starting to become mainstream," says Bouman. "Now, renewable energy is what's being asked of all of us."

To tackle the lack of ingenuity in charging systems, Bouman and two robotics experts created Rocsys in 2019 in Rijswijk, the Netherlands. The company is developing robotic arm equipment that connects charging cables to vehicles using touch sensors to mimic human actions. Its first-generation product, ROC-1, is now used in ports, logistics operations, and professional fleets.

> "All these billions of euros in investment made today are not obsolete"

It's a technology that could go a long way towards enticing drivers to make the switch from fossil fuel cars to electric vehicles – difficulties in charging are often cited as reasons people haven't already moved to electric in greater numbers. Rocsys hopes its robotic charging systems will make charging more convenient, encouraging more people to use electric mobility. That could have significant implications for climate change because carbon emissions are currently growing in the transport sector worldwide, just when they need to be cut.

To finance the further development of its technology, **Rocsys signed an €18 million loan in July 2023 with the European Investment Bank**. The loan is part of the European Commission's InvestEU programme, which aims to boost investments in innovation, social inclusion and job creation.

Electric mobility goes mainstream with robotic charging

Rocsys had one initial challenge – robotics come at a very high cost. The ROC-1 is a cost-effective solution to high-priced robots. It draws inspiration from wearable robotics in the medical field, specifically exoskeletons, which are powered devices that attach to a human body and contain actuators that aid movement. The product's tactile sensors help a mechanical arm navigate around the charging systems and prevent injury from physical contact. It offers a safer alternative to traditional robotics, which can be rigid and potentially dangerous. The company now aims to develop a smaller and lower cost-operating next generation of ROC with the European Investment Bank loan.

"One of the big benefits," says Bouman, "is that you can upgrade an existing charger to an automated charger. All these billions of euros in investment made today are not obsolete. They can be upgraded for the next ten to 15 years to take on electric and automated vehicles."

Rocsys is in talks with European car manufacturers to help them make charging systems widely available to the public. "I think it would be a really big risk for Europe to miss out on technological advancements like these," Bouman says. "We really risk being left far behind. I am hopeful for the future, but I hope we are not too late."

ALL HANDS ON DECK

Ports in Bulgaria and in Portugal are modernising infrastructure to cut congestion and carbon emissions

Bulgaria's ports are increasingly important staging points on the supply route of food from Ukraine to the rest of the world. But bottlenecks around the ports lead to extra CO_2 emissions and extra costs for shippers, transport operators, businesses – and ultimately consumers. That's why one of the country's leading grain trading and processing companies, Buildcom Group, is building a major new port terminal at Varna on the Black Sea coast. "The maritime infrastructure in Bulgaria is outdated and has low processing capacity, especially at Varna," says Tsvetelina Gancheva, director of relations with financial institutions for Oliva, the largest Bulgarian producer of sunflower oil and main subsidiary of Buildcom. "The maximum depth of the ports in Varna limits the flow of large-volume vessels, and the capacity for handling general cargo by the regional ports is severely limited."

Buildcom Group will fix this situation with a €50 million loan from the European Investment Bank to its subsidiary, the Logistic Centre Varna. The new terminal will enable the transfer of some port handling operations from its current location close to the city centre to a more remote location on Beloslav Lake near Varna. The loan is backed by the InvestEU programme.

Adding a new terminal and depth to the port of Varna

The lack of infrastructure at Bulgarian ports became urgent when Russia invaded Ukraine in 2022. The port of Constanta in Romania was overloaded by an increase in Ukrainian grain, yet cargo couldn't be shifted to Varna since it wasn't equipped to deal with the extra ships and cargo. The new project will modernise Varna's port, support food security, promote greener maritime transport, and boost economic growth in the region by improving access to the export market for local agricultural producers. The project will "strengthen vertical integration and access to the export market for the Buildcom Group," says Venera Gandzhova, the loan officer in charge of the EIB loan operation.

The new terminal will open the way to more and bigger vessels by increasing the depth at the quays to 13.5 metres. It will also have a modern system for grain storage and transport, as well as new handling equipment, new railway and road access, utilities networks, and technical and administrative buildings. Expanding the port will ultimately reduce road transport, shifting freight to less carbon-intensive maritime transport. "This project will optimise transport routes on land and at sea, improving the CO_2 footprint," Oliva's Gancheva says. "It has an integrated approach that secures climate change mitigation, while also attending to coastal management and the prevention of flooding."

At the same time, cargo passing through the centre of Varna will be significantly reduced – a benefit to the city's population. "Traditionally, the port of Varna was located closer to the sea," says José Rino, a civil engineer who worked on the project at the European Investment Bank. "But its close proximity to the centre of town had a negative impact on the general population, with its sound and air pollution. One of the main steps in this project was to make sure that the new port infrastructure moved to the interior part of Lake Varna, away from the populated area."

> **"It … secures climate change mitigation, while also attending to coastal management and the prevention of flooding"**

Improving maritime accessibility in Leixões

As around 74% of goods enter or leave Europe by sea, it's crucial to invest in modern maritime infrastructure for both agribusiness and industrial cargo. A project in the port of Leixões, the most important seaport in northern Portugal and the second-largest in the country for cargo and containers, enables bigger vessels to call at the port. It tackles port congestion, improving the efficiency and environmental performance of the maritime supply chain.

The European Investment Bank signed a €60 million loan with the Administração dos Portos do Douro, Leixões e Viana Do Castelo to finance maritime accessibility improvements in Leixões, deepening the access channel by 15.5 metres and widening the existing breakwater by 300 metres. "In the last few years, ships have been getting bigger, to gain economies of scale by transporting more cargo and travelling larger distances," says Rino, the European Investment Bank civil engineer who also worked on this project. "The current port infrastructure needs to be adapted for these larger vessels to make port. It's crucial if Portugal wants to remain competitive in the maritime trade sector."

NATURE'S HIGHWAYS

A plan to revive Lithuania's inland waterways with electric barges could reduce carbon emissions by cutting 48 000 truck journeys each year

Human ingenuity can solve all kinds of complex problems and find solutions to overcome all sorts of obstacles. But sometimes nature provides the best answer. To transport heavy, bulky goods to the sea, for example, we could build roads, bridges and petrol-fuelled trucks that emit climate-changing CO_2. Or we could simply float them down rivers, nature's natural highways.

The Nemunas river flows for nearly a thousand kilometres from the uplands of Belarus, through the marshlands of Lithuania, before emptying into the Baltic Sea. In Lithuania, the Nemunas basin, which contains more than 20 000 rivers and rivulets, covers nearly three-quarters of the country's territory. The river was widely used to transport goods in the 19th century and even during Soviet times, when up to 3 million tonnes a year was shipped through the country's main waterway.

But Lithuania's entire river cargo fleet was scrapped in the early days of privatisation that followed the Soviet Union's collapse and the country's inland waterway network fell into disuse.

Now, the Lithuania Inland Waterways Authority is working on a plan to revive cargo transport on the Nemunas. Its fleet of electric vessels will cover the 260 km distance between the industrial and transport hub of Kaunas in the centre of the country and the port of Klaipėda on the Baltic Sea coast. "Lithuania imports most of its raw materials and commodities, and it exports a lot of grain – about 5 million tonnes a year," says Vladimiras Vinokurovas, chief executive at the Waterways Authority. "Waterways are perfect for transporting these kinds of heavy, oversized cargos, and Kaunas is a large production centre in a great location in the very middle of Lithuania."

The authority has been working with the European Investment Bank advisory services to develop a practical business model. The Bank's advisory services identified an electric barge design that works well in the shallow waters of the Nemunas and helped to conduct a feasibility study that gave the authority a full picture of the project. This helped government officials make an informed decision and move the project forward. The Bank's experts detailed how the waterways could help the Lithuanian economy and the environment, and they identified ways to cut greenhouse gases and air pollution, reduce road congestion and accidents, lower noise pollution and improve biodiversity. "Transporting goods on the waterway will be more environmentally friendly" says Brendan McDonagh, a project advisor at the European Investment Bank. "We estimate that each round trip by one of the barges could eliminate over 100 truck journeys. Once the project reaches full capacity that would mean over 48 000 fewer truck journeys every year and a CO_2 emission reduction of more than 14 000 tonnes per year."

> "Waterways are perfect for transporting … heavy, oversized cargos"

SWITCHING TRACKS ON HARASSMENT

Barcelona public transport company TMB pushes ahead with a plan to prevent sexual harassment

When Barcelona's public transport company, Transports Metropolitans de Barcelona, or TMB, was talking to the European Investment Bank about loans to renew its rolling stock and acquire electric buses and charging infrastructure for Barcelona, it turned out there was another problem that needed solving. In developing its social responsibility and equal opportunity policies, the company, like many others in transport, had to address the question of how to prevent sexual harassment and discrimination on its networks. "Our original plan only involved measures to prevent harassment directed specifically at women," says Raquel Diaz, TMB's director of social responsibility, women and diversity. "That plan evolved, incorporating specific measures to combat LGBTIQ+ phobia."

With funding from the InvestEU Advisory Hub, EIB Advisory experts and a team of mobility and gender experts from Spain, Portugal and Germany stepped in to help TMB boost implementation of the plan and define indicators to measure its impact. "TMB had already published a sexual harassment and LGBTIQ+ phobia prevention plan," says Manuel Pastor de Elizalde, an urban mobility expert at the European Investment Bank. "They were very advanced, but the plan was still in its early stages."

Building a trusted grievance mechanism

The government of Catalonia conducted a survey in 2020 which revealed that 17% of all criminal acts in the area take place on public transport, and that 60% of the victims are women. Of women between the ages of 16 and 25, 91.6% said they been harassed on public transport. "We all know it's happening," says Carmen Niethammer, senior gender specialist at the European Investment Bank. "The question is, how can we improve the trust in the grievance mechanism?" EIB Advisory carried out a survey that was completed in 2023, examining the issue.

"When we think of accessibility to transport," says Floridea Di Ciommo, the leader of the external consultancy team that worked on the project, "we always think it refers to saving travel time, or to physical accessibility, or to whether you can reach a bus stop within a few minutes. These are visible criteria. But if a person is assaulted, or if a young woman is stared at or teased or even touched, of course she avoids using public transport if she can."

> "We all know it's happening"

The work carried out by the consultants confirmed what TMB understood early on: preventing sexual harassment was not only a matter of social responsibility; it would also be economically beneficial for the community.

TMB and the EU bank hope that the gender-based harassment prevention plan will serve as a blueprint for other regions, cities and transport companies. "The vision is to highlight Barcelona as the best in class," says Niethammer. "To demonstrate that a gender-based harassment prevention plan is an investment in the community, with tangible economic and business benefits, and have all our projects in the European Union follow that model."

DESIGNS

FOR A WORLD MAP THAT'S FAIR AND GREEN

"We are fully aligned with EU priorities and we are at the forefront in supporting key EU initiatives, such as Global Gateway. With strong technical expertise, we drive coordinated and impactful Team Europe initiatives in a large number of countries in close cooperation with our partners. We are increasing staff on the ground and we are developing additional products and product features adjusted to the contexts of different parts of the world and the higher debt burden in many places. We ensure that our resources for blending and advisory services are used in a targeted way where they matter most. And we systematically track and report on results and our contribution to the SDGs, from appraisal to project closure, using our cutting-edge additionality and impact measurement framework and rigorous SDG mapping."

Markus Berndt, deputy managing director, EIB Global

"Sustainable development is the pathway to the future. By financing water and social infrastructure in Jordan and Tunisia, or the reforestation of national parks in Morocco and industrial depollution in Egypt, EIB Global works with Team Europe to pave the way for growth in jobs, the economy and human capital, as well as compassion for the environment."

Kristina Kanapinskaite, head of public sector for the Southern Neighbourhood, EIB Global

"The Bank has delivered vital support to Ukraine since the Russian invasion, mobilising over €2 billion to finance recovery efforts. In 2023, we launched the EU for Ukraine initiative to mobilise additional funding and advisory support to rebuild critical infrastructure, finance priority investments and boost the resilience of businesses and society. The EU bank will continue to play a key role in Ukraine. Our unique expertise and financing capacity will support the accession of Ukraine to the European Union, in close cooperation with the European Commission."

Lionel Rapaille, director for enlargement and neighbourhood countries, EIB Global

Beyond the European Union, the world is less stable than we might have thought only a few years ago. Our development arm, EIB Global, is a concrete, worldwide enactment of the sustainability, development, climate action and digitalisation aims set out in the European Union's policy objectives. EIB Global projects which rebuild schools and hospitals damaged by war in Ukraine or which support food security in Africa all have the same goal – to promote freedom, human dignity and the rule of law. Because when wealth is twinned with those values, then prosperity even beyond our borders is a shared human growth that benefits every one of us.

"Emerging markets and developing economies often lack the public resources to address their development needs. EIB Global has a major role to play in de-risking projects and attracting private investors to advance the agenda of the Sustainable Development Goals. We scale up impactful projects to a level that would not be achievable otherwise, by ensuring compliance with environmental, social and governance best practices, and promoting sustainable and responsible development."

Milena Messori, acting director, corporate finance and global activities, EIB Global

A GREEN MODEL IN AFRICA

Kenya exports renewable energy technology, modernises transport, and drives innovation

Standing on a pedestrian bridge above one of Nairobi's busiest roads, Ann Masiga watches a stream of private minibuses ferry commuters to their homes around the city. Even a few metres above the traffic, the air is thick with gasoline and diesel fumes. Masiga is working hard with the Kenyan government to fix the disorganised transit service and improve air quality. "Better transport, water and energy – these are all big deals for this country," says Masiga, a loan officer in Nairobi for the European Investment Bank. "Poor infrastructure or poor transport systems are an impediment to everything – getting kids to school, getting a job, getting food, getting to the hospital. I don't get tired of focusing on these issues because my work has a positive impact on many ordinary Kenyans."

One of Masiga's biggest projects in 2023 is a new rapid transit bus network for the capital. Currently without any formal transport system, Nairobi will soon have modern bus terminals, platforms to get on and off buses easily, well-lit bus stops, paths for pedestrians and cyclists, and dedicated bus lanes on the overcrowded highways. The project includes one of the first all-electric bus lines in East Africa. **Masiga was a key part of the European Investment Bank team that prepared a €201 million loan for the electric line. The deal, signed in October 2023, includes a €32 million grant from the European Union**. "We're going to really make a difference to the Nairobi public service system," says Masiga, whose career as a public servant is inspired by her mother, Elizabeth Semo Masiga, a pioneer for women's education in Kenya and the first female permanent secretary in the Ministry of Education. "It will have a knock-on effect that could change transport systems throughout the country."

Linking climate and innovation in Kenya

The new electric bus line is a measure of how closely Kenya's future is linked to climate action and innovative technologies. A leader in renewable energy, the country is increasing its investment in green technology, as well as encouraging businesses to be innovative and more willing to look across the continent for opportunities and growth. The country is developing initiatives to boost food supply, support small farms, improve exports, and be more inclusive towards disadvantaged parts of society. The electric bus is a key artery in the body of this forward-looking Kenya. A Kenya where maize farmers walk through fields with their eyes trained on mobile apps to improve yields. Where mango producers use state-of-the-art cold storage technology to preserve crops. And the country's advanced geothermal plants are the model for renewable energy programmes replicated all over Africa.

> **"Without geothermal energy, it would be very hard for this country to meet its power demand"**

This is the innovative Kenya that found a partner in the European Investment Bank. Nairobi is the EU bank's regional hub, with nearly 30 staff members working for its EIB Global development arm. The East Africa hub serves Kenya, Ethiopia, Sudan, South Sudan, Uganda, Rwanda, Burundi, Tanzania, Eritrea, Djibouti and Somalia. The European Investment Bank has invested more than €1.5 billion in Kenya since the mid-1970s in renewable energy, access to clean water, urban development, financial inclusion and

small businesses. The creation of the hub in 2021 and of EIB Global in 2022 is boosting the Bank's presence and impact in the region still more.

Innovation for Kenya to leapfrog the climate polluting stage

To ensure a bright future, climate action and innovation are both vitally important, in Europe and across the globe. But Africa is profoundly at risk from global warming. The continent needs trillions of dollars in green investment – and Kenya aims to be at the forefront of the transition. Kenya is positioned to leap past the heavily polluting industrial stage of growth, shifting to a more sustainable society. In 2008, the country created the Vision 2030 development programme, aiming to use 100% renewable energy by 2030. **Renewable sources already supply more than 90% of Kenya's electricity. The country has invested heavily in hydropower and solar parks, but especially in geothermal power**. Geothermal operations produce more than 40% of Kenya's power.

Since the 1950s, "Kenya is the pioneer of geothermal progress in Africa," says Peketsa Mangi, who is standing in the middle of a lush field in Kenya's Great Rift Valley with plumes of thick, white, noisy steam belching up from the earth behind him. Though he grew up in rural Kenya without power in a home lit by smoky lanterns, Mangi is now general manager of geothermal development at the Olkaria site, one of the largest geothermal operations in the world. Located about 120 kilometres north of Nairobi, the complex sits mostly within Hell's Gate National Park. The park is known for towering cliffs, gorges, rock towers, natural spas and plumes of steam shooting from subterranean depths. The geothermal energy emerges through long fault lines in the Earth's crust that cut through East Africa and bring the planet's magma heat closer to the surface.

Flanked on all sides by ranches and flower farms, Olkaria's geothermal plants tap the Earth's energy by drilling several thousand metres into the ground, then capturing steam and transporting it through pipelines to drive turbines that create electricity. Big white pipes carry water or steam all around the Olkaria complex, which covers about 70 square kilometres. The pipes sit on stilts to let animals pass underneath, and even have loops that allow tall giraffes to wander freely. In the mornings, the giraffes eat breakfast among the trees near the geothermal buildings. "Without geothermal energy, it would be very hard for this country to meet its power demand," Mangi says.

The European Investment Bank is one of the biggest supporters of Kenya's geothermal operations, having made several big investments since the 1980s. Most recently it financed more wells and steam-gathering systems at Olkaria in 2017. The Bank also supported the biggest windfarm in Africa in a hot and dry part of northern Kenya next to Lake Turkana. **It signed a €225 million loan for this wind farm in 2014, giving a big boost in financing and confidence to the decade-long project. The European Union contributed €25 million to the project from the EU-Africa Infrastructure Trust Fund**. The area now has over 300 wind turbines and supplies electricity for more than a million homes.

Anna Mwangi, a geophysicist at the Olkaria site and an active mentor to young women in the energy sector, sees this industry as a good path for women to get ahead. Inclusion is a big topic in Kenyan society and industry, she says, as more women are now advocating for equal treatment and equal jobs. Mwangi has worked nearly 15 years for the Kenya Electricity Generating Co., the government-run power utility. Gender attitudes have changed during this time and are still evolving. "Kenya has taken a lead not just in the energy sector," she says, "but also in empowering women in this field and recognising the resources of women."

Innovation to bring access to food

Many new companies in Kenya are adopting policies for gender equality – and recognising the need for other social and environmental measures. Cold Chain, an advanced cold storage plant that opened in August 2023 in Tatu, about 40 kilometres outside Nairobi, has a modern green energy policy and a social plan to empower women. The company encourages women to pursue a career in any part of the operation. It also promotes jobs for disadvantaged sectors of society. The sparkling clean site was built with energy-efficient materials and is the largest cold warehouse facility of its kind on the continent, outside South Africa.

The European Investment Bank signed a €15 million equity investment in 2021 with a fund that built the Tatu plant. The fund, called ARCH Cold Chain Solutions East Africa, is building cold storage operations across this part of the continent. This East Africa fund was supported by an investment facility financed by European Union Member States. This operation is also an important part of Kenya's push to support one of the main United Nations Sustainable Development Goals – ending hunger. In some parts of Africa, more than 50% of food is spoiled before it can be eaten, because of a lack of refrigeration. When fully operational, Cold Chain will store bananas, apples, avocados, poultry and other perishables. It will protect produce for restaurants and help pharmaceutical companies, especially those storing COVID-19 vaccines.

> "I'm really proud to be part of this impact"

"Food insecurity causes a lot of problems in society, and there is a big gap in cold storage," says Geoffrey Emungat, a facilities manager at the Tatu site, as he walks around the sprawling warehouse. "The government and the private sector are really trying to work hard on eliminating the risks of storing and transporting food, but this facility also wants to have a good influence on society and the climate. I'm really proud to be part of this impact."

Innovations that encourage inclusive societies

Vert, a mango processing company in Machakos, about one hour's drive from Nairobi, is another operation that's expanding while making a positive impact on society. Vert received a loan from Equity Bank, a Kenyan lender that is one of the leading supporters of small farms. **Equity Bank signed a €25 million deal in 2019 with the European Investment Bank and another €25 million agreement in 2020**. The deals included grants from the European Union and were part of the Agriculture Value Chain Facility. This programme, backed by the European Union, helps agricultural companies modernise, improving smallholder farmers' operations, encouraging inclusive societies, and assisting young people.

Vert supplies big juice producers such as Coca-Cola and sells a variety of dried fruit. It works with more than 5 000 small farms. To be green, it uses seeds and mango peels to fuel the plant's boilers, as well as solar panels to reduce reliance on the national electricity grid. The company prioritises employing women and working with farms run by women. "Kenya is creating an environment that is good for women to get more involved in the economy and show what they can do," says Jane Maina, managing director of Vert.

Innovative insurance for the smallest farmers

One company trying to grow by being more innovative and solving some of the most important problems in society is Pula, which offers insurance products for the smallest farms. Owners of small farms often have no support system and struggle with the unpredictable rainfall, heat and droughts caused by climate change. "We are looking at people who are farming for subsistence, for their daily consumption, and maybe selling some of their produce to be able to generate an income to spend on school fees or

the day-to-day running of their homes," says Faith Kinuthia, a field operations director at Pula. "Insurance helps shield these farmers from many risks, such as lack of rain or pests and diseases. If pests come into a farm and destroy the crops, the farmer ends up with nothing. They are experiencing many changes brought about by climate change."

Small farmers in Kenya represent one of the largest portions of the workforce. And agriculture is the leading source of economic activity, employment and exports. Agriculture employs more than 40% of the population, including 70% of the rural population, and constitutes more than 30% of Kenya's gross domestic product. Dominick Wanyoike runs a tiny maize farm in Nakuru County, an area that mainly comprises smallholder farmers living on fewer than five hectares each. "We decided to get insurance after one recent year when we were expecting the rains to come as usual, but they never came," Wanyoike says. "The actual harvest was very low, our life was getting harder, and the increasing droughts were making life challenging."

Pula launched its insurance products for smallholder farms in Kenya in 2015 and is expanding to other countries in the region. The company embeds the insurance into the costs of seed and fertiliser or offers the insurance through government subsidies. This keeps the cost of the insurance low for farmers. Farmers are compensated if their yields are below a certain level. **Pula received support from the venture capital firm TLcom's Africa Fund, which focuses on technology companies in the expansion stages. The European Investment Bank is a key investor in TLcom. The Bank signed a €10 million investment in 2016, and it is considering another investment to help more new African businesses. This investment is part of the Boost Africa facility, funded by the European Commission**.

Inspiring transport change across Kenya

Climate change, which has such a negative effect on small farmers, is also a big factor in the thinking behind the country's flagship urban project – the new bus system and its all-electric line. Nairobi's roads are often packed and traffic crawls at peak times. There are few city buses, no trams or underground trains, and a skeletal rail service, so most people take private minivans or buses called matatus, or they use their own cars to get around. As the city's population grows, congestion, travel times, noise and air pollution rise too. "The government is really looking forward to improving the bus situation," says Joseph Kochalle, a roads engineer with the Nairobi Metropolitan Area Transport Authority. "It's a hard, hard day to get home in Nairobi or plan your journey."

One evening in central Nairobi, Carolyne Omondi stands warily on the side of a busy highway, waiting to start her long trek home to the Kibera informal settlement after a full day's work. Cars, vans, lorries and heavy goods trucks pass close to her feet, as she searches for a bus. Like most commuters, Omondi waits in long queues and unsafe conditions to catch a ride on a matatu, which is often old, rickety and uncomfortable. "Better buses and transport," she says, "would be a big step to help my life."

> **"We decided to get insurance after one recent year when we were expecting the rains to come as usual, but they never came"**

WE WILL NEVER ABANDON THEM

From hospitals to transport, EU bank support helps Ukrainian cities in the struggle to maintain access to water, electricity, heating and healthcare

When asked to list the hardships of working in a Ukrainian hospital during the war, Maria Bobkova didn't know where to start. "We have had problems everywhere, from the entrance of the hospital on the ground floor and all the way to the roof," says Bobkova, 71, who is head doctor in Hospital No. 8 in Odesa. "We are a large hospital with many buildings, and all of them needed repairs."

On Ukraine's southern coast, Odesa was one of the first areas bombed when Russia invaded in February 2022. Hospitals in Odesa have had a hard time keeping electricity running and maintaining supplies and medical staff. Even before the war, hospitals such as No. 8, which was built in 1964 and never overhauled, needed a lot of repairs. To help Bobkova and her staff plug the gaps, **EIB Global, the European Investment Bank's development arm, disbursed a €600 000 loan to renovate the polyclinic part of Hospital No. 8**, which is well known for its highly qualified specialists. As a result, the hospital finished its main repairs in July 2023, buying new furniture, repairing foundations, adding specialised rooms, new power supplies, insulation in the walls and a new roof to end the leaks. Powerful generators were installed to provide electricity during blackouts caused by the war. "We have a completely different hospital now," Bobkova says. "Many people did not believe that such changes were possible during the war."

Supplies are precarious in many cities

The European Investment Bank has been approving emergency financing every month across Ukraine since the start of the war, with a focus on infrastructure such as power lines, heating systems, water supplies, hospitals, schools, roads, railways, trams, bridges and community centres. The war has seriously hurt residents' access to water, electricity, heating, healthcare, education and social services. In many cities in the east, where fighting is intense, water, heating and power supplies are precarious.

"It is always hard to talk with mayors, because I am never sure how bad the situation is," says Violaine Silvestro von Kameke, a senior European Investment Bank loan officer working on Ukrainian projects, who is in touch regularly with many mayors. "When mayors talk with me, they are often in a shelter or watching to make sure they are not near a window. Sometimes they are checking to make sure their families are safe. When we're talking, sometimes there is an alarm, and they have to rush to move to a shelter. I tell the mayors that I admire their resilience and that we will never abandon them."

New investment fund for priority sectors

The European Investment Bank's latest assistance centres on a specialised investment vehicle called the EU for Ukraine Fund. It provides help in all sectors, including venture capital investment for the private sector. **EU Member States have pledged more than €400 million to this EIB Global fund** for sectors such as health, transport, education, cybersecurity, critical social infrastructure and the private sector. Other European Investment Bank assistance to Ukraine includes: a loan guarantee package in

> **Many people did not believe that such changes were possible during the war**

2023 enabling the European Investment Bank to provide **€100 million in new financing; €100 million in technical assistance** to help Ukraine prepare recovery projects; **a first recovery package at the start of 2022 worth nearly €700 million** for immediate assistance to Ukraine, backed by a European Union guarantee; **€1.6 billion in late 2022**, with support from the European Commission, for emergency repairs to train lines, roads, bridges and a wide range of city buildings and housing; and **€4 billion to help more than 6 million Ukrainians forced to live in other European countries during the war**.

"We are constantly receiving requests from cities about what needs to be purchased and trying to figure out how the projects can be started and what is the most important," says István Heinczinger, a senior transport specialist at the European Investment Bank who's helping Ukrainian cities modernise their fleets of trams, metros, trolleybuses and buses. Since 2007, the Bank has invested more than €2.7 billion in transport projects in Ukraine, and this amount is increasing during the war.

Daily contact with United Nations experts

To accomplish this work, the European Investment Bank is in close contact with United Nations Development Programme project managers working across Ukraine, such as Igor Kistenyov-Kavkazkii. EIB loan officers or engineers are in weekly or sometimes daily contact with experts such as Kistenyov-Kavkazkii. "This recovery work we're doing is crucial for the stability of the state and the support of the population at such a difficult time," says Kistenyov-Kavkazkii, whose UN technical coordination team is partly based in Kramatorsk in the Donbas region of eastern Ukraine, one of the main areas where the Russian invasion began. "There is an urgent need to rebuild."

Schools and children are two of the priorities for the reconstruction and recovery. A €1 million loan from the European Investment Bank helped repair the V.I. Vernadskyi grade school in Shyshaky in eastern central Ukraine. The school reopened its doors in September 2023 to 466 students, including children from families that had to move away from fighting near the eastern border. "We have to be patient," says Inna Hamchuck, a history teacher at another school that was repaired with European Investment Bank funding. "All children in Ukraine have the right to a high-quality education, but it's hard right now."

SMALL BUSINESSES BY THE BIG RIVER

Egypt sets its sights on a million new small business entrepreneurs, less congestion in big cities, and more electric transport – as well as better use of the water carried down the Nile

Rasha Mohamed's friends and family warned her that opening a clothing store during times of economic trouble was too risky. But she had planned this move for several years. So, when her business loan was approved, she did not hesitate. "Many other people like me in Egypt want to do the same thing," says Mohamed, who borrowed 100 000 Egyptian pounds (€3 000) in 2022 to open a shop about 40 kilometres west of central Cairo, selling modern dresses, children's clothing and abayas, the long dresses worn by Egyptian women and inspired by traditional cultural designs. "People are just waiting for this kind of support. Without financial help, it's too hard to do something like this, especially when times are tough."

Jobs at small and medium-sized companies contribute nearly 75% of Egypt's total employment, so when there are economic problems, many livelihoods are threatened. The country struggled in 2023 with rising debt, inflation, and a falling currency. **The response was to focus assistance on small companies. Egypt aims to create a million new male and female entrepreneurs this decade by offering training and financial advice to the young**. This assistance is more urgent after large numbers of people lost jobs during the COVID-19 pandemic.

The land of Cleopatra, Tutankhamen and the Great Pyramid faces all the challenges of a big, developing country, from finding work for a growing youth population, to dealing with the impacts of climate change and the pollution that fuels it. Egypt is confronting these obstacles with investment in small business, as well as big infrastructure projects that improve water, sanitation, irrigation and agriculture and cut emissions from outdated factories and transport systems.

The European Investment Bank has supported these projects with more than €15 billion in investments since 1979, much of it assisted by European Union grants or loan guarantees. In October 2023, the Cairo office of the EU bank became a regional hub, serving North Africa and the Near East. The office is a key branch of the Bank's EIB Global arm, which handles operations beyond the European Union. The Bank's investments range from big water systems to loans that Egyptian banks then lend on to small business owners, like Rasha Mohamed, whose shop is backed by a much bigger loan that the European Investment Bank provided to a microfinance specialist, Banque du Caire.

Disconnecting transport from pollution

Egypt's public and private sectors are also investing in the green transition, the circular economy, renewables and modern agriculture practices. Recycling containers are now common in parts of Egypt's biggest cities. Even cash machines ask users not to print a receipt, for the benefit of the planet. "At the end of the day, we are all living on this planet, so we want to show the rest of the world that we care," says Mohamed Wael Nasser, the head of product development at a big Egyptian printing company, Roto House, which made a large investment to reduce solvent emissions at its plant near Cairo with the backing of a €2.5 million loan from the Bank of Alexandria in 2020. Roto House's financing was possible

because **the European Investment Bank approved a €20 million framework loan to the Bank of Alexandria in 2018 to help small businesses and supported a similar €15 million loan in 2023**. "This type of investment is very expensive, but it's a win-win for us," Nasser says. "It helps our business when customers know we care about the environment, and it helps climate change. Today, we're not hurting the ozone layer."

Climate change and the environment are important topics in big Egyptian cities like Cairo. Large infrastructure projects are planned to fight congestion and pollution across the city and the country, including more electric-powered metro lines, one of the longest electric monorail lines in the world, a high-speed electric train, and a new city bus system. The goal: Move millions of commuters out of cars and into public transport. "Frankly, the metro is one of the greatest projects in Egypt," Walid Al-Arif Billah, a swimming coach who recently graduated from university with an information systems degree, says, while waiting to catch a ride on Cairo's metro line 3. **This line is the most modern part of the network and was financed by a €600 million loan from the European Investment Bank.** "The metro has been made very simple, safe and easy for everyone. And then you have the pricing. Ticket prices are still reasonable for most people."

> **"Today in Cairo, many people can't imagine not having a metro"**

Cairo's metro system opened in 1987 and was one of the first of its kind in Africa and the Middle East. Several metro lines carry millions of passengers each day. The European Investment Bank helped to expand many parts of the metro and has been assisting other big transport projects for more than four decades. **In 2021, the Bank announced it would invest more than €1 billion in metro and tram projects in Cairo and Alexandria over five years**. Line 3 is as modern as any metro service in the world, with air conditioning, security and lighting, modern ticket booths and separate cars for women. In 2023, the Bank is working on a new investment to expand and modernise Line 1 of Cairo's metro. "Today in Cairo, many people can't imagine not having a metro," says Ahmed Beltagui, an engineer who works on energy and transport in the Cairo office of the European Union. "From an economic point of view, the metro is very important in easing congestion and helping people get to their jobs. But it also saves people a lot of time. It's hard to use a bus in Cairo."

Solutions for Alexandria

Alexandria has similar congestion and pollution problems. Many streets in Alexandria are narrow and clogged with cars, three-wheel rickshaws, and yellow and black Russian Lada taxis. The train lines and tram network are old and deteriorating. This city of about 5 million people is often packed with tourists, making mobility still more difficult. "Getting around is not easy, especially in the tourist season, because cars are everywhere," says Walid Maneb, a professional diver in Alexandria who was having tea at a restaurant near Shatby Beach, one of the city's many long, golden stretches of sandy coastline. "Better trains and trams in this city would help everyone a lot."

The European Investment Bank approved a €750 million loan in September 2023 to rehabilitate nearly 22 kilometres of commuter train lines in Alexandria, adding new cars, improving the stations, installing new tracks and converting diesel engines to electric-powered systems. That follows a 2020 loan of €138 million to upgrade a 13.8-kilometre electric tram line in Alexandria that included new cars and engines. The city has more than 30 kilometres of tram lines dating to the 1860s,

and many parts of this system need to be modernised. “We need to reduce car traffic in Alexandria, but we also need to address the problems from many different angles,” says Fatma Rashad, director general of economic planning in Egypt’s Transport Planning Authority, who was giving a group of global development partners a ride in an outdated diesel train on an ageing and bumpy commuter line that will be replaced over the next several years. “We have a long way to go, but I am optimistic that we will see big reductions in traffic and pollution in the near future.”

The gift of the Nile

Another big infrastructure issue in Alexandria and across the country is water. Population growth, climate change, pollution and regional disputes are hurting the water supply. Egyptians rely on the River Nile for 90% of drinking and irrigation water. The country is sometimes called the “gift of the Nile,” because without this river, most of the land would be a desert. Today, Egypt is one of the most water-scarce countries in the world, with a level of water resources per person significantly below the global average.

The European Investment Bank is one of the biggest investors in water projects worldwide, lending more than €1 billion in this sector in Egypt alone. **In 2018, the European Union approved a €25 million grant and the European Investment Bank signed a €214 million loan with Egypt to reduce pollution in the Nile Delta** and improve water, sanitation and waste treatment. This investment is known as the Kitchener Drain clean-up project. The drain, one of the most polluted in Egypt, constitutes a long series of wastewater treatment plants running about 70 kilometres through towns not far from the Mediterranean Sea. The plan to clean up this drain and prevent pollution from emptying into the sea is part of a European Union programme improving water in many Mediterranean countries. “Water is important for everyone but especially in Alexandria,” says Maneb, the diver. “Just look around you – clean water gives us jobs, feeds us and attracts millions of tourists.”

“We need to invest in the planet”

Nasser, the product development manager at the Roto House printing company, located in an industrial zone of Giza, about 40 kilometres west of Cairo, says his colleagues sometimes get tired of how often he talks about the importance of clean water in Egypt, or about the environment and fighting global warming. Nasser was the company’s representative at the United Nations Climate Change Conference in 2022. He sees that the quality of water in the Nile has been neglected, that the country imports most of its food, and that its economy and agriculture are at risk from climate change more than most other countries. “My hope is that other companies will follow in our climate footsteps and that others believe in protecting the planet too,” says Nasser, whose company is one of the largest package labelling and printing companies in Egypt. “We need to invest in the planet too. We must make sure the planet is okay.”

Nasser has packed the roof of Roto House’s factory with rows of solar panels to supply more than 10% of the company’s electricity. The company’s new scrubber system of tanks and tubes and ventilation pipes removes the harmful chemical fumes before they are released. The system also reduces the smell of chemicals in the plant and helps prevent respiratory problems.

The latest loan to the Bank of Alexandria, a €15 million financing operation in 2023, is similar to the one that backed all Roto House’s environmental improvements. It’s made under the Green Economy Financing Facility to help Egyptian businesses embrace green energy. Both loans to the Bank of Alexandria included technical assistance grants from the European Union to accelerate green investments.

IN-DEPTH ON EGYPT

Promoting inclusion and microfinance

Banque du Caire, one of the largest microfinance providers in the country, promotes inclusion, community development and entrepreneurial empowerment. The European Investment Bank signed a €70 million loan with Banque du Caire in February 2023 to help the firm provide more loans to smaller entrepreneurs in areas of Cairo and Alexandria who have a hard time getting financing. Sometimes, a microfinance loan will be approved, even when the applicant isn't fully qualified, as long as the field officer approves the deal. Field officers verify the quality of applicants by talking to friends and neighbours and reviewing a lot of paperwork.

Sherif Sayed took out a loan worth 70 000 Egyptian pounds (€2 100) from Banque du Caire in January 2023 to open a bigger café. It's in Sixth of October City, a new city in the desert that is home to students, young adults and newcomers from countries such as Syria or Iraq. Sayed's new business is called Mountain Wolves (Zeaab El-Gabal) Coffeeshop, named after a famous Egyptian television series illustrating life and traditions in the southern region of Egypt where Sayed grew up. It is hard for Egyptians from this Upper Egypt region to get loans, because they are considered riskier than people from bigger cities such as Cairo or Alexandria. This loan is Sayed's second from Banque du Caire. His new café has four employees and seating for about five dozen people. "Small projects like mine are the seeds of big businesses," says Sayed. "If small companies can find financing, they will eventually turn into big ones, one day. We all start from zero. No one starts big."

> **"Clean water gives us jobs, feeds us and attracts millions of tourists"**

GREEN X FACTOR

Big financing to modernise the Belgrade-Niš railway boosts regional connections, trade, growth and EU integration

The long-held dream of trains running smoothly across the Western Balkans could soon materialise. **A €2.2 billion EU financial package for the Belgrade-Niš section of the Corridor X rail line in Serbia proves that the region is on the right track**. Thanks to these funds, travelling by train between these two Serbian cities will take less than two hours at speeds of up to 200 km/h. Currently, it takes at least six hours by train, or around three hours by car. "When the railway was built in 1884, it took eight hours to travel and now it takes six and a half," said Serbian President Aleksandar Vučić at the presentation of the EU financing in Belgrade in February 2023. "Nothing has changed in 130 years. Now we are changing Serbia, with the help of the European Union."

The first €82.8 million investment grant was sealed between the European Investment Bank and the Serbian Ministry of Construction, Transport and Infrastructure on a train from Belgrade towards Niš, in the presence of officials from the Serbian government, the European Union and the European Bank for Reconstruction and Development. The European Union will provide up to €598 million in grants, making it the largest EU donation for a single project in Serbia to date. **The package also includes a €1.1 billion European Investment Bank loan**, as well as a loan of €550 million from the European Bank for Reconstruction and Development.

"We have picked this project because it is capable of changing the reality on the ground for the people of Serbia, for the people of southern Serbia, and with that, also for the entire region," said Olivér Várhelyi, the European Commissioner for Enlargement Negotiations. "Because this train should bring growth and jobs," Várhelyi added, "this train should bring investments to areas where it is most needed – in the south of Serbia. But this should also bring a new Serbia and a new region."

Sustainable support for local partners and green projects

Upon completion, the new railway is expected to benefit more than 2.3 million passengers annually and to carry 9.4 million tonnes of cargo, creating new business and job opportunities.

EIB Global, the EU bank's arm for operations beyond the European Union, has approved €1.1 billion for this large-scale investment, which revitalises the pivotal link between the European Union and the Western Balkans, and connects central Europe with Thessaloniki, Greece, and Sofia, Bulgaria. It is part of the European Union's €30 billion Economic and Investment Plan for the Western Balkans, which aims to mobilise investment in transport, energy, and the green and digital transition, to create sustainable growth and jobs equivalent to one-third of the region's GDP.

The European Investment Bank has invested over €1.2 billion in the rail sector, making it one of the largest financers of the transport sector in the region and supporting economic cooperation and connectivity.

> **Now we are changing Serbia, with the help of the European Union**

Safer, greener, more efficient travel in Serbia

The rehabilitation of the Belgrade-Niš railway will improve Serbia's connections to other European rail networks. It will facilitate faster freight transport and significantly reduce commuting time. As rail is a clean mode of transport, the modernisation of the railway system also contributes to a cleaner environment. "Modernising rail infrastructure and making rail transport safer and more efficient is one of our priorities in the Western Balkans and a key enabler for the region's economic development," said Matteo Colangeli, EBRD director for the Western Balkans. "We have a long-standing commitment to the Serbian rail sector, and we are pleased to team up with the European Union and the European Investment Bank on this landmark project."

Transport projects funded by the European Union in Serbia aim to improve connections and, thus, boost economic integration – for Serbia into the region, and for the region into the European Union. They contribute to railway reform and to the introduction of modern, cost-effective road infrastructure.

AFTER THE QUAKE

Morocco invests in new education infrastructure and tackles social inequality in rural areas devastated by an earthquake

In early September 2023, a 6.8-magnitude earthquake shook the Al Haouz region in Morocco, destroying 50 000 homes and severely damaging 1 000 schools, many of which had to be demolished. Teachers and students in rural areas most affected by the disaster lost their homes and were forced to sleep in the highly damaged school buildings, which were already seriously run-down even before the earthquake hit. While Morocco spends about 5% of its gross domestic product on education, current resources aren't enough to maintain, upgrade and expand the network of 8 022 primary schools, particularly in rural areas.

Morocco was already planning to build new infrastructure as part of a national effort to improve education in remote areas, like the Atlas Mountains, which trail the rest of the country in academic performance. After the earthquake, the Ministry of Education is speeding up applications for building permits, so that reconstruction can begin by the end of 2023. "This project is a game-changer for education in Morocco," says Didier Bosman, a senior architect who's working on the European Investment Bank's financing for the project. "It's a top priority for the Moroccan Ministry of Education, to close the gap between urban and rural areas."

The European Investment Bank loaned €102.5 million to Morocco to build 150 community schools and to provide necessary infrastructure such as school equipment, boarding facilities and transport. **All the resources will now be shifted to areas hit hardest by the earthquake. In October 2023, the European Investment Bank pledged €1 billion over the next three years to Morocco's post-earthquake reconstruction programme.**

To help plan the investments, **Morocco also received an additional grant of €650 000 under the EIB's Economic Resilience Initiative**, a fund which supports resilient and inclusive growth in Europe's Southern Neighbourhood and the Western Balkans. That will pay for technical assistance in planning the project, which includes an in-depth study of the needs and challenges of rural schools. The study will serve as a blueprint for future education projects in the country.

Scoping out education needs

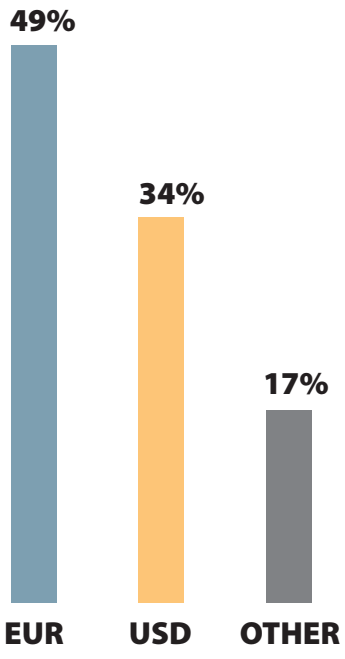
Before starting construction, an EIB technical assistance team visited over 30 community schools, such as the Eghrem N'ougdal school in Ouarzazate and École Vivante in the Ait Bouguemez valley in the Atlas Mountains, to better understand the challenges. Morocco also received an additional loan of €9 million from the Neighbourhood Investment Platform for educational resources and to improve teaching practices. "While there is still a lot to be done in education in Morocco, there are some good examples too," he says. "In the mountain region, a woman created a primary school with classes adapted to disabled children, financed by the Ministry of Education. She was so successful, she created a college so that the students could keep up with their education. This is what we want to see countrywide."

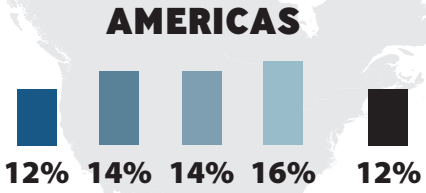
WHERE THE MONEY COMES FROM

The European Investment Bank, the world's largest multilateral borrower and lender, raised €49.8 billion on the international capital markets in 2023, with €14.6 billion of that in green bonds or sustainability bonds. The Bank's issuance reaches investors that might not typically invest in Europe but then contribute indirectly to European projects by investing in EIB bonds.

The Bank issued bonds in 16 currencies, with the majority raised in the core currencies of euros and US dollars. Diversified sources and tenors give flexibility to the Bank's funding strategy. The multi-currency approach also enables the EIB to access some local currencies for disbursements.

ISSUANCE BY CURRENCY



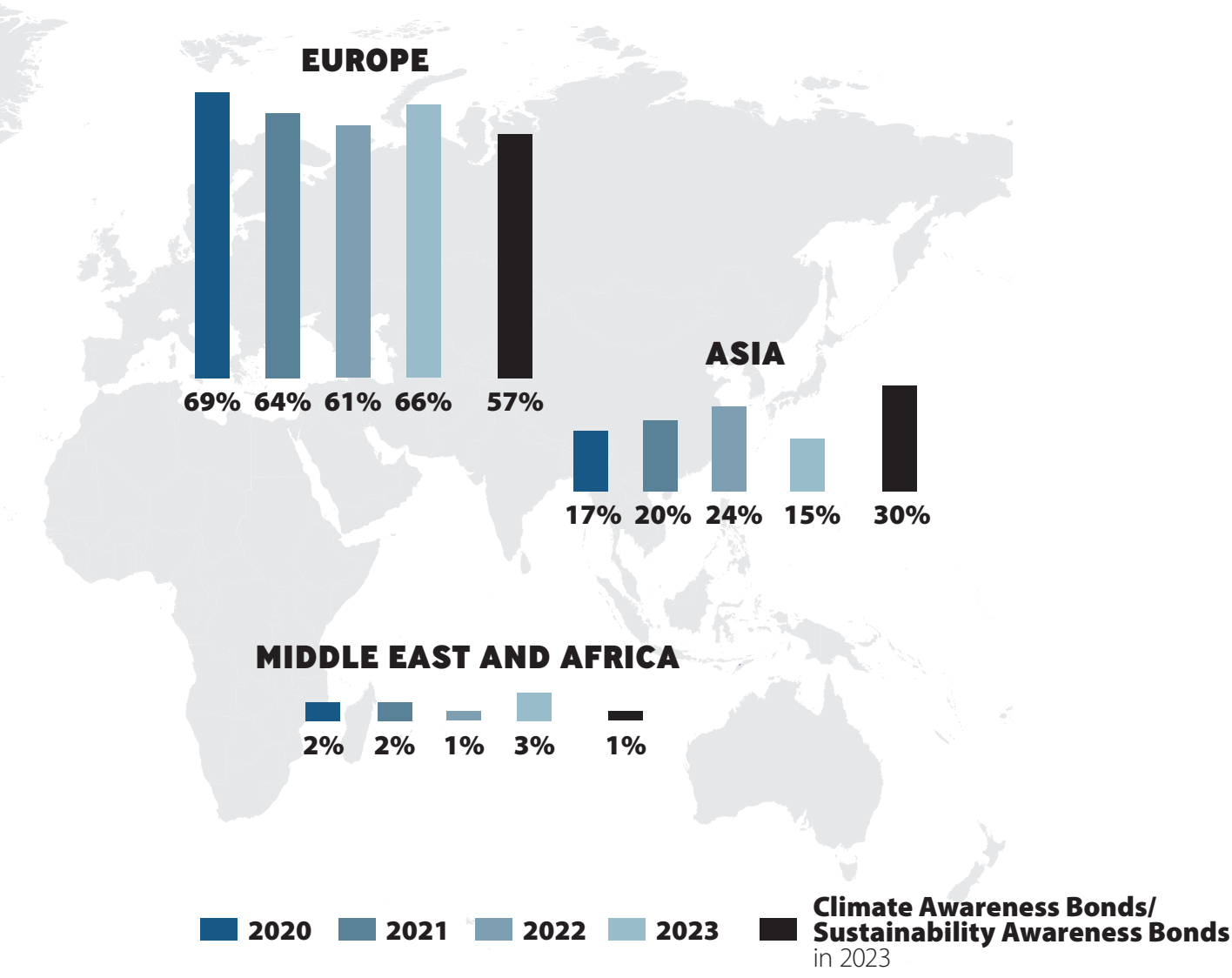


GREENING THE BLOCKCHAIN

The European Investment Bank took another step in developing sustainable capital markets when it launched the first **blockchain Climate Awareness Bond**. The SEK 1 billion (€87 million) two-year issue uses a unique blockchain technology developed by Crédit Agricole's corporate and investment banking arm and Stockholm-based Skandinaviska Enskilda Banken. The bond platform is based on the Proof of Climate awaReness protocol. Under the protocol, less energy is used than in comparable or non-blockchain systems. It also provides an incentive for participants to improve the environmental footprint of their trading infrastructure.

"Blockchain technology can offer a lot of potential benefits for bond markets," says Xavier Leroy, a senior funding officer at the European Investment Bank. "Typically, every coupon payment involves a lot of duplicated calculations by issuers, investors and intermediaries and each payment can be the subject of a lot of time taken up by discussion. On a blockchain, this whole process is transparent and much quicker."

The transaction follows three previous groundbreaking blockchain issues by the European Investment Bank, including the first digital bond on a public blockchain in 2021, the first digital bond on a private blockchain in 2022, and the first in pounds sterling issued earlier in 2023.



GROUP OPERATIONAL PLAN 2024–2026 HIGHLIGHTS

- **Green transition and Ukraine recovery**
- **More partnerships around the world**
- **Research and development in technology and energy**
- **Increased focus on skills and training**
- **More digitalisation to modernise banking practices**
- **Estimated maximum financing levels: €95 billion in 2024, €93 billion in 2025, and €85 billion in 2026**

Within the European Union, our priorities from 2024 to 2026 will be the green and digital transitions, cohesion regions, and countries most affected by the invasion of Ukraine, including the millions of Ukrainians forced to live in other countries during the war.

Outside the European Union, EIB Global will step up activity to help Ukraine repair war damage using the EU4Ukraine fund, accompanied by €100 million in technical assistance. EIB Global will pursue more partnerships around the world to increase impact and will invest in digital technology, climate action, energy, transport, research, healthcare and education.

With the rising importance of economic security and strategic independence, we will push heavily into research and development in technology and energy efficiency. The European Investment Bank will take on more risk to ensure support for innovative sectors and projects that have a high value. We expect to invest €45 billion from 2023 to 2027 to help REPowerEU projects. This investment programme is designed to make Europe independent of Russian oil and gas.

The European Investment Fund, which offers finance to small and medium-sized companies and infrastructure activities, will support the green and digital transition, with an increasing focus on skills and training.

Advisory services, which nurture the market for emerging technologies and improve our pipeline of projects, will become more aligned with our financing activity, helping the Bank find more business.

The EIB Group's high levels of finance activity will help stabilise and grow the balance sheet. The Bank's net surplus is expected to gradually increase starting in 2024, lifted by high interest rates.

The Bank is working to become more efficient and reduce the time it takes to complete financing for clients. Ways to become faster and more effective are being explored. Digitalisation will be an important part of this process.

The EIB Group expects maximum financing in 2024 to be €95 billion, with about €93 billion in 2025 and €85 billion in 2026. These high levels of investment will enable us to strengthen the EU economy and meet rising global challenges related to climate change.

Read the full Operational Plan for 2024-2026 at www.eib.org/en/publications

GOVERNANCE

The EIB is an EU body, accountable to the Member States, and a bank following applicable best banking practice in decision-making, management and controls.

The Board of Governors is made up of government ministers from each of the 27 Member States, usually ministers of finance. The governors set out the Bank's credit policy guidelines and once a year approve the annual accounts. They decide on capital increases and the Bank's participation in financing operations outside the European Union. They also appoint the Board of Directors, the Management Committee and the Audit Committee.

The Board of Directors takes decisions on loans, borrowing programmes and other financing matters. It meets, in principle, ten times a year to ensure that the Bank runs in accordance with EU treaties, the Bank's own Statute, and general directives laid down by the Board of Governors. There are 28 directors, one nominated by each Member State and one by the European Commission. There are also 31 alternate directors. To broaden the professional expertise of the Board of Directors, six experts may be co-opted to participate in board meetings as non-voting advisors. Decisions are taken by a majority representing at least 50% of the capital subscribed by the Member States and one-third of board members entitled to vote, unless otherwise provided for in the Statute. The board is chaired by the president, in a non-voting capacity.

The Management Committee is the Bank's resident decision-making body. It oversees the day-to-day running of the Bank, prepares decisions for the Board of Directors and ensures that these are implemented. It meets once a week. The Management Committee works under the authority of the president and the supervision of the Board of Directors. The other eight members are the EIB's vice-presidents. Members are appointed for a renewable period of up to six years and are responsible solely to the Bank.

The Bank has an independent **Audit Committee** answerable directly to the Board of Governors. It is responsible for the audit of the EIB and the EIB Group's accounts, for annual verification that EIB operations are conducted – and its books kept – in a proper manner, and for verifying that the activities of the Bank conform to best banking practice. The annual report of the Audit Committee for the financial year is submitted to the Board of Governors with the Management Committee response. The Audit Committee is composed of six members appointed for a non-renewable term of six consecutive financial years. In addition, three observers may be appointed by the Board of Governors to support the committee with specific tasks.

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2023 ACTIVITY REPORT

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pdf: ISBN 978-92-861-5645-8
eBook: ISBN 978-92-861-5638-0

EN 02/2024