



Annual Report 2022 – Overview Contents

3 From knowledge to action
Our researchers and the transformation

- 5 Multiple pathways towards change
 Building blocks for the future
- 6 Editorial by Jan Peter Schemmel
 Our year 2022
- 9 The Oeko-Institut in figures
 Staff, projects, turnover
- 10 Commitment to diversity and equal opportunities
- **11** Selected data on diversity at the Oeko-Institut (2022)
- 12 Embracing change!

 Measures in the context of the

 Diversity Strategy

13 Together as a team
The Executive Board and Committee

- **14** Research Divisions and Central Services
- 15 We have the skills so let's do it!
 Selected projects in 2022
- 16 Climate action on a plateThe planetary health diet
- 18 Citizens make for change Living labs in Brandenburg
- 20 Artificial intelligence in final storage Limited opportunities
- 22 As green as grass?

 A low-carbon European Football
 Championship
- 24 Earth energy
 Success factors for the use of deep
 geothermal energy

- 26 An often-ignored strategy
 Sufficiency in a time of crisis
- **28 Personal energy transitions**Electricity? Renewable and efficient!!
- 30 More reuse
 Increasing plastic recycling
- 32 More than 100 million

 Municipal potential for greenhouse
 gas mitigation
- 34 Effective efficiency
 Avoiding rebound effects in companies
- 36 Funders and clients in 2022
- 38 The Oeko-Institut in the media
- **40** The Oeko-Institut's members
- 42 Thank you
- 43 Tangram
- 45 Publication details

From knowledge to action

Our researchers and the transformation

The Oeko-Institut has never left it to others to do the work. Yes, we provide the science base. But in parallel to this essential and relevant work, our researchers are involved in workshops, symposia and conferences and serve on committees, panels and commissions in order to ensure that their scientific findings are fed into the debate and the decisionmaking process. This commitment is evident in numerous national forums such as Germany's Reactor Safety Commission, Commission on Radiological Protection and Coal Commission. In 2022, our experts also made contributions to other institutions of key significance for the transformation, from Bundestag hearings to international negotiations.

DR FELIX CHRISTIAN MATTHES

The Research Coordinator for Energy and Climate Policy was a member of the independent Expert Commission on Gas and Heat set up by the German Federal Ministry for Economic Affairs and Climate Action. The Commission was tasked with addressing the energy crisis after the invasion of Ukraine.

PETER KASTEN

The Deputy Head of the Resources & Transport Division assisted the German Federal Environment Ministry and Federal Environment Agency (UBA) to reach a position on the EU's CO2 emissions standards for cars and light commercial vehicles.

HAUKE HERMANN

The Senior Researcher in the Energy & Climate Division presented key scientific information at a hearing in the German Bundestag.





JENS GRÖGER

The Senior Researcher in the Sustainable Products & Material Flows Division appeared as an expert before the Bundestag's Committee on Digital Affairs, which deals with Internet policy issues.

JULIA MAREIKE NELES

The Deputy Head of the Nuclear Engineering & Facility Safety Division shares her expertise on interim and final storage with the German Federal Environment Ministry's Nuclear Waste Management Commission (ESK).

DR LAMBERT SCHNEIDER

Together with his colleagues Dr Martin Cames and Lorenz Moosmann, the Research Coordinator for International Climate Policy was once again a member of the European delegation and negotiated on various sub-topics at the 2022 international climate conference in Sharm el-Sheikh, Egypt.

DR CHRISTOPH PISTNER

In addition to his work as Head of the Nuclear Engineering & Facility Safety Division, he is Vice Chairman of the German Reactor Safety Commission (RSK), which advises the Federal Environment Ministry.



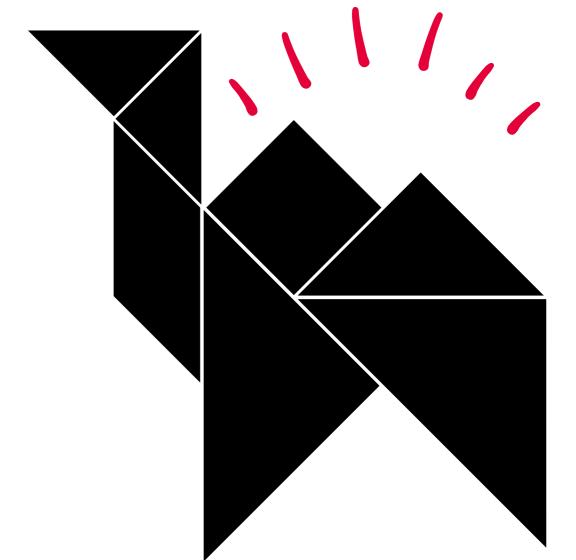
Multiple pathways towards change Building blocks for the future

The tangram – a Chinese puzzle thought to be more than 2,000 years old – stimulates creativity and is a test of our patience. The seven tiles which make up the puzzle – a square, a parallelogram and five triangles – can be arranged in a multitude of ways, creating a seemingly endless number of surprising and inspiring shapes, from human and animal forms to landscapes, boats and buildings. The tangram also trains our intellect, encouraging logical thinking and spatial awareness.

Creating, shaping – the seven tiles make this possible on a small scale. We can use them to continuously explore new pathways and develop new ideas. For us, the tangram is therefore a symbol of the transition to sustainability. The building blocks for change are there: we have the knowledge of useful strategies and effec-

tive tools at our disposal – whether the aim is to halt climate change or conserve biodiversity. We must now move these building blocks into the right position and arrange them into a vision for the future. This does not mean that every attempt will necessarily be successful. Just as the tangram's tiles can create shapes without any deeper meaning, actions for more sustainability may lead to a dead end – for a whole range of reasons. In that case, instead of losing heart, it is important to carry on – by rearranging the building blocks and finding and embarking along a different path towards a liveable future.

So that you can explore its endless possibilities and allow your creativity free rein, we have provided a tangram for you to print out – you will find it at the end of this Annual Report. We have also put together a selection of possible forms and figures for you to try out. Be inspired and use these little building blocks to create some shapes of your own!



Editorial by Jan Peter Schemmel Our year 2022

Dear readers,

Surely no other event affected us so deeply last year as Russia's war of aggression against Ukraine. Its impacts are profound and far-reaching. The Ukrainians continue to suffer under the brutality unleashed on their country in February 2022. One third of the population has been displaced and some eight million people have fled to other European countries; around a million of them have sought refuge in Germany. By the end of the year, at least 8,000 Ukrainian civilians had lost their lives and more than 13,000 were injured.

The war has also badly affected our economy and energy supply. Desperate efforts have been made to find solutions, to reduce our dependence on Russian gas and rein in or mitigate the surging energy prices. In the process, we have seen that we can act quickly if need be. Euro-

pean sanctions against the aggressor Russia and mitigation of the impacts on the German public through relief packages are just two examples.

Once again – as in the COVID-19 pandemic policy-makers have shown that they can walk the talk. This should encourage us as we address present and future challenges - including climate change, one of the greatest crises facing humanity. We have also seen that mistakes can be made if decisions have to be taken quickly again, we saw this previously during the pandemic. This risk mainly arises when there is a lack of scenario modelling or impact assessments of potential policy measures and tools. In order to ensure that the decisions needed to combat global warming in a changing environment are rooted in sound science, we are working to produce these scenarios and analyses - as a reliable knowledge base for practical action. In both the pandemic and the Ukraine crisis, protecting those whose limited financial security makes them especially vulnerable has been a particular challenge. At our 2022 Annual Meeting, whose theme was »Transition? Only if it's equitable!«, we identified strategies and mechanisms that can support the integration of the green transitions into a broader socio-ecological transformation. It became very clear that only by fully committing to climate change mitigation – and taking action today – can we preserve an equitable society and autonomy for everyone in future.

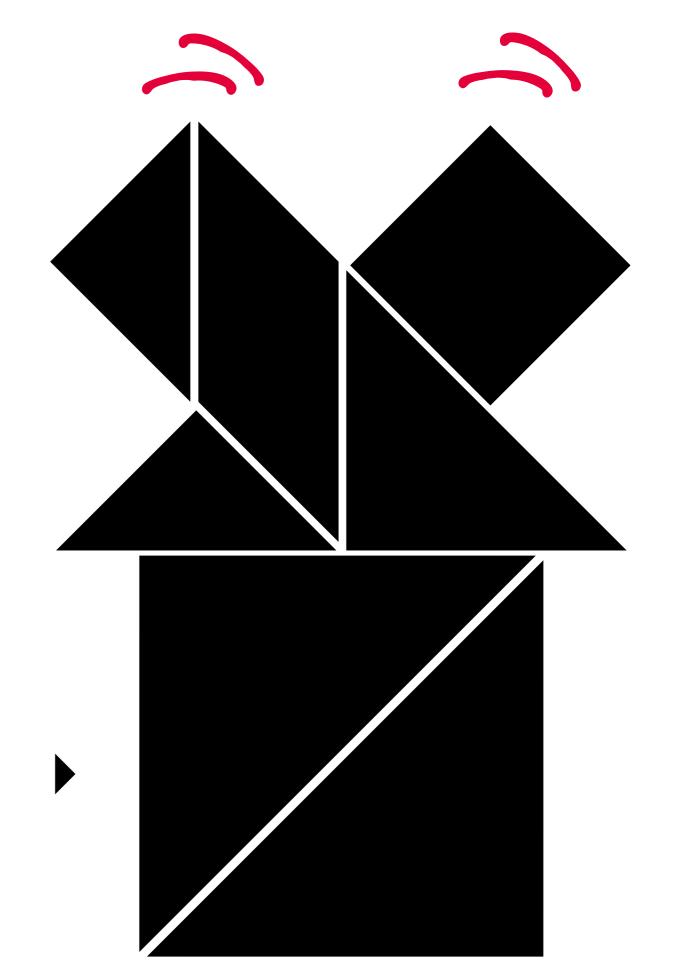
I believe there is a willingness to take action – and not only among policy-makers. A growing number of stakeholders from industry are ready to engage for the climate and are demanding appropriate frameworks for an economy which has a high level of climate protection built in. We saw this at many of the side events during the international climate negotiations in Sharm El-Sheikh, Egypt, in November 2022. And at many national conferences, too, I have seen that it is becoming increasingly clear to change-makers from businesses and interest groups that they must advocate for more ambitious environmental and climate action.

The general public - who have endured numerous crises in recent years - have also shown that they are able and willing to act. Here, every individual counts. We have seen that the amount of gas in the reservoirs partly depends on how often we switch on the heating. A keyword is sufficiency - less consumption of energy and goods in quantitative terms. In 2022, some time before it became clear that the energy shortages would be impossible to manage without sufficiency, researchers from the Oeko-Institut produced a position paper showcased in this Annual Report - which provided important impetus here. It is encouraging to see how quickly we can cut our gas consumption in Europe; this shows what can be done at short notice - if the commitment is there. If we all take action by reducing our consumption and conserving resources, we can stand up to climate change and biodiversity loss, which are such a cause for concern. And at a time of multiple crises, taking action ourselves is empowering. It lessens the feeling of powerlessness in

the face of these immense challenges and gives us confidence that we can overcome them yet.

The Oeko-Institut not only establishes the science base for everyone who is willing and able to take action. We support the much-needed shift towards sustainability in a very practical sense – for example, with the Carbon Credit Quality Initiative, which provides guidance on the quality of carbon credits. And during the current crises, we are <u>assisting policy-makers</u> to do the right thing and take effective action for the environment and the climate. We provide short-term consultancy and are involved in key institutions.

Make it happen! Of course, this is not limited to topics such as climate change and nature conservation. It should be our watchword in many other spheres of life as well. At the Oeko-Institut, the focus of our organisational development process in 2022 was therefore on achieving and implementing practical streamlining efforts and efficiency increases in our work. As examples: we aim to further improve our know-



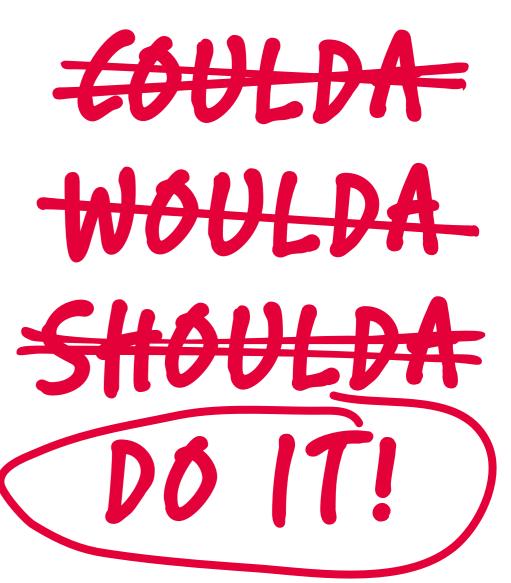
ledge management and press ahead with digitalisation of our processes.

Making a change is not always easy, as we know from all our lapsed New Year's resolutions. Last year, I was particularly inspired by a postcard that encouraged me to overcome my mental block and take action. There were three words on the postcard: Coulda, woulda, shoulda – all crossed out. That just left »Do it!« – with an exclamation mark. It serves as a constant reminder. I took the advice to heart and started working out more and eating less sugar. And as well as finding my own internal motivation, I found it helpful to join an early morning exercise group and follow my doctor's sound scientific advice.

So let's encourage each other – not only in relation to our personal challenges but also when it comes to the tasks facing the whole of society, which we can and must solve together.

Warmest wishes,
Yours,
JAN PETER SCHEMMEL
Chief Executive Officer

of the Oeko-Institut

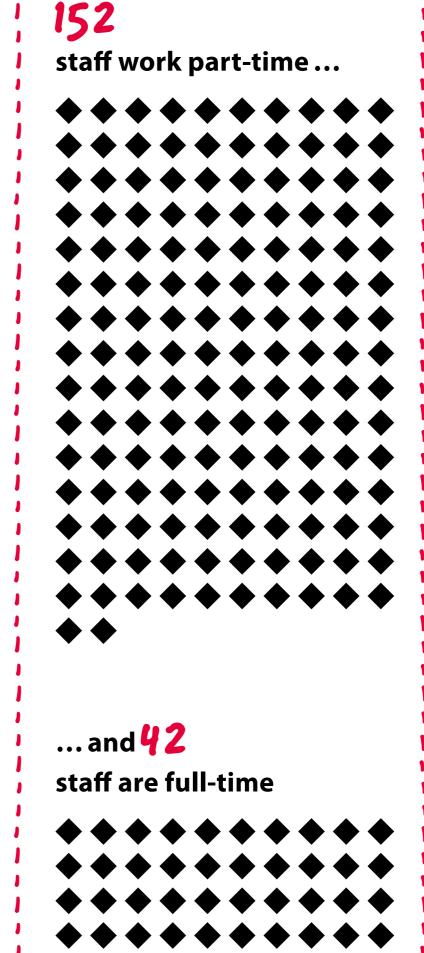


The Oeko-Institut in figures Staff, projects, turnover

2022, the Oeko-Institut's staff again contributed to the success of numerous research projects, studies and consultancy contracts.

139





194 Staff in total

More than
450
projects in 2022

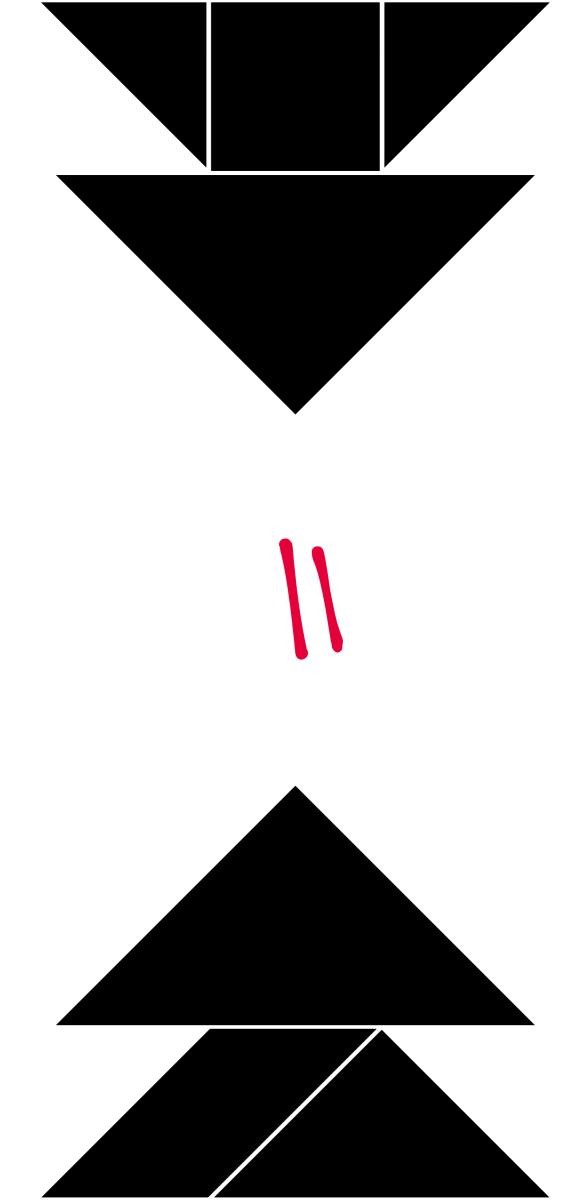
Turnover:
around
21
million euros
(forecast)

Commitment to diversity and equal opportunities

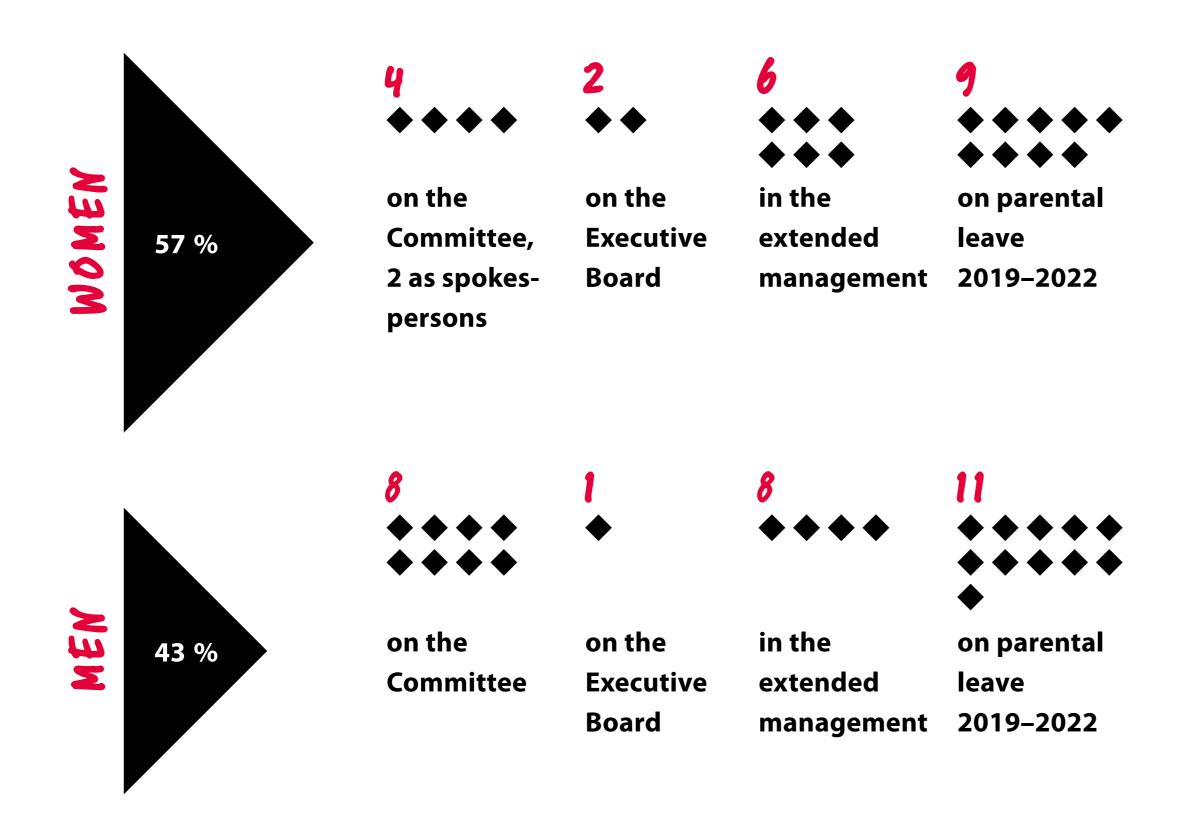
The diversity of society, which is influenced by globalisation and demographic and social change, is also shaping the world of work in Germany. At the Oeko-Institut, we are convinced that lived diversity, respect for this diversity and equal opportunities impact positively on us and the achievement of our goals in society. If we recognise, promote and utilise the existing diversity, we can make the vision of sustainable development a reality – globally, nationally and locally.

This is why it is so important to us to create, for all employees, a culture of respect in a workplace that is free of prejudice – regardless of the employee's age, ethnic origin and nationality, sex or gender identity, physical and mental abilities, religion and worldview, sexual orientation and social background.

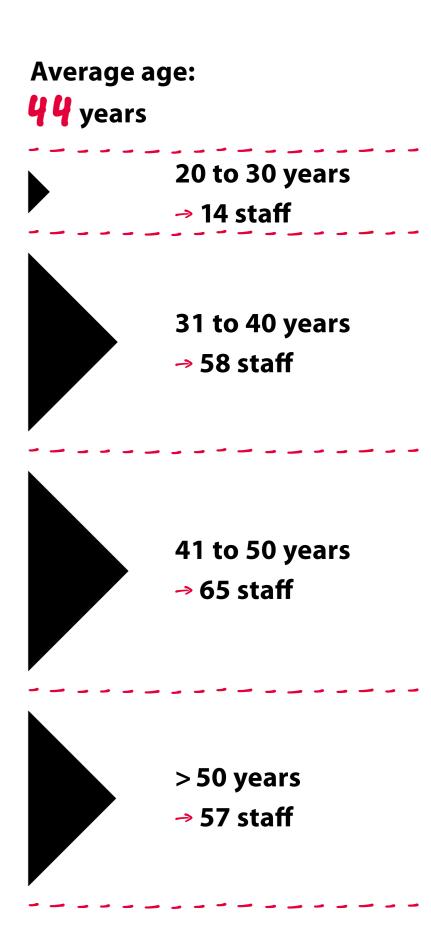
In 2022, we reinforced this voluntary commitment through an internal dialogue process and published our Diversity Strategy in early 2023: www.oeko.de/diversity



Selected data on diversity at the Oeko-Institut (2022)



Age structure at the Oeko-Institut



Embracing change!

Respect, gender equality, a balance between work and life and individual needs are already embodied in the Institute's lived identity. In order to fulfil our goal of lived diversity and equal opportunities even more effectively in future, we pledge to:

- cultivate an organisational culture in which mutual respect and appreciation are more firmly embedded,
- review our HR processes and ensure that they make full use of all employees' diverse skills and talents,
- make the content of our Diversity Strategy the subject of ongoing internal and external dialogue,
- jointly identify and implement appropriate measures to promote diversity and equal opportunities.

Selected measures in the context of the Diversity Strategy:

- a staff survey on how diversity is experienced at the Oeko-Institut and how we can continue to improve our efforts to promote equal opportunities
- training and professional development on diversity and anti-discrimination for all staff
- human resources and leadership development to increase the proportion of women in leadership positions
- review and improve our selection and recruitment process with regard to unconscious biases and ensure equal opportunities and diversity

These and other measures are described in the »Diversity Strategy and Gender Equality Plan«



Together as a team

The Executive Board

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SUSANNE FRÖSCHL

Until February 2023

External members of the Committee

DOROTHEA MICHAELSEN-FRIEDLIEB

First Chair of the Committee

The Committee

ULRIKE SCHELL

Second Chair of the Committee

SEBASTIAN BACKHAUS

HELMFRIED MEINEL

THOMAS RAHNER

WOLFGANG RENNEBERG

PROFESSOR VOLRAD WOLLNY

Internal members of the Committee

DR MARTIN CAMES
CLARA LÖW
DR ROMAN MENDELEVITCH
JAN PETER SCHEMMEL

INSE WARICH

The Executive Board, the research divisions, Central Services – the Oeko-Institut's core bodies work together to produce high-quality research and thus make a collective contribution to the transformation towards sustainability. While the researchers draw on their expertise to map out viable visions for the future, the staff in the departments and Central Services ensure that processes run smoothly at all levels and that scientific findings are shared with the public. Together with the Institute's governing bodies, the Executive Board is responsible for strategic development and performs core manage-



ment functions.

Research Divisions and Central Services



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We have the skills – so let's do it! Selected projects in 2022

We know so much. We know that climate change is advancing. We know that fossil fuels are a major contributor to this - and that they need to be replaced by renewables more swiftly than ever. Alongside this general information on the much-needed transformation to sustainability, there is of course a wealth of detailed knowledge that is essential for this transformation - detailed knowledge that our researchers work to provide every day. In the following pages, we showcase 10 projects as examples of the Oeko-Institut's work in 2022. As this selection shows, we establish the bases for willingness and ability to be translated into action.

The Resources & Transport Division, for example, is currently supporting a <u>living lab</u> in northern Brandenburg, whose purpose is to initiate and directly implement sustainable mobility concepts. The researchers have also developed a strategy for a <u>low-carbon UEFA European Football Championship in 2024</u> so that it can serve as a model for many other major sports events in future. And in a joint project with the Environmental Law & Governance Division, the experts looked at ways of increasing the <u>use of recycled plastics</u>. A further study aimed to support <u>businesses in utilising efficiency gains</u> for the benefit of the environment and climate.

The great potential for greenhouse gas mitigation in cities, municipalities and rural districts and options for leveraging this potential were the focus of a project in the Energy & Climate Division. Its researchers also identified the positive effects that would ensue for the planet if we switched to the planetary health diet and aligned our food production with organic standards. The Nuclear Engineering & Facility Safety Division supported

a project which identifies success factors for the use of deep geothermal energy. They also investigated whether and how artificial intelligence can be used in the search for a repository site for high-level radioactive waste.

And lastly, personal energy transitions were a topic for the Sustainable Products & Material Flows Division: here, the experts show how private households can embrace e-mobility while saving energy and promoting renewables. Together with the Energy & Climate Division, they also produced a position paper on sufficiency – reducing energy consumption – which has now been signed by almost 80 representatives of academia and civil society.

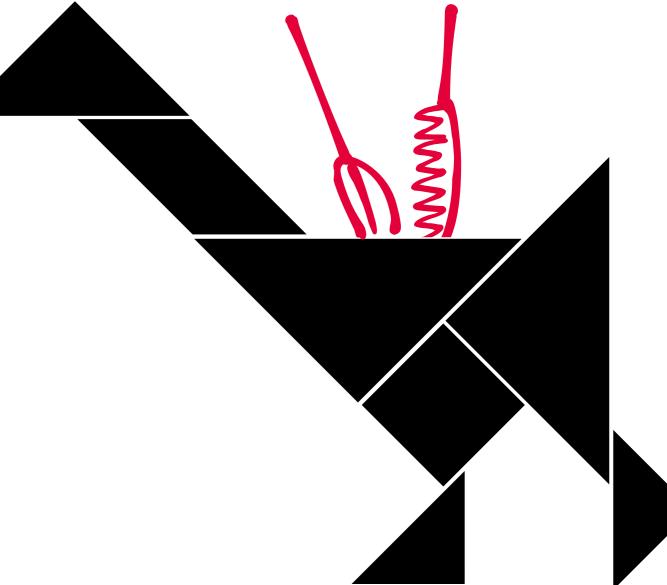
Climate action on a plate The planetary health diet

Our food is harming the planet. Changing our diet therefore would benefit the climate and the environment - as well as human health. This is the thinking behind the planetary health diet, which was devised by the **EAT-Lancet Commission. Cutting our con**sumption of animal products to just a quarter of our current intake and doubling our consumption of vegetables, fruits, legumes and nuts would drastically reduce emissions from agriculture. The food must be produced in accordance with organic standards – that is important. In a study for Greenpeace, the **Oeko-Institut identifies the positive impacts** of this change specifically for Germany.

If Germans switched to the planetary health diet, greenhouse gas emissions from agriculture would decrease by around three-quarters. These emissions currently amount to around 95 million tonnes of carbon dioxide equivalent (Mt CO2e) and can be reduced to 23 Mt CO2e. A large part of the reduction (29 Mt CO2e) is due to the shrinking of livestock populations – more than 80% of food-related emissions from agriculture currently come from livestock husbandry – and large-scale rewetting of 80% of peatland sites (31 Mt CO2e).

Overall, a change in diet would free up 44% of arable land and 55% of grassland – 4.6 million ha and 1.6 million ha, respectively. If the freed-up land were reforested, this would remove approximately 20 Mt CO2e from the atmosphere by 2045 – the year when Germany must be climate-neutral, according to the Federal Climate Change Act. Alternatively, the freed-up land could be used to produce plant-based food for export. This would enable an additional 70 million people to be fed in accordance

with the planetary health diet model. Emissions would then increase to 33 Mt CO2e; however, this is compatible with the goal of greenhouse gas neutrality, provided that climate targets are met in the forestry sector.



Climate action on a plate The planetary health diet

»We can only achieve the goal of greenhouse gas neutrality here in Germany if the agricultural sector drastically reduces its greenhouse gas emissions. A shift in our dietary patterns is a prerequisite for this. We should be eating a largely plant-based diet in future. Policy-makers must set the course towards that goal.«

KIRSTEN WIEGMANN

PROJECT TITLE

Healthy eating for the climate: the impacts of the planetary health diet on the agricultural sector – production, climate change mitigation, farmland

CLIENT

Greenpeace

TIMESCALE

July 2021–September 2022

FURTHER INFORMATION

www.oeko.de/jb2022planetary-health-diet (in German)

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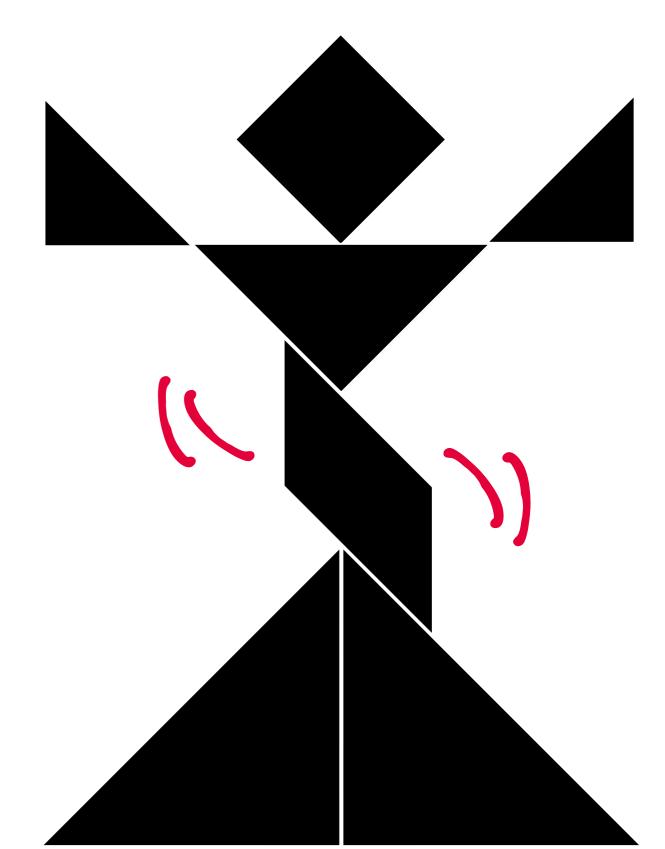


Citizens make for change Living labs in Brandenburg

There are so many good ideas and strategies for a more sustainable lifestyle. But which ones actually fit into people's daily lives? Which are suitable to address specific local challenges? And what are their impacts, both environmental and social, on local communities? This is the type of question that can be answered in living labs. They provide a multi-stakeholder space in which to develop workable ideas for the much-needed transformation towards sustainability - such as sustainable mobility offers or the revitalisation of town centres. And they provide a framework in which to test and implement these ideas. In collaboration with the Technologie- und Gewerbezentrum Prignitz, the Oeko-Institut is supporting a living lab in Perleberg and Wittenberge.

A key aspect of any living lab is that its strategies and programme should be developed and implemented in conjunction with stakeholders, including representatives of business and the administration and, above all, local citizens. This is the case in northern Brandenburg, where the intention is to develop two small towns into places with a future and increase quality of life. Funded by the Federal Ministry of Education and Research (BMBF), the project aims to develop and implement proposals for sustainable mobility and the revitalisation of the town centres.

Under the »We make Prignitz« banner, this aim has already taken on tangible forms. For example, citizens were given a say in which pilot projects should be realised. Citizen teams then act on the findings: self-organised flea markets for equitable and sustainable shopping in Perleberg, and a cargo bike and handcart rental service in Wittenberge, where there are also plans to enhance Bismarckplatz, a town-centre square, with self-designed seating to encourage people to linger and socialise.



Citizens make for change Living labs in Brandenburg

»A living lab should always be fully evaluated, both while it is taking place and afterwards, with a focus on tangible sustainability impacts but also on the research process itself. This shall benefit other projects as well. That's why we are planning to hold transmunicipal workshops, among other things, in order to share experience gained with this specific project.«

DR MANUELA WEBER

PROJECT TITLE

ZUGG – Shaping futures together in rural areas

FUNDED BY

Federal Ministry of Education and Research (BMBF) within the FONA framework

PROJECT PARTNER

Technologie- und Gewerbezentrum Prignitz (TGZ)

TIMESCALE

July 2022-June 2024

FURTHER INFORMATION

wir-machen-prignitz.de
(in German)

DR MANUELA WEBER

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Artificial intelligence in final storage Limited opportunities

Whether our streaming service suggests a new film or we install voice recognition on our smartphone: artificial intelligence (AI) is now an integral part of our daily lives. It may also be suitable for use as a tool in Germany's search for a repository site for high-level radioactive waste, which involves the processing of large volumes of geological data and complex calculations. But what kind of contribution can AI genuinely make here, and how much of a role should it play? These questions were addressed by the Oeko-Institut together with TU Clausthal in a study on behalf of the Federal Office for the Safety of Nuclear Waste Management (BASE). The researchers identified potential areas of application for Al and showed where its limitations lie.

In this interdisciplinary project, the research team assessed whether artificial intelligence is suitable for use in geoscientific studies. The study revealed that AI does indeed offer solutions, e.g. in the management of large volumes of data on geological characteristics. It can be used to cross-check datasets, pinpoint errors and identify anomalies. Under certain conditions, it can also be used for the modelling and calculation of geological processes – with a focus on long-term repository safety, for example.

However, the project team concluded that artificial intelligence should be used solely as a supporting tool alongside traditional methods of geological data collection and evaluation. The reason is that it also poses risks. For example, if it operates on the basis of unsuitable or inadequate data or there is bias in its programming, this can produce inaccurate or distorted results. Al should therefore not be used as the sole basis for decision-making; expert reviews and plausibility checks are always required.



Artificial intelligence in final storage Limited opportunities

»When it comes to the site selection process, artificial intelligence has limitations, not least because its findings often lack transparency for the general public, who play a key role in this process. This creates considerable risks in relation to its acceptance and hence to the process as a whole. It is also unclear whether AI is suitable for use in evaluations during the consultation processes.«

JUDITH KROHN

PROJECT TITLE

The use of artificial intelligence (AI) in the site selection process for a deep geological repository (AKI)

CLIENT

Federal Office for the Safety of Nuclear Waste Management (BASE)

PROJECT PARTNER

Clausthal University of Technology (TU Clausthal)

TIMESCALE

August 2021– November 2022

FURTHER INFORMATION

www.oeko.de/
jb2022-ki-standort-endlager
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As green as grass?

A low-carbon European Football Championship

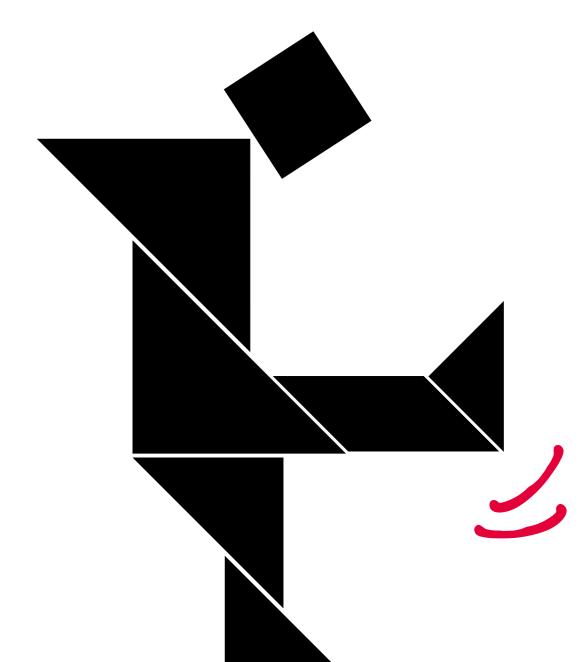
In 2024, Germany is due to host the UEFA European Football Championship (UEFA EURO 2024), which is contested by the men's national teams. How can its carbon footprint be reduced – as regards team and spectator mobility and unavoidable emissions, for example? In a study conducted on behalf of the German Environment Ministry (BMUV), the Oeko-Institut has calculated the event's ex-ante carbon footprint, outlined measures to reduce greenhouse gas emissions and developed recommendations for action to improve the sustainability of major sports events.

Based on the current plans, the researchers calculate the ex-ante carbon footprint for EURO 2024 at approximately 490,000 t CO2 equivalent (t CO2e). A substantial proportion is attributable to fans' international air travel. The project team therefore developed a raft of proposals showing how to reduce the carbon footprint of team and spectator travel to match venues and public viewing areas, based on environmentally friendly public transport. The proposals include a Combi-Ticket for local and long-distance travel, the use of special trains and an additional public transport offer. In order to achieve further resource savings, the study proposes that temporary facilities such as tents and furniture should be rented and reused rather than purchased and there should be no give-aways, flyers, etc.

Unavoidable emissions, according to the experts, can be dealt with in line with the concept of »climate responsibility«: here, the remaining emissions are multiplied by an applicable price and the climate responsibility budget determi-

ned in this way is invested in greenhouse gas reduction measures, possibly in sports clubs in Germany.

The overarching goal of this study was to develop practical climate measures and to find an alternative to greenhouse gas offsetting. The Oeko-Institut therefore produced a set of general recommendations for action which can be applied to other major national and international sports events.



As green as grass? A low-carbon European Football Championship

»Many major sports events have the potential to be far more sustainable, so we have developed a raft of recommendations for action which they can then apply. Examples are rail travel for national teams, the installation of photovoltaic systems and more vegetarian and vegan offers in catering.«

DR HARTMUT STAHL

PROJECT TITLE

Concept and Feasibility
Study for a »ClimateNeutral« Staging of the 2024
UEFA European Football
Championship (UEFA EURO
2024)

CLIENT

Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)

TIMESCALE

September 2021–July 2022

FURTHER INFORMATION

www.oeko.de/
Climate-Neutral-EURO2024

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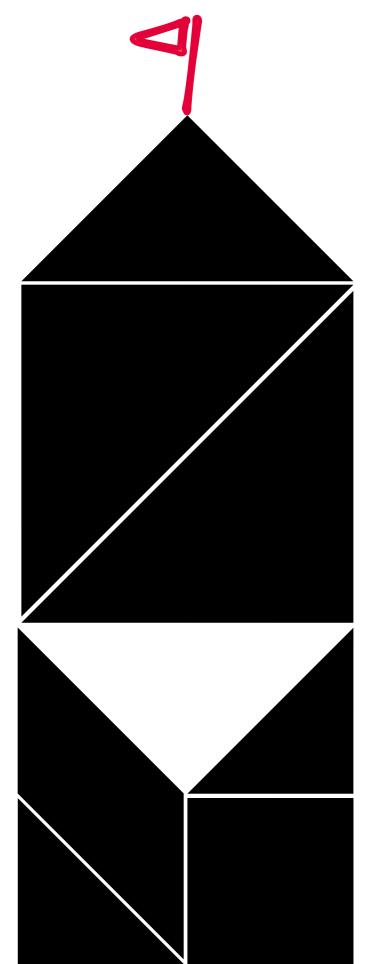


Earth energy Success factors for the use of deep geothermal energy

Most of our heat is still produced from fossil fuels. Deep geothermal energy may offer a solution to end this dependence. The site of the Karlsruhe Institute of Technology (KIT) Campus North holds major potential here: it is characterised by one of the largest known thermal anomalies in Germany, with temperatures of around 170°C at a depth of 3 km. Together with KIT, the Oeko-Institut has looked at how this energy can be successfully harnessed for a heat supply, with a focus on the planning, construction and operation of the required infrastructure. Citizens and stakeholders were also involved in the inter- and transdisciplinary GECKO project.

On behalf of Baden-Württemberg's Environment Ministry, the experts conducted three sub-projects which focused on aspects of natural science, engineering and social sciences. The aim of the project was to inspire and promote the future planning and implementation of deep geothermal projects.

The findings of the GECKO project show that for successful planning, implementation and use of deep geothermal energy, it is essential to develop a vision for a sustainable energy and heat supply; meticulous planning is also required, with the involvement of the municipalities and local citizens. Transparent and pro-active communication about the geothermal project is also important, as is creating added value for citizens, perhaps by enabling them to share in the benefits of the geothermal heat supply. According to the researchers, support for the project is likely to increase if forms of participation that are based on dialogue and co-creation are introduced at an early stage and clear and detailed information is provided for the public.



Earth energy

Success factors for the use of deep geothermal energy

»Anyone interested in successfully utilising geothermal energy through this kind of project should obtain independent scientific advice. Experts can provide impartial and critical support throughout the planning and implementation process. They generally have more credibility than the operators themselves.«

DR MELANIE MBAH

PROJECT TITLE

Geothermal energy for climate-neutral heat supply of the Karlsruhe Institute of Technology (Campus North) – inter- and transdisciplinary co-design of an implementation concept (GECKO)

FUNDED BY

Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg

PROJECT PARTNER

The GeoEnergy Group and the Institute for Technology Assessment and Systems Analysis (ITAS), both at Karlsruhe Institute of Technology (KIT)

TIMESCALE

November 2019 – February 2022

FURTHER INFORMATION

www.gecko-geothermie.de/ gecko-english

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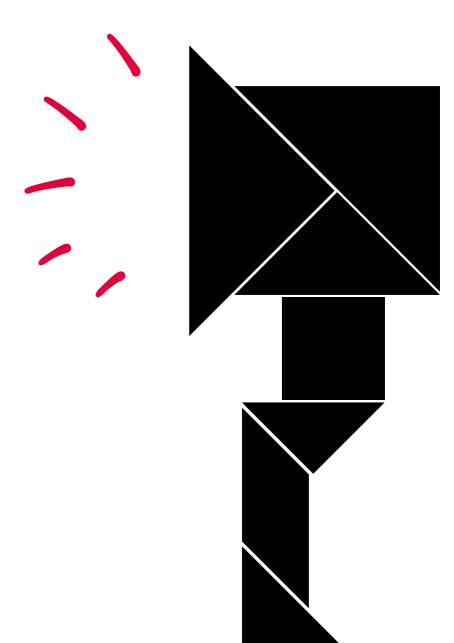
An often-ignored strategy Sufficiency in a time of crisis

Russia's war of aggression against Ukraine has sparked an energy crisis here in Germany – as well as an intensive debate on how to safeguard the supply while keeping prices at an affordable level. Burning more coal, sourcing gas from elsewhere, extending nuclear power plant lifetimes – these are just some of the many options that have been proposed. However, one significant and very effective strategy was missing from the public debate in early 2022, namely sufficiency – reducing energy consumption. In response to the situation, staff from the Oeko-Institut initiated a joint campaign for more energy sufficiency.

Their idea soon became reality: an editorial group was formed, with the involvement of numerous noted experts from a range of institutions. The task of coordinating the group was taken on by Dr Corinna Fischer, a sufficiency expert at the Oeko-Institut. The outcome of the initiative was a position paper which has now been signed by almost 80 leading figures from academia and civil society.

The position paper provides an overview of sufficiency measures for six sectors, including agriculture, transport and digitalisation. The measures range from effective energy management in industry to the introduction of a speed limit and more rapid energy upgrading of buildings. The experts also highlight the benefits of lower energy consumption – such as reduced exposure to supply chain disruptions and therefore more policy-making scope – and describe how energy sufficiency can be adopted as a political strategy.

The appeal did not go unheard. The experts received numerous enquiries from the press and civil society and energy-saving has now secured a well-deserved place in the media debate.



An often-ignored strategy **Sufficiency in a time of crisis**

»The position paper attracted a very high level of interest. There is now much more public awareness and discussion of sufficiency and the many energy-saving strategies that exist. We are very happy about that – and we hope that we made a small contribution to that process.«

DR CORINNA FISCHER

POSITION PAPER

Energy-saving as the key to energy security – sufficiency as a strategy

SIGNATORIES

Almost 80 representatives of academia and civil society

PUBLISHED

April 2022

FURTHER INFORMATION

www.oeko.de/
jb2022-suffizienz
(in German)

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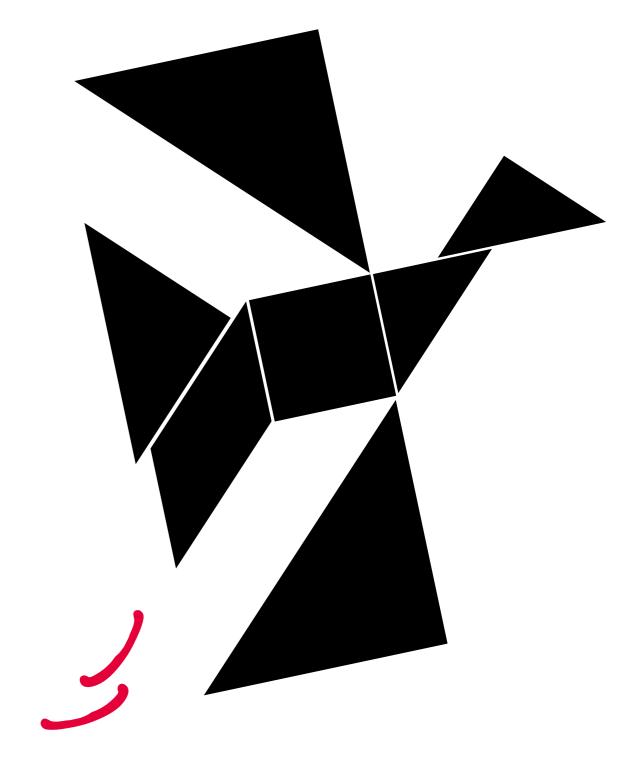
Personal energy transitions Electricity? Renewable and efficient!

The mobility transition needs more electric vehicles – and in future, all the additional electricity demand must be met by renewables. At present, however, Germany's energy mix is still dominated by fossil fuels. Due to the currently high proportion of fossil fuels in the German energy mix, electric cars are not yet carbon-free. A joint project with Büro Ö-quadrat shows how private households can embrace low-carbon mobility, while a pilot project provides them with practical support with renewables use and energy-saving.

Assuming that an electric car covers 14,000 kilometres a year, it will use around 3,000 kWh of electricity – roughly the same as an average two-person household. The project team provides free advice to around 200 purchasers of electric cars in the Freiburg and Stuttgart regions and shows them how they can produce their own low-carbon electricity in order to meet this requirement. This can be achieved by installing roof-mounted solar panels, for example. Another option for this personal energy transition is to save energy elsewhere by purchasing energysaving domestic appliances. If installing a private PV system or reducing electricity consumption is not feasible, an alternative is to obtain a financial stake in a photovoltaics system.

The project team works with energy advice organisations and other practitioner partners via a support group. On behalf of the Federal Ministry for Economic Affairs and Climate Action, the experts are also evaluating the advice and measures implemented, with a focus on their climate change mitigation effects, acceptance and fea-

sibility. The aim is to refine the approach in order to promote innovative climate action in private households in future.



Personal energy transitions Electricity? Renewable and efficient!

»To achieve a personal energy transition, simply switching to electric vehicles is not enough. Households can contribute in many different ways; one option is for them to save energy in a whole range of areas. The most low-carbon choice of all is still to walk, cycle or use public transport wherever possible.«

KATHRIN GRAULICH

PROJECT TITLE

Innovative climate protection in private households: Offsetting the additional electricity demand of e-mobility through the expansion of renewable energies and energy efficiency (E-Mob EE)

FUNDED BY

Federal Ministry for Economic
Affairs and Climate Action
within the framework of the
National Climate Initiative (NKI)

PROJECT PARTNER

Büro Ö-quadrat

TIMESCALE

June 2021–May 2024

FURTHER INFORMATION

www.e-mob-ee.de (in German)

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More reuse Increasing plastic recycling

Although the production and, above all, the uncontrolled disposal of plastics are associated with harmful environmental and climate impacts, there has been no reduction in the use of these materials. On the contrary, the use of plastic packaging has increased in recent decades. At the same time, there is considerable scope for more plastic recycling. In 2021, recyclates that originate from end-consumer waste (known as post-consumer recyclate - PCR) accounted for only around 9 % of the total amount of plastic processed in Germany. In two projects conducted on behalf of the German Environment Agency (UBA), the Oeko-Institut looked at what can be done to improve the situation.

Section 21 of the German Packaging Act sets out environmental criteria for the licence fees that must be paid by manufacturers placing packaging on the market. The aim is to promote marketing of recyclable packaging and encourage recycling. Together with three project partners, the researchers showed that this provision of the law has been ineffective so far. They therefore propose the introduction of a special levy or consumption tax on non-recyclable packaging. They also emphasise that a monitoring and sanction mechanism is required at the same time.

What can be done to increase the demand for plastic recyclates and plastic products containing recyclates? This question was explored in a second project, conducted in collaboration with the Institute for Ecological Economy Research and cyclos-HTP GmbH. Public procurement offers scope to exert leverage here, so the project team developed recommendations for use in tendering procedures for relevant products such as waste sacks and plastic tubes. Mandatory quotas can also increase the use of post-consumer recy-

clate where this is technically and legally feasible, as the researchers demonstrate with reference to five product groups – from transport crates to waste bins.



More reuse Increasing plastic recycling

»If we want to improve recyclability of packaging and boost the use of recyclates, an effective mechanism is required in order to increase the cost pressure on non-recyclable packaging. The revenue should then be used to expand the recycling infrastructure.«

ANDREAS HERMANN

PROJECT TITLE I

Review of the effectiveness of article 21 VerpackG (Packaging Act) and development of proposals for further legal developments

CLIENT

German Environment Agency (UBA)

PROJECT PARTNER

HTP GmbH, cyclos GmbH, Institut cyclos-HTP GmbH

TIMESCALE

December 2019–March 2022

FURTHER INFORMATION

www.oeko.de/jb2022verpackg
(in German)

PROJECT TITLE II

Assessment of practical measures to increase the demand for plastic recyclates and plastic products containing recyclates

CLIENT

German Environment Agency (UBA)

PROJECT PARTNER

Institute for Ecological Economy Research (IÖW)

TIMESCALE

September 2019– August 2022

FURTHER INFORMATION

www.oeko.de/jb2022kunststoffrezyklate
(in German)

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More than 100 million Municipal potential for greenhouse gas mitigation

Municipalities have major potential to support national climate targets: just by implementing 38 actions - from the conversion of the energy supply to renewables to the electrification of bus services - they can save around 101 million tonnes of CO2 equivalent. In practice, their greenhouse gas mitigation potential is likely to be even greater if additional measures are taken. Climate action managers can make a significant contribution to leveraging this potential as they are responsible for tasks such as setting specific mitigation targets and planning and coordinating climate projects. In a study for the Federal Ministry for Economic Affairs and Climate Action, the Oeko-Institut and its three project partners have developed strategic recommendations showing how to harness this municipal potential for greenhouse gas mitigation.

The research team concludes that municipalities must be assigned mandatory climate change mitigation tasks. This must be backed by adequate funding to enable them to make the necessary investment and establish permanent structures within their administrations: for example, staff are needed to plan and support climate actions. A further issue highlighted by the experts is that municipal climate change mitigation is not adequately embedded in federal and state legislation and is often voluntary. A more robust policy framework is therefore required. The researchers also recommend introducing mandatory climate reporting for municipalities, establishing comprehensive support structures and expanding funding schemes. Integrating municipal enterprises into climate strategies is also key.

The project team has developed a set of guidelines to support greenhouse gas mitigation by municipalities. These guidelines include an overview of the 38 potential actions, as well as information about climate action management

and a seven-point plan with key steps towards more climate change mitigation.



More than 100 million Municipal potential for greenhouse gas mitigation

»Municipalities have numerous opportunities to improve their carbon footprint in all of the task areas that they manage directly, such as street lighting, and also through their involvement in municipal enterprises such as local public transport. Planning, regulation and advisory services for citizens also offer scope for emissions reductions.«

TANJA KENKMANN

PROJECT TITLE

Municipal potential for influencing greenhouse gas mitigation: municipal actions as a contribution to national climate action

CLIENT

Federal Ministry for Economic Affairs and Climate Action

PROJECT PARTNER

ifeu – Institut für Energie- und Umweltforschung, ILS – Research Institute for Regional and Urban Development, SCS Hohmeyer

TIMESCALE

November 2019-October 2022

FURTHER INFORMATION

www.oeko.de/
jb2022-klima-kommunen
(in German)

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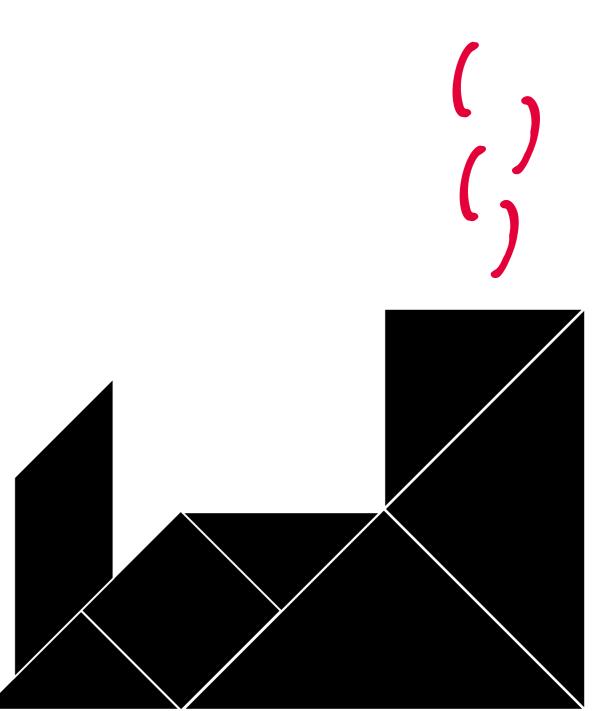


Effective efficiency Avoiding rebound effects in companies

When companies reduce their consumption of energy or raw materials, they lower their costs and shrink their environmental footprint. However, instead of easing the burden on the environment and climate, a frequent outcome is that the money or materials saved in this way are employed to manufacture more products or new ones. The consequence is that despite higher resource efficiency, absolute consumption of raw materials does not decrease to the expected extent. Efficiency gains are rarely managed in an environmentally mindful manner. However, companies should actively mitigate rebound effects, as a project funded by the Federal Ministry of **Education and Research demonstrates.**

Together with four project partners, the Oeko-Institut sets out various proposals showing how companies can ensure that their energy and material consumption decreases in absolute terms. To that end, there needs to be a greater awareness of rebound effects and similar impact deficits of efficiency measures. In addition, targets for an absolute reduction in energy and material consumption are required at company level, along with targets for individual measures. Organisational structures and incentives for meeting targets are also important, as are focusing efficiency measures on consumption-intensive processes within the company and monitoring of consumption after the implementation of efficiency measures. The research team presents methods for rebound management in a guide for companies.

In the researchers' view, cost savings must be invested in further ambitious measures that promote resource efficiency and corporate sustainability. To that end, companies should develop guidelines on managing financial savings. Efficiency gains should be used to improve the sustainability of products and processes and establish green business models, for example. Intentionally limiting the expansion of production, as a »corporate sufficiency« strategy, is a further option identified by the project team.



Effective efficiency Avoiding rebound effects in companies

»Policy-makers must support companies' efforts to manage energy and material efficiency comprehensively. Possible mechanisms include policy goals for reducing energy and resource consumption in absolute terms in Germany, along with increases in the costs of resource consumption, and mandatory environmental and energy management systems such as rebound monitoring.«

FRANZISKA WOLFF

PROJECT TITLE

Comprehensive
management of energy
and resource efficiency in
companies (MERU project)

FRANZISKA WOLFF

Head of the Environmental Law & Governance Division f.wolff@oeko.de

FUNDED BY

Federal Ministry of Education and Research

PROJECT PARTNER

Institute for Ecological Economy Research (IÖW), Leuphana University Lüneburg, Data Center Group, B.A.U.M. e.V. – Netzwerk für nachhaltiges Wirtschafte

TIMESCALE

November 2018 – December 2022

FURTHER INFORMATION

www.meru-projekt.de
(in German)



Funders and clients in 2022

1. POLITICS & GOVERNMENT

- Alliance 90 / The Greens
 parliamentary group in the Bavarian
 Landtag
- ◆ Baden-Württemberg Ministry of the Environment, Climate Protection and the Energy Sector
- Bavarian Ministry of Housing,
 Construction and Transport
- ♦ Berlin Senate
- Berlin-Neukölln District Authority
- ◆ BGE, Germany's federal company for radioactive waste disposal
- ◆ Brandenburg Ministry of Agriculture, Environment and Climate Protection
- ◆ Bundesnetzagentur, Germany's main federal authority for infrastructure
- ◆ Bundestechnologiezentrum für Elektro- und Informationstechnik (BfE)
- ◆ City of Düsseldorf
- City of Munich and Munich municipal utilities

- Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
- ◆ Emsland District Authority
- ◆ European Commission
- ◆ European Environment Agency (EEA)
- European Parliament
- German Federal Agency for Nature Conservation (BfN)
- German Federal Environment Agency (UBA)
- ◆ German Federal Foreign Office
- German Federal Highway Research Institute (BASt)
- German Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)
- German Federal Ministry for Economic Affairs and Climate Action (BMWK)
- German Federal Ministry for Economic Cooperation and Development (BMZ)
- German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)

- ◆ German Federal Ministry of Education and Research (BMBF)
- German Federal Ministry of Food and Agriculture (BMEL)
- ◆ German Federal Office for the Safety ◆ of Nuclear Waste Management (BASE)
- Gesellschaft für Anlagen- und Reaktorsicherheit gGmbH (GRS)
- Hessian Ministry of the Environment,
 Climate Action, Agriculture and
 Consumer Protection
- ◆ Karlsruhe District Authority
- ◆ Lübeck City Waste Management Enterprise
- ◆ Lüchow-Dannenberg District Authority
- Neckar-Odenwald District Waste Management Company (AWN)
- North Rhine-Westphalian Ministry of Economic Affairs, Industry, Climate Action and Energy
- North Rhine-Westphalian Ministry of the Environment, Nature and Transport (MUNV)
- ◆ Rotenburg District Authority
- ◆ Samtgemeinde Bevensen-Ebstorf

- Statistical Office of the European Union (Eurostat)
- United Nations Environment Programme (UNEP)
- United Nations Office for Project Services (UNOPS)
- ♦ World Bank Group
- Zukunft Umwelt Gesellschaft gGmbH (ZUG)

2. PRIVATE SECTOR

- 50Hertz Transmission GmbH
- Air Pollution & Climate Secretariat (AirClim)
- Bader GmbH & Co. KG
- ◆ Badenova Ag & Co.KG
- ◆ Blanc und Fischer Corporate Services
- BlueSky Energy Entwicklungs- und Produktions GmbH Österreich
- ◆ Carl Zeiss Vision GmbH
- Chemie Wirtschaftsförderung GmbH
- ◆ Currenta GmbH & Co. KG
- Der Grüne Punkt Duales System Deutschland GmbH
- ◆ Deutsche Amphibolin Werke (DAW SE)

- ◆ Ecologicon GmbH
- ◆ EnergieNetz Hamburg eG
- ◆ Energievision eG
- ◆ EWS Vertriebs GmbH
- ♦ Hahn Kunststoffe GmbH
- Honda R&D Europe (Deutschland)
 GmbH
- ◆ Kompetenzzentrum Naturschutz und Energiewende gGmbH (KNE)
- Mercedes-Benz AG
- ♦ Netze BW GmbH
- ◆ Physikerbüro Bremen
- ◆ RAL Gütegemeinschaft Rückproduktion von Kühlgeräten e.V.
- ◆ Ramboll Deutschland GmbH
- ◆ Ricardo Energy & Environment
- Tchibo GmbH
- ◆ Transport & Environment
- ◆ TÜV Süd Energietechnik GmbH
- ◆ Umicore AG & Co. KG
- Utopia GmbH
- ♦ Vaillant GmbH
- ♦ Viridi RE GmbH

- ♦ Volkswagen AG
- ♦ Werner & Mertz GmbH
- ◆ Wien Energie GmbH
- ◆ Zero Waste Europe
- 3. ACADEMIA, STAKE-HOLDER GROUPS AND CIVIL SOCIETY
- ◆ adelphi research gGmbH
- ◆ Agora Energiewende
- ◆ Agora Verkehrswende
- Arbeitskreis Green Shooting
- ◆ Carbon Market Watch (CMW)
- ◆ ClientEarth gGmbH
- Climate Action Network (CAN)
 Europe
- ◆ Climate Neutrality Foundation
- Collaborating Centre on Sustainable Consumption and Production gGmbH
- Eberswalde University for Sustainable Development
- Environmental Action Germany (DUH)
- ◆ Environmental Coalition on

- Standards (ECOS)
- ◆ Environmental Defense Fund (EDF)
- ◆ European Climate Foundation
- Federation of German Consumer Organisations (vzbz)
- Foundation Development and Climate Alliance
- Fraunhofer Society
- ◆ Freiburg Archdiocese
- ◆ Friedrich Ebert Foundation
- Friends of the Earth
 Baden-Württemberg
- German Federal Environment Foundation (DBU)
- German Federal Science Platform for Climate Action (WPKS)
- ◆ German Informatics Society (GI)
- German Olympic Sports Confederation (DOSB)
- German Research Institute for Public Administration (FÖV)
- Greenhouse Gas Experts
 Network Inc.
- Greenhouse Gas Management Institute

- ♦ Greenpeace Germany
- ◆ Hamburg Institut Consulting GmbH
- ♦ Heinrich Böll Foundation
- ◆ IREES GmbH
- Nürtingen-Geislingen University (NGU)
- Ostwestfalen-Lippe University of Applied Sciences and Arts
- Protestant Church of Baden
- ◆ Stuttgart University
- ◆ Swiss Energy Foundation (SES)
- Swiss Federal Laboratories for Materials Science and Technology (Empa)
- ◆ TA Swiss
- ◆ The Gold Standard Foundation
- VDI Competence Center for Resource Efficiency
- ◆ WWF Germany / USA
- ♦ WWF Deutschland / USA

These are some of our funding providers and clients. A full list of references is available (in German) on our website www.oeko.de/referenzen2022

The Oeko-Institut in the media

From classic media work via the website to social media and podcasts: the Oeko-Institut communicates its research findings on a broad basis.

Communication and reporting on the Ukraine war...

Russia's war of aggression against Ukraine has direct impacts on Germany's energy and climate policy. Issues relating to energy supply security, dependence on Russia and rising prices concern us all. Our views on the security of Ukraine's nuclear power plants are also in demand from the media. Researchers from the Oeko-Institut have provided facts and guidance in interviews, blog articles and press releases.

Zaporizhzhia Nuclear Power Plant came under fire soon after the war started on 24 February 2022, causing widespread concern and prompting many questions from the media. In the blog and on our website, experts from the Oeko-Institut give their assessments of the risks to the nuclear facilities.

Article

Nuclear power plants in the Ukraine war: Information on nuclear safety

Blog article

Energy policy in times of the Ukraine war:

Nuclear power instead of natural gas?

... and the media response:

Interview with Dr Christoph Pistner | 3Sat NANO | 4 March 2022 | Saporischschja – ein noch nie da gewesenes Szenario

Zaporizhzhia – An unprecedented scenario

Interview with Dr Matthias Englert | RTL

News | 4 March 2022 | Feuer in Kernkraftwerk

Saporischschja

Fire at Zaporizhzhia Nuclear Power Plant

Dr Christoph Pistner | Spektrum.de | 4 March 2022 | Wie gefährlich ist die Lage an den ukrainischen Atomkraftwerken?

How dangerous is the situation at the Ukrainian nuclear power plants?

Statement by Dr Felix Christian Matthes | ARD-Tagesschau | 6 September 2022 | Energiekrise infolge des Ukraine-Krieges Energy crisis due to the war against Ukraine



The Oeko-Institut in the media

New episodes of the Oeko-Institut's podcast »Wenden bitte!« – »All change please!«

After the first six episodes in 2021, the Oeko-Institut's podcast team produced eight new episodes in 2022, each featuring an expert from the Oeko-Institut to provide an in-depth analysis of the chosen topic. The co-hosts of the podcast are journalist Nadine Kreutzer and Mandy Schossig, Head of the Public Relations & Communications Department at the Oeko-Institut.

In 2022, the 14 episodes of the podcast received almost 15,000 plays. The episodes are available on all the usual podcast portals - such as Apple Podcasts and Spotify – and at www.oeko.de/podcast.

From episode 13 onwards, English transcripts of the episodes are available on the blog at blog.oeko.de/oeko-institut/podcast/

Catch up on episodes 7 to 14 (2022):

Episode 7

»Wie viel Klimaschutz kann die EU?« How much climate action can the EU achieve? with Sabine Gores, Released 28 January 2022

Episode 8

»Brauchen wir die Kernenergie für den Klimaschutz?« Do we need nuclear power to protect the climate? 'with Dr Christoph Pistner Released 10 March 2022

Episode 9

»Kann der Onlinehandel nachhaltig sein?« Can online trading be sustainable? with Dr Nele Kampffmeyer, Released 14 April 2022

Episode 10

»Klimaneutral durch CO2-Kompensation?« *Climate-neutral through carbon offsetting?* with In January 2023, we launched the third series Dr Lambert Schneider, Released 25 May 2022

Episode 11

»Wie viel Fleisch wollen wir morgen noch essen?« How much meat will we eat tomorrow? with Dr Jenny Teufel, Released 7 July 2022

Episode 12

»Wie nachhaltig sind Elektroautos?« How sustainable are electric cars? with Dr Matthias Buchert, Released 18 August 2022

Episode 13

»Wie gelingt die Wärmewende?« How to succeed in the heat transition? with Dr Veit Bürger, Released 22 September 2022

Episode 14

»Klimaschutz durch Emissionshandel?« Protecting the climate with emissions trading?_ with Verena Graichen, Released 27 October 2022

of the podcast with eight new episodes.

The Oeko-Institut's members

The Oeko-Institut is a non-profit association with around 2,000 members and finances its work mainly through projects funded by third parties. Members' subscriptions and donations enable the Institute to address topics for which no external mandate is forthcoming via commissions.

Four strands of the donationfunded project on the circular economy

The donation-funded project on the circular economy has now begun. The research group aims to identify the most significant factors that hinder the progress of a genuine circular economy.

The first strand will focus on packaging. Here, the aim is to identify the market segments with the greatest transformative potential for multiuse schemes and determine to what extent standardised packaging may be a realistic prospect. The second strand considers how long-lasting products can be brought to market and how to make repairs worthwhile. Once products have reached the end of their – hopefully long – service lives, the third strand comes into play: how can the mandatory takeback of end-of-life products be organised so that as many materials as possible are recovered and reused, in line with the Urban Mining concept? And in the fourth strand, the research team will look at how innovative usage strategies – such as lending, leasing and sharing – can be made market-ready; it will also match the most suitable strategies with specific products.

Thank you to everyone who has donated!

»Circular Economy« is our 30th donation-funded project: the Oeko-Institut launched its first appeal for a self-funded project 39 years ago. Its topic was »Criteria for a chemicals turnaround«.

New and familiar faces on the Committee

At the 2022 Members' Meeting, the Oeko-Institut presented an award to Dorothea Michaelsen-Friedlieb in recognition of her 26 years of service on the Committee. After the first online Members' Meeting the previous year, this year's event was held in a hybrid format.

Helmfried Meinel was elected as a new member of the Committee. The freelance consultant for businesses, government agencies and local authorities specialises in energy and climate action. Until his retirement, he was Director General of Baden-Württemberg's Ministry of the Environment, Climate Protection and the Energy Sector for 11 years. Helmfried Meinel was previously a member of the Oeko-Institut Committee from 2002 to 2011 and re-joined it in 2022.

Other external members of the Committee are Ulrike Schell, Thomas Rahner, Wolfgang Renneberg, Prof Dr Volrad Wollny and Sebastian Backhaus. The internal members in 2022 were Jan Peter Schemmel as Chief Executive Officer, Dr Martin Cames, who represented the extended management of the Institute, and Inse Warich (Darmstadt), Clara Löw (Freiburg) and Dr Roman Mendelevitch (Berlin) as staff representatives.



Thank you

Our heartfelt thanks go to all our members who supported us with their subscriptions and donations, ideas and input.

Each member of the Oeko-Institut makes a contribution to sustainable development and helps to ensure a liveable planet for future generations.

You can choose between regular membership with the option to cancel (annual subscription: 80 euros; reduced rate: 35 euros) or life membership (one-off subscription: 1,000 euros).

And of course, you can also support us by making a donation. Why not ask for donations to the Oeko-Institut instead of birthday gifts? We are very grateful for your support.

Contact person for members and all those interested in joining:

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Bank details for donations:

GLS Bank

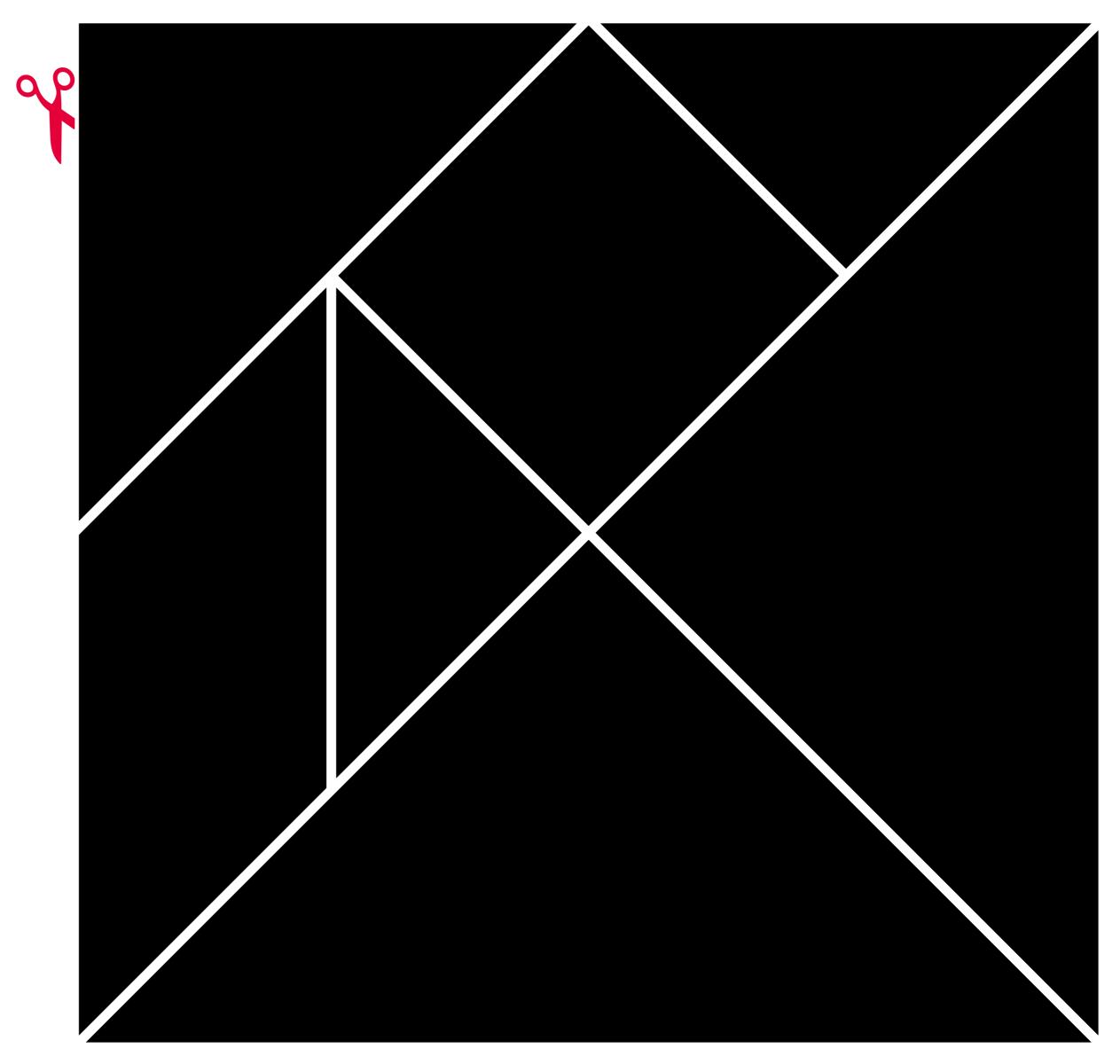
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Tangram X X A

Published by

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Institute for Applied Ecology

Current as at April 2023

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