

# factor<sup>y</sup>

Magazine for a sustainable economy



Topic

# DIVESTMENT

Why divestment is going to change the world A Robin Hood tax for climate protection Where investigating is a pleasure Value the forest The fear of biting the hand that feeds You Education is the best investment

# Withdrawing from coal investments, pulling in money

Divestment is the elimination of investments in fossil energies. It is not yet considered a global trend, but it has the potential to become one. Divestment developed from a grassroots movement in the English-speaking world to a global campaign, which is being joined by more and more institutional investors, pension funds, cities and private investors. Even people who are initially not interested in joining this climate protection movement will be victims of divestment thinking because less and less money can be earned worldwide with fossil energies. There are many reasons for this: the prices and therefore the profits declined due to a growing range of renewable energies as well as overcapacities. Thus, investors and owners are getting nervous and committing themselves to climate protection goals, while governments are strengthening regulations and discussing taxes on carbon dioxide.

According to a study by the Wuppertal Institute for Climate, Environment and Energy, these are the main reasons why the four big German energy groups are restructuring, selling business units and withdrawing from fossil and nuclear production as well as waste disposal, and are instead investing more heavily in renewable energies. The study also reports that these changes have nothing to do with the pressure of the divestment movement. Nevertheless, divestors are convincing more



and more investors to withdraw from fossil investments with exactly these arguments. If the coal bubble bursts, it will lead to an economic crisis, compared to which the bank crisis in 2008 was a piece of cake. After all, private banks are the most committed players in the coal investment business.

As a result, the propellant is leaking out of the coal bubble just as it did before due to the bankruptcy of Peabody Energy, the largest coal company worldwide. Even in the case of only a small divestment thorn, the long-term result is always a flat tire the investors cannot drive with anymore. With every rotation, the thorn may produce additional holes and therefore, divestment will develop into a global trend in the next five years – even if we think as much about the term as we did about sustainable development when it was introduced.

This is why in this edition, all signs point to divestment, but we recommend investing in sustainability and education.

Verena Kern explains the emergence of the divestment movement and its successes and Susanne Schwarz re-

ports on municipalities that are parting with fossil investments as the windfall of the lignite regions has long been over. Susanne Götze summarizes how a carbon tax could help to enable necessary structural adjustments and how it already does so in some countries. Divested assets can do good by supporting the expansion of renewable energies, sustainable production and green building, as financial expert Susanne Bergius writes in her investment advice. Our photo story shows that the forest and forest investments play a special role in this. If countries reduce their subsidies and investments in fossil energies and instead invest in their educational systems, much more social prosperity can be achieved than with the promotion of

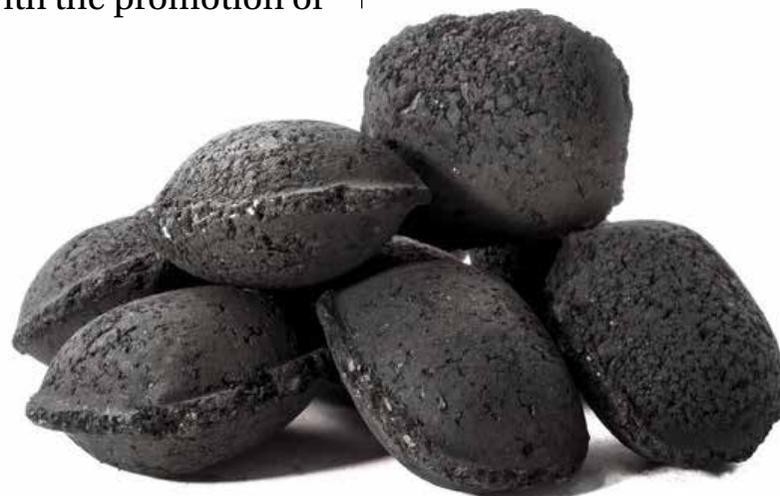
the economic dinosaur of fossil fuel, as Manfred Ronzheimer concludes.

In this issue of factory, we are convinced that divestment will change the world because the world has changed. We hope you will feel the same after reading this issue and we greet you with the divestment version of the old miners' saying:

*The way ahead does not look dark anymore.*

Ralf Bindel and the factory team

Translated from the German by Lisa Caroline Rülcker, Tamara Reiser, Maj-Britt Kalusche Kaiko Lenhard and Anuja Phadke.



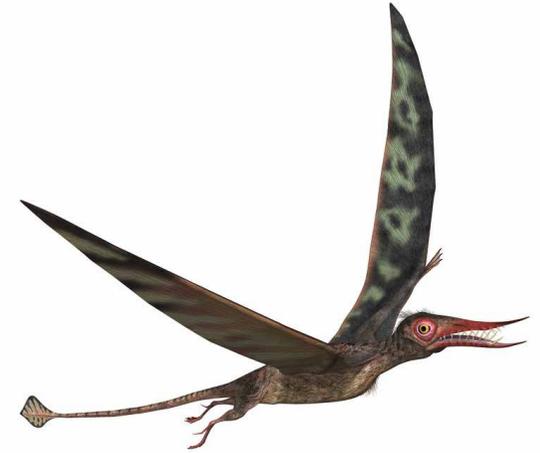


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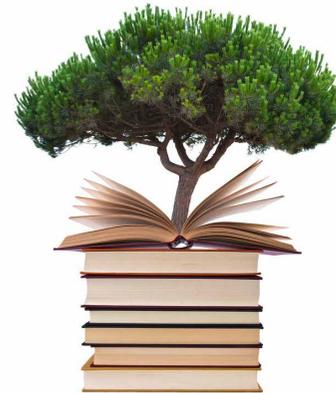
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# DIVESTMENT

# 43

More CO<sub>2</sub> due to more coal: the use of coal for power generation is increasing worldwide, allegedly to provide inexpensive and reliable heat and power for a growing world population. However, coal is the most climate-damaging fuel and is now responsible for about 43 percent of global CO<sub>2</sub> emissions – even more than the long dominant oil. Hubert Weiger, BUND (Friends of the Earth Germany), Coal Atlas 2015

# 12

Decarbonisation within a few years: if global warming were to remain limited to 2°C – and if this target can be achieved with at least a probability of 50 percent – the tolerable carbon budget emitted into the atmosphere must also be limited (750 gigatonnes of CO<sub>2</sub> from 2010 to 2050). It is known that about 2,795 gigatonnes of CO<sub>2</sub> reservoirs are owned by private and public companies. Due to the annual increase, the permissible carbon budget of 565 gigatonnes will already be reached in 12 years; the rest will be incombustible. Fossil fuels need to stay in the ground; this includes one third of oil reserves, half of natural gas reserves as well as 80 percent of coal reserves. To achieve the target of 1.5°C, these percentages must be considerably higher. Source: Cindy Baxter, Kohleatlas 2015, C. McGlade, P. Ekins, Nature 517, 2015

# 7

Forests instead of banks: the economic loss due to global deforestation is many times higher than the loss due to the financial crisis in 2008. As estimated by the Economics of Ecosystems and Biodiversity (TEEB), the loss due to global deforestation amounts to USD 2 to 5 trillion per year, which corresponds to about 7 percent of the gross world product. U. Scheub, Y. Kuschel, Beschissatlas 2012

# 1,5

To improve as promised: at the United Nations Climate Change Conference in Paris in 2015, a decision was made to keep the rise in the global temperature well below 2°C and, if possible, to limit the increase even further to 1.5°C above pre-industrial levels by 2050. In order to achieve this aim, the CO<sub>2</sub> reduction targets by the member states have to be reviewed as well as improved every 5 years. Without any improvements, the proposed targets will lead to a global warming of approximately 2.7°C. The Paris Agreement could enter into force as early as 2016; its progress will be reviewed for the first time in 2018. Source: NZZ, tagesschau.de, 22 April 2016

# 3 to 4

Way too warm: greenhouse gas emissions are increasing annually by 3 percent; mainly due to the growing use of coal. The earth's temperature is currently rising by 3°C to 4°C, even though climate scientists predict dangerous and irreversible processes from 1.5°C onwards, such as the melting of the Arctic ice. The withdrawal from fossil energies, especially from coal production, is known as decarbonisation and is seen as key for effective climate protection. Source: Cindy Baxter, Kohleatlas 2015

# 3.4

A heap of gold is moving: The divested amounts of money are still small. According to the NGO 350.org, by the end of December 2015 more than 500 organisations with capital assets of USD 3.4trn in total joined the divestment movement, which is just a few years old. The actual divestment total in fossil energy is probably much lower. The world's second largest pension fund, Norway's Government Pension Fund Global, has divested only USD 1.2bn of a total 750bn so far. Source: Verena Kern, factory Divestment

# 270,000

Trees store carbon dioxide for free: According to environmental expert Frederic Vester's calculations, a hundred-year-old beech tree has made a contribution to the environment worth more than EUR 270,000. On a sunny day, a beech withdraws approximately 20 kg of carbon dioxide from the air and converts it into 13 kg of oxygen and 12 kg of glucose. This amount of oxygen is enough to meet the daily requirements of 13 people. If this tree were felled, 2,000 young beeches with a crown volume of one cubic metre each would have to be planted to substitute its positive impact on the climate. Source: U. Scheub, Y. Kusche, Beschissatlas 2012

# 11.5

Investments instead of tax havens: States could attach the approval of banks and investment companies to the condition that they not establish any contact with tax havens. States lose tax revenue worth approximately USD 190bn each year. In terms of figures, the world could be free of poverty, hunger, epidemics and lack of education until 2045 by directly investing the USD 11.5trn that is stashed away in tax havens, approximately 8 percent of global assets, in development. Source: Welt, Nov. 25, 2014; U. Scheub, Y. Kusche, Beschissatlas 2012

# 2015

United States of the world: 2015 was the year of the most comprehensive climate policy decisions. At the G7 summit in Elmau, the G7 countries agreed to reduce global greenhouse gas emissions by 40 to 70 percent by 2050 compared to 2010 and to decarbonise the global economy completely by 2100. At the United Nations Sustainable Development Summit of 2015 in New York, climate protection has been set as one of the 17 Sustainable Development Goals. In Paris, 195 states agreed to reduce carbon dioxide emissions to limit global warming to 1.5 degrees, if possible. Source: Dekarbonisierung, Wikipedia

# 5

Next to the retail corporation Wal-Mart Stores Inc., five transnational oil and gas groups were among the world's top six listed companies with the highest turnover in 2014: Royal Dutch Shell plc, China Petroleum & Chemical Corporation, China National Petroleum Corporation and Exxon Mobil Corporation. Source: Fortune Global 500, 2014

# 13

Reduced emissions due to reduction of subsidies: Global emissions could be reduced by more than 13 percent by abolishing subsidies for fossil energy and fossil fuel companies. In 2012, USD 544bn in government subsidies was granted for fossil energy. The yearly total even reached USD 1.9trn including the external costs of damage to health, environment and climate. According to the IMF, the social costs of energy generation totalled USD 4.9trn in 2013, approximately 60 percent of which were generated by coal combustion. Source: WBGU, 2014, Ottmar Edenhofer, Science 349, 2015

»The greenhouse effect is a more apt name than those who coined it imagined. The carbon dioxide and trace gases act like the panes of glass on a greenhouse – the analogy is accurate. But it's more than that. We have built a greenhouse, a human creation, where once there bloomed a sweet and wild garden.

Bill McKibben in his book “The End of Nature” (1989)



# Why divestment is going to change the world

The removal of investments from the fossil fuel energy economy is no longer just a grassroots movement; for many investors it has long since become a matter of economic survival. Even if the amount of money is still relatively low, the trend has been set: the ‘coal bubble’ must shrink, otherwise it will burst.

By Verena Kern

Translated from the German by Isabel Schuseil, Jessica Stahl, Kerstin Rosero, Rosemarie Prinsloo, Vanessa Tacke, Cathleen McNally, Hannah Al-Jamie, Svenja Thiel and Jennifer Vardaro

Bill McKibben is someone who never gives up. For years, this American author has warned people of the dangers caused by climate change. His books have been bestsellers and have been showered with awards. Some of his texts are even used as scholastic learning material in the U.S. He has not, however, been able to secure any concrete achievements. The majority of Americans still consider people like McKibben to be crazy and global warming to be a mere weather phenomenon, about which nothing can or must be done. In 2007, McKibben became a climate activist and founded the grassroots movement 350.org, which finds supporters all over the world now. The organization's name spells out its concrete aim: the concentration of carbon dioxide in the earth's atmosphere must not surpass 350 parts per million if we want to prevent dangerous global climate disruption. We have already reached 400 ppm and the world's greenhouse gas emissions are still not decreasing. After five years filled with numerous campaigns and initiatives, in December 2012, Bill McKibben made a sobering statement: "None of

what we have accomplished so far as a movement has been enough."

Today, just over three years later, the situation looks different. The new climate agreement, which was just signed in Paris, has turned out to be more ambitious than expected. The goal of the agreement is to keep global warming 'well' below an increase of 2 °C, the new limit being 1.5 °C. By 2050, the world is supposed to be 'climate neutral'. If there are still emissions at that time, they will have to be compensated for by climate protection measures elsewhere.

Climate protection has appeared on the political agenda in other respects. With their national climate targets, which are based on the Paris Agreement, many nations have announced their massive expansion of renewable energies. The G7 nations already committed to decarbonisation during their summit in Elmau, Germany, in June 2015. In September, the UN General Assembly in New York set new 'Sustainable Development Goals', which require each nation in the world to promote

sustainable development and climate protection.

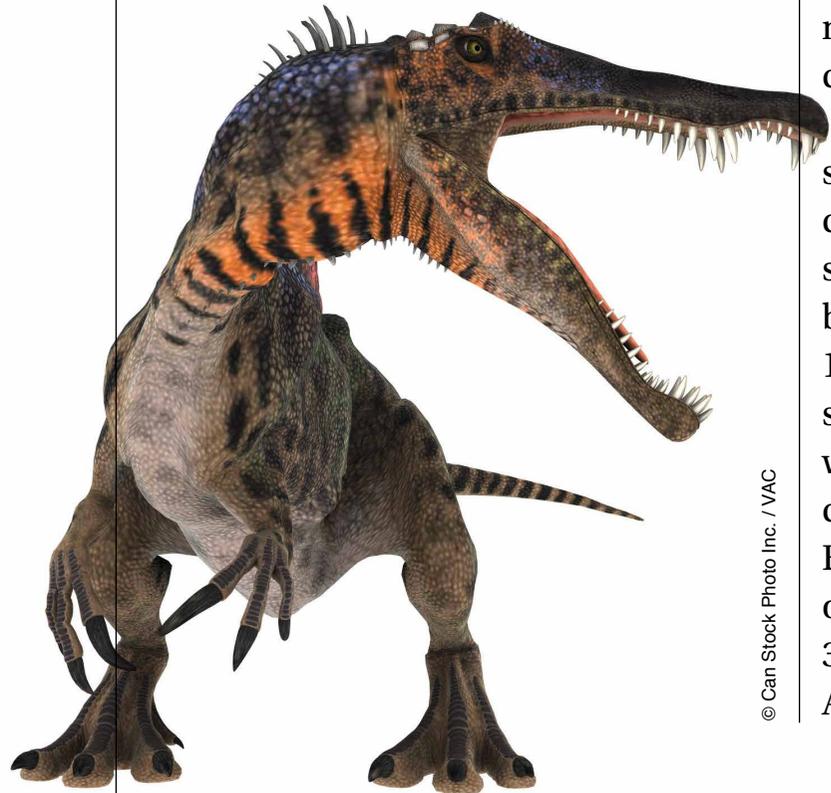
To date, all these nice goals, however, only sound good on paper as well-meaning declarations of intent. They provide direction and make it clear to the political, economic and social players where the journey is supposed to lead – which is not unimportant. However, not a single tonne of greenhouse gas emissions has been saved this way. Emissions continue to increase even in Germany, which is shifting towards renewable energy systems. The answers to the question of how to reach the targeted climate neutrality in the foreseeable future or at all are still vague at best.

## Divestment tackles the roots of the problem

At this point, Bill McKibben comes on the scene again. After the first attempt to adopt a new climate agreement failed dramatically in Copenhagen in 2009, McKibben started searching for a more promising approach. Instead of waiting for countries all over the world to fi-



nally jointly decide to save the climate, he wondered where to start in order to drive forth real decarbonisation so that climate protection is not only a fig leaf that makes the continuously increasing emission look less bleak. His idea is called 'divestment' and tackles the problem at its roots, which means, in this case, the money.



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To date, astronomical sums of money have poured into the fossil fuel sector, thwarting all efforts to protect the climate. Although it is known that oil, gas and coal are the main cause of global warming, their use is highly subsidised. The direct subsidies amount to at least USD 500bn worldwide every year. If one adds in the costs for environmental damage, which must be borne by the general public, they amount to USD 5.3trn, as recently determined in a working paper by the International Monetary Fund. (The resulting damage to the climate was not taken into account in this calculation.)

A similar amount is raised on the stock market by groups of affiliated companies. According to the financial service provider Bloomberg, the combined market value of the approximately 1,400 oil and gas companies listed at the stock exchange amounts to USD 5trn, while the combined market value of coal companies amounts to USD 230bn. Exxon Mobil, the world's largest listed oil company, alone is worth about USD 330bn. If the Saudi Arabian oil company Aramco indeed goes public, as recently

announced, their value may amount to several trillion dollars, thus representing by far the biggest and most valuable group.

This is where the divestment campaign comes in. The aim of 'Go Fossil Free' is to convince shareholders to divest from fossil fuel companies so that climate-damaging business models are no longer profitable. As written in the campaign's manifesto: "If it is wrong to wreck the climate, then it is wrong to profit from that wreckage."

In the past, similar campaigns have already been directed against tobacco companies, the defense industry and the apartheid regime in South Africa. The reasoning is that it is not enough to stop individual projects such as oil pipelines and coal-fired power plants in order to achieve climate goals. Furthermore, it is not enough to build plenty of new wind turbines and solar farms if they are built in addition to using fossil energies instead of replacing them. In principle, financial flows must be tackled in order to make a difference.



## Disassociation weakens the powerful

To help investors orient themselves, the campaign has made a boycott list containing the 200 most climate-threatening listed companies in the world. These companies own the majority of the known fossil reserves. The German RWE Supply & Trading Company is on this list as well as energy giants from the USA, China, India and Russia, among others. The online platform 350.org is certain that the more investors withdraw their assets from these companies, the sooner it will be possible to alter the course towards climate change mitigation. "When investors distance themselves from coal and oil companies, it weakens the companies' social acceptance and thus their political power," says Melanie Mattauch who represents 350.org in Germany.

The primary objective is to keep the majority of fossil fuel reserves underground because a huge amount of money is also spent on the search for and discovery of new deposits. In 2012, energy companies spent USD 674bn

on this. The Exxon Mobil Corporation spends USD 37bn annually for this purpose alone. That is USD 100m per day. It has long been clear that even the vast majority of the known reserves will have to remain in the ground in order to make a serious contribution to climate change mitigation. These reserves alone represent CO2 emissions, which are five times higher than the maximum amount that mankind can emit without reaching even the two-degree-goal. Bill McKibben's campaign began in 2010. Initially, the response was modest: even after three years, the sum of divestments was only at USD 50m and by 2013 only 40 institutions had joined in.

However, in the meantime the tables have turned. During the days leading up to the UN Climate Change Conference in Paris (COP 21), the movement has gained significant momentum. The closer it came to the day of the important climate conference, the more investors took part. And the more people are involved, the more autonomously the movement develops. Each investor who decides in favor of divestment is another incentive for other in-

vestors to do the same. "The divestment movement is catching fire," reports May Boeve happily. Boeve recently took over the 350.org leadership.

## Even oil billionaires are retreating

"The momentum of the divestment movement is growing every day," says Stephen Heintz as well. He is the president of the Rockefeller Foundation and in his position, he is responsible for a fortune of USD 860m. The Rockefeller family, once a symbol of oil wealth, announced their withdrawal from the oil business as early as in 2014. Since then, they have supported the divestment movement. "We have to stop investing in fossil fuels now," demands Heintz.

The Government Pension Fund Global of Norway, which is the second-largest pension fund in the world with roughly EUR 750bn, decided to do so in December 2014. The fund no longer wants to invest in activities that are "particularly climate-damaging". However, this only refers to the coal business. To date, the oil nation Norway ►

has rejected a complete withdrawal from fossil energy projects. Melanie Mattauch from 350.org doesn't consider this a problem. "Coal is always the first step for divestment. The Norwegians know that their oil reserves won't last forever."

In March 2015, Oslo followed suit, which makes it the first capital in the world that will withdraw its money from coal funds. "Investing in coal is incompatible with the concept of an environmentally friendly city," says Oslo's Finance Commissioner.

In specific terms, this means that about EUR 10m of the pension fund will be shifted into green investment funds. Also in Denmark, there are thousands of investors planning to invest their fund assets of EUR 32bn in a more climate-friendly way. Shortly before, the Oslo Stock Exchange was the first in the world to open the market for certified green bonds.

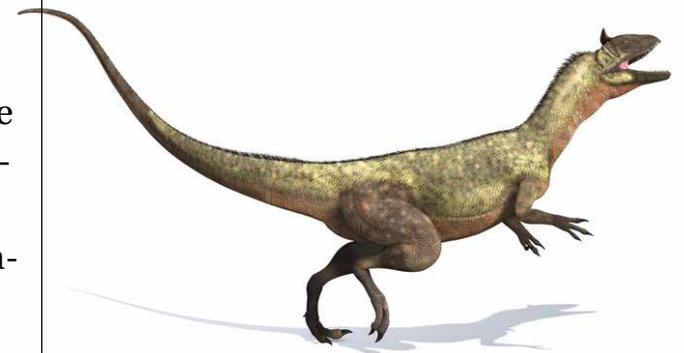
"Interest in green bonds has increased significantly", remarks Sean Kidney of the Climate Bonds Initiative in London. He considers the expanding market for green bonds to be a "modest

but positive sign for the investors' disposition to take responsibility for the climate." Kidney estimates the global volume to be USD 85bn by now. In 2016, it will increase by another USD 100bn. The trillion-dollar mark could be exceeded by 2020. According to the initiative, the current green bond volume corresponds to just 0.1 percent of the global bond market. There is still a lot of room for improvement.

The divestment movement has reached Germany as well. In November 2015, the Munich based insurance company Allianz stated that it will not invest in the coal business any longer. The former investments will steadily be divested. Allianz is the world's largest insurance company and among the five biggest financial investors in the world. It has put around EUR 4bn into coal mines and coal-fired power plants so far. Such investments will no longer take place in the future. "This is a true cultural change in Germany", said the World Resources Institute in Washington, commenting on the company's decision.

Münster was the first German city to decide to divest itself from cli-

mate-damaging industries. The Swedish city Uppsala, the Dutch pension fund PFZW, the London School of Economics and also the Protestant Church in Hesse and Nassau have declared themselves to be divestment supporters as well. The French parliament and 19 French cities have also announced their rejection of climate-damaging investments, including Paris, Lille and Bordeaux. Meanwhile, even the commercial bank BNP Paribas, the insurance company Axa, the Stanford University, the World Council of Churches and the Californian Pension Fund are on board, as well as celebrities such as Hollywood actor Leonardo DiCaprio.



## Green instead of grimy investments

UN Secretary-General Ban Ki Moon has reiterated the demands of the divestment campaign. As early as November 2014, he called on major investors to “reduce their investments in the economy powered by fossil fuels and to invest in renewable energies instead.” Ban is not the only one. The head of the UN Climate Change Secretariat, Christiana Figueres, Nobel Peace Prize laureate Desmond Tutu, the President of the World Bank Jim Yong Kim and US President Barack Obama have also called for higher investments in renewables. In Paris, 20 states and 20 private companies announced a billion-dollar initiative to accelerate the technological progress in ‘clean energies’, among them giants like Facebook and Amazon.

To summarise: more than 500 institutions and 2,000 individuals with assets totalling USD 3.4trn have committed themselves to divest their capital from the fossil fuel sector, as 350.org reports. The amount is almost equivalent to the German gross domestic product. “The

movement has achieved extraordinary results in a very short time”, is the verdict of Alexander El Alaoui, expert for ethical investment at the development association Brot für die Welt (Bread for the World). “Divestment has become mainstream.

By now, every company needs to consider to what extent it wants to make climate-damaging or climate-friendly investments.”

However, this calculation is flawed. This USD 3.4trn represents the total assets of the institutions that have declared their support for divestment strategies. It is not the total sum that is being withdrawn from the fossil-fuel sector, which is a lot less. Norway’s multi-billion euro pension fund, for example, has only shifted EUR 1.2bn so far, according to a recent annual report. In total, they are planning a divestment of EUR 10bn. This is really not much if we take into consideration the company’s total assets of EUR 750bn.

“The current divestment sum is a mere drop in the ocean,” admits Melanie Mattauch from 350.org. “However, the signal that the campaign is sending

is more important to us.” It’s a signal with the following message: the production, selling and burning of fossil fuels is not viable for the future. “We don’t want to ruin fossil fuel corporations,” clarifies Mattauch. “It’s all about moral bankruptcy, not financial bankruptcy.”

## Only a low-carbon economy makes sense for the future

At the moment, the divestment movement is still too small to give fossil fuel corporations a really hard time. Ironically, the business model of the sector represents the actual danger. Corporations – and with them their investors – are sitting on a huge carbon bubble. They are overvalued. If the climate solutions of Paris are put into practice, the majority of the corporations’ resources will become worthless. The British Carbon Tracker initiative has been pointing out the risks of the carbon bubble since 2011 and talks about “wasted money” and “misdirected monetary flows”. Economist Nicholas Stern has been warning against the economic consequences of the climate change for years and advi- ▶

ses “clever” investors to stay away from fossil investments. The risk of a crash is “very high”.

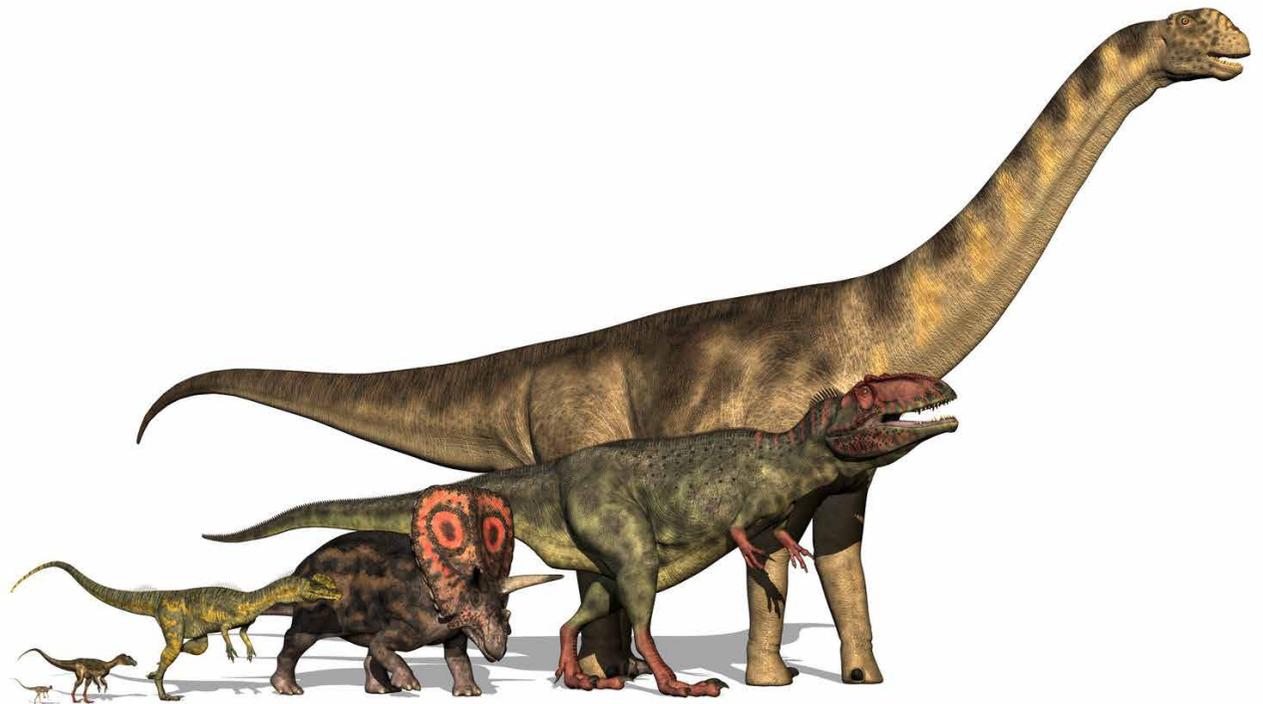
This has also roused the European Central Bank to action. Their ‘risk board’ has investigated the risks of a carbon bubble and is issuing warnings against a huge and lasting negative macroeconomic shock unless the shift towards a low-carbon economy occurs very soon. The Swiss Federal Office for the Environment conducted a study and found out that the present investment behaviour “supports” global warming by four to six degrees Celsius and, therefore, facilitates future crises. The Federal Office has requested counter measures. The upshot is that the divestment movement – with its demand to start shifting right away – will help prevent the impending crash from occurring.

Climate scientist Hans-Joachim Schellnhuber sees a grassroots movement coming because not only majority shareholders are affected but also all the minority shareholders as well. They, too, have the choice whether or not they want to make climate-damaging investments. “The divestment movement can

hold a moral mirror up to our politicians,” says Schellnhuber. “It’s going to be one of the biggest movements of the 21st century.”

This would mean that Bill McKibben’s perseverance will have been worth the effort. “Climate change is the greatest problem on Earth that we humans have ever caused,” according to the activist. “The only thing that needs to be even greater is our attempt to stop it.” ■

Verena Kern works as a freelance journalist in Berlin. She primarily focuses on topics relating to the environment, the climate and energy. Since 2011, she has been part of the Klimaretter.info online magazine’s editorial staff. In addition to that, she writes for the Frankfurter Rundschau (a German daily newspaper), the Deutsche Welle (a German international broadcaster) and specialist magazines.



»It normally takes about 10,000 years until the Earth system enters a fundamentally different stage. However, nowadays we can observe very rapid changes which suggest that the earth will change considerably within the next one or two hundred years.«

Will Steffen, executive director of the Australian National University Climate Change Institute, January 2015 in an interview

# A Robin Hood tax for climate protection

Taxes on the environmentally-harmful gas CO<sub>2</sub> make investing in the fossil economy less worthwhile. Countries could channel revenues towards sustainable economic structures and their population. CO<sub>2</sub> taxes solve social problems and save the climate, but is it too good to be true?

By Susanne Götze

Translated from the German by Vanessa Waigum, Nicole Wieden, Armin Deiri, Fenja Behrmann, Melinda Kaiden, Aneka Faiß and Eliot Reiniger



The globalisation-critical organisation Attac was founded in the late 1990s with a specific political objective in mind: the introduction of a financial transaction tax. This tax was supposed to put an end to speculations and help the world's poor. When the Der Spiegel (a German magazine) devoted a cover story to the organisation after the anti-capitalism protests in Seattle (1999) and Genoa (2001) and everybody in Germany and Europe was suddenly talking about anti-globalisation movements, the members of Attac felt misunderstood. They didn't want to combat globalisation, but rather globalised exploitation. Even if the long-haired protesters with their batik t-shirts were reminiscent of the student protesters from 1968, there probably hasn't been a simpler demand in the history of social movements than the introduction of a simple tax. Nevertheless, it took more than ten years and a severe financial crisis before the idea was seriously discussed at the top level of politics. Today, Angela Merkel talks about it as if the tax had been an idea of the German Christian Democrat Party.

The sad end of the story: while conservative governments adorn themselves with the tax, no one speaks of Attac anymore. There will be no revolution for now. Whether the long-awaited tax will ultimately make 'a different world' possible, weaken capitalism noticeably or put the world's poor out of their misery is at least questionable under these circumstances.

This lesson of anti-globalisation activists still lies ahead of the world's climate protectors. For some time now a growing number of scientists, environmentalists and economists have been vehemently demanding a tax on the environmentally-harmful CO<sub>2</sub> that clogs the atmosphere and increases the temperature worldwide.

In front of 2,000 scientists in the plenary hall of the UNESCO headquarters in Paris, as well as in front of the factory magazine team, Ottmar Edenhofer, chief economist of the Potsdam Institute for Climate Impact Research (PIK), said: "We need to put a price on CO<sub>2</sub> - in the form of a tax." Edenhofer made this statement in July 2015, around six months prior to the world

climate conference. The climate economist explained in an eloquent and direct manner: "If I talk to politicians about a carbon tax, they do get my point. Yet they tell me that such a measure would be political suicide and then they proceed to do nothing at all." Politicians' reactions during the 1990s must have been similar when financial transaction tax was being discussed. The principle of both concepts of taxation is the same: it aims to sanction the sources (of speculation or CO<sub>2</sub>) while rewarding the public. It is not without reason that the tax proposed by the Attac network has also been called the Robin Hood tax. ▶



## Carbon dioxide comes with costs

However, all cross-border attempts to introduce a carbon tax have failed miserably so far – a phenomenon entirely in the tradition of the Robin Hood tax. However, the call to implement a price on CO<sub>2</sub> is growing slowly and steadily louder. While there was some haggling over climate targets (meaning the reduction targets regarding CO<sub>2</sub> emissions within a specific period of time) at the convention on climate change in Paris, economists such as Edenhofer believe that change in climate policy is still possible but only with a worldwide price on CO<sub>2</sub>. Only if fossil fuels increase in price and therefore become unattractive will investors start to change their views because ultimately, this issue concerns their wallets. They will look for alternatives – at least in theory.

Reality reinforces Edenhofer's prediction: each year more carbon dioxide is being released into the atmosphere instead of being 'decarbonised'. For a slowdown of global warming, almost 90 percent of the remaining carbon and

more than 60 percent of all reserves of oil and gas would have to be left in the ground. At the convention on climate change in Paris, even industry representatives such as Sandrine Dixon-Declève, head of the Prince of Wales's Corporate Leaders Group, explained: "It is all about shifting these investments into production methods that involve little CO<sub>2</sub> emission. Investments that highly depend on CO<sub>2</sub> emission are simply no longer an option. Executive boards, brokers and funds managers now have to start rethinking."

In principle, no one rejects the idea of having a price on CO<sub>2</sub>. In some countries like France, Sweden or Switzerland, there already are CO<sub>2</sub> levies or taxes. More than 40 countries have introduced pricing on carbon in some form or another. The debate still rages on among economists, politicians and environmentalists about whether a tax or a different market-based solution would be the better option. The alternative to a tax (the idea of a tax is what Edenhofer favours) is the concept of emissions trading, which is being practiced in European countries, among others. Ten

years after the implementation of 'cap and trade', efficiency and costs are still highly controversial subjects in debates in the EU. The basic idea of emissions trading during the 2000s was to achieve climate protection as much as possible at minimum cost. Instead of the top-down model of a tax, energy suppliers and industrial companies that were involved in emissions trading should be motivated to reduce their emission of greenhouse gases and accordingly to invest in CO<sub>2</sub>-reducing technologies by capping their emissions.

However, during the first ten years, this important instrument for climate protection has suffered from a very poor image.

Meanwhile, the price for CO<sub>2</sub> certificates is barely EUR 5 – far lower than the EUR 30 per tonne demanded in the beginning. The price was not pursued randomly; according to studies, the emission trading begins to be effective once the costs of the emission of a tonne of CO<sub>2</sub> remain stable, which means between EUR 20 and 30. Then companies will invest in their own energy



revolution – as stipulated by the Kyoto Protocol.

“Voluntary agreements and emission trading are the wrong way to build a green economy,” explains the US American economist Joseph Stiglitz, another prominent proponent of the carbon tax. The former chief economist of the World Bank is in favour of having the World Trade Organisation (WTO) regulate cross-border taxation of CO<sub>2</sub>.

And even if all attempts to finally make the carbon tax the subject of international negotiations have failed, its proponents have not given up. For some months now, there has been a trend to praise the tax as a redistribution mechanism – a type of new Robin Hood tax, so to speak.

## Good for the climate and good for the poor?

Well, some researchers are sure that the carbon tax could also have a socio-political effect if correctly designed. A few days before the World Climate Summit in Paris, the Potsdam Institute for Climate Impact Research (PIK) published

a study, according to which a carbon tax would have a very positive impact on the common good. It is simply about supporting the government budget: “The finance ministers – whenever on a tight budget – loudly demand public investments in education, security or transport; in this case a carbon tax could be a suitable means to achieve the needed income,” states the lead author, Max Franks of the PIK. All analyses have shown that a carbon tax has a thoroughly positive national economic effect.

This was also confirmed by studies carried out by the Mercator Research Institute on Global Commons and Climate Change (MCC) in Berlin. An analysis by the MCC, published in January, examined the social effect of a CO<sub>2</sub> levy with regard to giving part of the revenue back to the citizens. The result: an annual credit note to all citizens, for example a ‘Christmas cheque’, would particularly help socially disadvantaged households. However, a reduction of the income tax by means of the revenue from the CO<sub>2</sub> fees would more benefit the middle and upper class – and, therefore, increase the gap between the rich and the poor. ►

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In absolute terms, people with higher income also cause a higher level of CO<sub>2</sub> emissions. In relation to their income, however, low-income earners spend more money on CO<sub>2</sub>-intensive products. So, due to rising prices, a carbon tax would hit them particularly hard. Therefore, a well calculated lump sum would be the best way to compensate increasing expenditures and – according to the theses of the study’s authors – thus help the poor households to even achieve a small advantage.

“The argument that an environment tax would create a disproportionate burden for poor households, from our point of view, is one of the biggest obstacles for the implementation of more climate protection,” MCC researcher David Klenert and Linus Mattauch explained. That applied less to Germany where, because of the emissions trading, a climate protection instrument already existed. In the majority of states around the world, there was no price for CO<sub>2</sub> at all yet. “With regard to these countries, a result of our study is that we can invalidate the argument that a carbon pricing would particularly

charge the poor households,” the authors of the study said.

## Switzerland: EUR 57 for Christmas presents

This theory has yet to be proven in practice, even though the Swiss model, for example, sounds very compelling at first glance: the country is a pioneer in this area, too, in addition to many others. Since 2008, the country has had a so-called ‘steering tax.’ In January 2016, the tax on fuels was increased to CHF 84 per ton of CO<sub>2</sub>, which is currently about EUR 77. The combustion of heating oil results in 2.65 kilograms of carbon dioxide per litre combusted, and the Swiss pay around CHF 0.22 (EUR 0.20) for it. Other energy sources such as natural gas and coal are taxed too. However, gasoline and diesel are not included. Besides the carbon tax, a tax also exists on volatile organic compounds (VOC).

What is particularly special about this model is that up to two-thirds of the revenues are refunded to the people. For last year, the Swiss were thrilled to notice that they benefitted from a refund

of CHF 62.40 per person, which is about EUR 57, with companies also getting a bonus. A leaflet with the title ‘Why You Will Get CHF 62.40’ explains to citizens why they received this gift.

Even if many households are very happy to receive CHF 62, it is a far cry from proof that the one-off payment of a relatively small sum could level the inequalities reigning in Swiss society even in the slightest. Therefore, one cannot speak of redistribution à la Robin Hood in this case, mostly because even households on low income must pay more for their heating during the winter.

A direct refund does not exist in most countries anyway. Canadian provinces such as British Columbia use carbon tax revenues to reduce income tax. In Sweden, as well, where a carbon tax has already existed since the 90s, the money generally flows into the government budget without earmarking. In Germany, however, the revenues from auctions of emission certificates have been invested in climate and environmental projects, and in France the money is used to develop renewable energies. The idea of killing two birds



with one stone and eradicate climate change along with poverty is therefore more difficult in practice than first assumed. As has been the case with the Robin Hood tax, the carbon tax could become a fig leaf for conservative politicians who never planned to make 'another world' possible.

In the end, both the financial transaction tax and the carbon tax depend on a good structure. As is the case with the emission trading, a detectable effect only sets in after the price signal reaches a certain level. If it is not strong enough, neither a tax nor a cap and trade system make sense. Clearly, one should not expect a revolution based on a tax, but if the tax is correctly adjusted, it can achieve a considerable long-term steering effect. This is particularly true in developing countries, where the introduction of a complex emission trade is utterly unrealistic, but the tax could be an appropriate tool to quickly and effectively reduce carbon emissions and save raw materials. The question arises though, as to whether this is the intention of the policy makers. ■

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»It is a large cosmopolitan movement of all citizens that generates additional pressure and asks: where does the money go that is invested on this planet? Does the money contribute to the destruction or the strengthening of sustainability? I believe that divestment will become one of the great movements of the 21st century.«

Prof Hans Joachim Schellnhuber, Founding Director of the Potsdam Institute for Climate Impact Research (PIK), Professor of Theoretical Physics at the University of Potsdam and at the Santa Fe Institute in the US and Co-Chairman of the German Advisory Council on Global Change (WBGU), in a video by WBGUchannel on YouTube on 9 November 2015.

# Where investing is a pleasure

Turning away from coal and oil towards sustainability. Whether it is infrastructure projects, sustainable funds, regional plans, energy and housing cooperatives, citizen co-operations or microfinance, financial investments of various asset classes can be of direct use in many ways and provide both major and private investors with a return on their investment. Shares are for those who are prepared to take risks and want to see what happens with their money.

By Susanne Bergius

Translated from the German by: Kathrin Ellwanger, Aneka Faiß, Eliot Reiniger, Ella Dering, Birgit Bernhardt, Kathryn Batchelor, James Knight, Bianca Bauer, Evie Quinlan, Tamara Reiser, Marco Hoffmann, Nadine Feuchter and Katrin Haßberg.



**‘Stranded assets’** – this term is currently shaking the financial markets worldwide. Investors fear ‘stranded’ capital, meaning assets that drastically diminish as a result of a decline in value of industries based on fossil energies.

For example, in 2015 a report for the Swiss Federal Office for the Environment (FOEN) revealed that the equity funds of Switzerland finance 52 million tonnes of CO<sub>2</sub> equivalents – that is the same amount as the country’s greenhouse gas emissions in 2013. It states that this could cost the market up to CHF 6.75bn: “If pension funds had to bear their CO<sub>2</sub> costs, this would correspond to approximately one fifth of the old-age pension currently paid out each year when considering the highest price scenario.” For such reasons, pension funds, insurances, foundations and church institutions around the world reject CO<sub>2</sub>-intensive capital investments such as shares in oil or coal companies.

2000 private individuals also belong to this ‘divestment’ movement. Together they represent capital of approximately USD 3.4trn in total; that capital is supposed be fossil-free.

**But how should the money be invested?** With such large sums, it is not that easy. Wholesale investors are desperately looking for opportunities, and they exist, but mostly in areas where investing is not just gratifying for investors but also profitable in the long-term and useful at the same time. They are useful because they can regionally, nationally and globally stimulate sustainable lifestyles and economic styles. There is a wide variety of investment opportunities available for both institutional and private investors. Wholesale investors place their funds in infrastructure projects involving energy and water supplies, even in places where people have no electricity or clean drinking water. Green bonds are especially in demand; green bonds attracted USD 41.8bn last year, which is a record according to the British Climate Bonds Initiative (CBI). In 2016, the volume of Green Bond sales is expected to double. Green bonds are interest-bearing securities which are issued by states or companies and the issuing of which finances projects to help the environment and to contribute to the mitigation of climate change. So-

cial bonds fund social projects. This is a niche market but billions of dollars are currently placed with wholesale investors in the form of social bonds. In light of some skepticism about whether the bonds deliver what they promise, Moody’s, the US rating agency, has developed a procedure to assess these bonds. Prior to that, investors had adopted the Green Bond Principles in 2014. In addition, the CBI has developed the Green Bond Standard. According to the World Bank, which claims to have issued one hundred green bonds by mid-2015 to the tune of over USD 8.4bn for 77 green projects, has also issued statements regarding their impact.

**Investors are more often increasingly oriented towards the real world economic effects of their investments.**

In addition to investment returns, they want to see a measurable social or ecological benefit. According to the Bertelsmann foundation, German investors spent EUR 70m on such financial products in 2015 – that is three times more than in 2012. These funds serve social businesses and promote employment, ►

education, health and sustainable consumption. The capital mostly comes from wealthy people or foundations. Two BMW foundations and the Bertelsmann foundation intend to expand their impact-oriented investments of ten million dollars over the medium term.

The local market is still small, but the potential is enormous: the so-called impact investments are managing roughly USD 13.3bn – and the trend is rising according to the non-profit US organization Impact Assets.

**The dimensions of crowd investing are much smaller.** Last year, clean energies attracted swarm financing of EUR 6.9m in Germany; many small investors support local projects. In February, the information platform crowdfunding.de determined that investments in green energy projects have increased by 167 percent, meaning that they now represent 14 percent of the overall swarm-investing market.

Those purchasing shares of retail funds which encourage the economical use of energy can contribute to the energy revolution. The political aim is to

reduce the energy consumption in every field by up to 80 percent until 2050. To make this possible, innovations and extensive investments are necessary.

**Some of the public funds take energy efficiency into account.** The Swiss Vontobel Fund Global Clean Technology explains that clean and efficient production processes lead to the reduction of energy and material consumption while simultaneously increasing productivity. With the Global Equity Climate Change Fund, the HSBC Global Investment Funds group (GIF) invests at least two thirds of its total assets (EUR 12m) into shares and stocks of companies which tackle the problem of energy and water wasting.

Other investments devoted to energy change, are closed-end funds and profit participation rights. The group 7x7 Bürgerenergie I. GmbH & Co. KG serves as an example of direct investments for German photovoltaic plants. Investors can start with a minimum amount of EUR 5,000. However, given that the funds have a duration until at least the end of 2025, the yield forecast of 4.6 %

per year remains uncertain. In an analysis, the magazine ECOreporter warns that the running costs associated with the operation of solar plants are tightly calculated and therefore, unforeseeable cost increases are likely and can reduce the investors' yields. Although direct investments entail high chances of yields, they also pose the risk of total loss.

In contrast, retail funds are special investment funds which continue to exist even if the provider goes bankrupt. However, they are not without risk, especially when they include shares. Many energy retail funds collapsed during the financial crisis. Some of them have not yet recovered, while others have surpassed their previous all-time highs. Technology fund rates are volatile and stock market prices fluctuate significantly, whether they are 'eco' funds or not.

**Investors should consider diversification of risk.** Specialised funds and direct shares should only be added to other investments and it is necessary to think long term and be patient. However, it



can also be encouraging to see how one of your co-financed projects is developing on site.

In comparison, another option which is safer but still not without risk, is loans. Examples include loans for climate projects, i.e. for local wind energy projects as offered by some savings banks or people's and cooperative banks. Although yields are hardly more than 1 % annually, they surpass the current level of interest rates.

Sustainable reforestation projects which promote climate protection are also becoming more popular. The German Forest Finance Group in Bonn offers various forms of such investment projects. However, forestry is incomparable with other asset classes as investments are invested directly into the soil and forest. This requires patience from investors because forests grow slowly. In addition, investors need to research the projects carefully: some climate compensation projects are cultivating fast-growing monocultures in the global South that are destroying ecologically and economically efficient local systems (see factory page 32).

**Investors can also promote sustainable economy, an indirect effect of investing in sustainable retail funds in many different sectors.** At the turn of the year, the 400 existing funds in the German-speaking world added up to EUR 45bn. In many cases, there are large institutional tranches for foundations or church institutions which means that the actual total is much higher. Funds are inevitably rather abstract in deposit accounts and their effects are not always immediately visible. Since autumn 2015, the Forum Nachhaltige Geldanlagen (FNG) (Forum on Sustai- ►



nable Investments) label has provided orientation just as the FNG fund profiles have done for a few years now.

Direct eco-social effects can be achieved through very different forms of investment, such as microfinancing, so called Bürger AGs (citizen PLC's) or cooperatives.

**Microfinancing** is a custom-made concept for the poorest people who cannot get any loans from normal banks for foundations, business expansions or investments. Microfinance institutions, however, can offer them loans when dealing with small sums of money. In 2006, Muhammad Yunus from Bangladesh, founder of the microfinance bank Grameen, received the Nobel Peace Prize for this creation. Meanwhile, helping people to self-help can be promoted through specific investments such as funds, savings products or a cooperative.

Specialised microfinance products cannot usually be sold every day, but in view of stagnating interest rates the returns are attractive and constant, since microfinancing is not dependent on

the stock market price. The fluctuation margin in performance is smaller. The risk is lower, because it is divided into countless loans. Experts say that repayment rates are high and that on average only two percent of loans are not paid back. Michael Sommer from Bank im Bistum Essen (Bank in the diocese of Essen) says that when done professionally and seriously, microfinance is a useful device for fighting poverty. The bank has years of experience in two institutional funds and the new so-called KCD-Mikrofinanzfonds III (KCD Microfinance Fund III – a microfinance investment vehicle) for private investors. The fund Invest in Visions IIV has been available for private investors for a longer amount of time.

For experienced investors and foundations, the GLS Bank in Bochum, together with other institutions, placed bonds of an international microfinance vehicle in the sum of USD 37m in 2014. That is enough for 10,300 microloans. GLS is also offering an 'Oikocredit' account. Oikocredit is a Dutch cooperative and one of the world's largest microfinancers. For years, investors have been

receiving two percent interest per year for the shares, which can be bought for as little as a couple of hundred euros. German sponsor associations already have more than 23,500 members. CEO for Germany, Matthias Lehnert, says that they have invested EUR 389m in Germany which is 14.5 percent more than in the previous year. The money goes to people in developing and newly industrialised countries, especially to women who support themselves and their families through their self-employment. It is estimated that 37 million people are reached through microfinance partners.

There is also criticism against microfinancing and its impact on supporting the poorest people. For more information, see the list of pros and cons on the tab Participation on factory-magazin.de.

**Cooperatives also deal with other sectors.** This type of business organisation is reaching new heights: there are approximately 7,600 cooperatives in Germany, with about 20 million members. They are mostly active in the finance



sector and in real estate, and increasingly also in power generation and agriculture. People often form alliances to help each other.

Cooperatives increasingly attract members for sustainable projects when they offer returns. Maro Genossenschaft für selbstbestimmtes und nachbarschaftliches Wohnen eG (MARO Cooperative for Independent and Neighbourhood Living) relies on small and wealthy investors. They support citizens and municipalities by building barrier-free multi-generational community living schemes in southern Germany. Prospective return: four percent.

Some cooperatives oblige investors to pay additional contributions in a crisis situation, but, according to consultants, they are fundamentally suitable for defensive investors who want to invest money on a long-term basis. Cooperatives are one of the safest types of business: according to the Creditreform Group, less than one percent become insolvent. Therefore, midway through 2015, 38,000 shareholders turned the wind farm construction company Prokon, which had once been insolvent,

into a cooperative. Thousands of investors had lost a lot of money in the course of the former direct investment.

**Bürger-AGs are set up differently.** These new companies want to promote regions by investing in the real economy: as local public limited companies, they do not only pursue monetary objectives but also social, ethical, regional, cultural or ecological ones. It is thus easier to raise capital for new projects and economically underdeveloped regions or in cases where banks refuse to grant loans. According to experts, investment is possible without any large contributions and major formalities.

For instance, the Zwergenküche in Endingen, founded in 2012, provides regional, organic meals for kindergarten children. The Freiburg-based Regionalwert AG (Regional Value PLC) contributed to the investments. Its network consists of 16 farms, food producers, trading companies and service providers. Further Regionalwert AGs have now been set up in other places. 230 local citizens and organizations have a stake in the Hamburg-based Regionalwert AG after a sec-

ond share issue in early March, according to its board of directors.

In 2010, Nestbau (Nest Building), the first Bürger-AG for rental flats, was founded in Tübingen. It constructed a socioecological building for residential and commercial purposes. Tenants have moved into it since 2014, among them single parents with children and a youth residential community. Flexible office workstations are provided in this building in the city's first co-working space, on a daily, weekly or monthly basis. Nestbau connects people looking for affordable living and working space close to the city centre with sustainable investors. According to its founder, Gunnar Laufer-Stark, shareholders from all over Germany invested between EUR 1,000 and EUR 50,000 each.

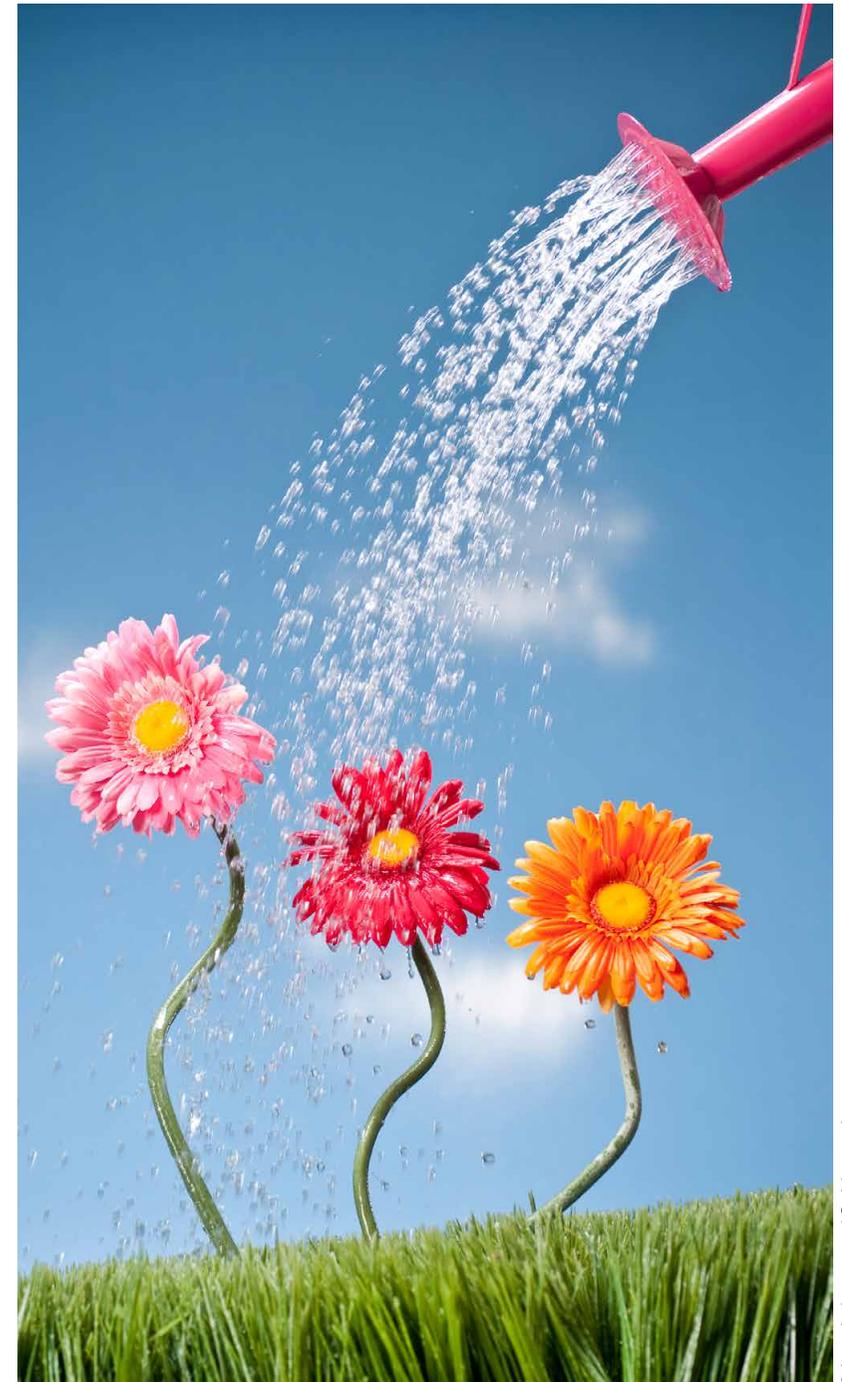
In their first years, however, start-ups often post losses since it takes time to invest in projects and companies. Investors should thus hedge their bets and be well-informed before taking any decisions. Bürger-AGs are suitable for people who are aware of the risk and, as joint owners, want to see what happens to their money. ►

**A different understanding of return.** Many local and regional ‘forms of investment’ have a different understanding of return from traditional ones. In Nestbau’s view, the return should be generated from the monetary return (the dividend) and the socioecological contribution. The Bürger AG FrankfurtRheinMain, which invests in a social organic industry, assumes initial returns on investment of approximately 1.0 to 2.5 percent since they do not operate according to the principle of profit maximization, but according to criteria of a sustainable, socioecological economy.

The Freiburg-based Regionalwert AG wants to produce profits from leases, investments and services, as well as generating socioecological profits. The 2015 ‘socioecological annual report’ explains performance with regard to 13 indicators in both a quantitative and a qualitative manner: these indicators include employment trend, soil quality and regional added value.

Christian Hiss, founder of the Regionalwert AG: “Only the financial operating profit in combination with social-ecological development shows whether or not the capital has been used for sustainable management.” The overall success of this approach is described in the Factory Magazine ‘Partaking and Taking Part’ (2/2012). Investors have to decide if they share a common understanding of returns. Various investment vehicles open up the possibility of contributing in the long-term to sustainable development, although a specific financial return is required. ■

Susanne Bergius is a journalist and moderator for sustainable management and investment. She is a regular contributor to the German newspaper Handelsblatt Business Briefing Nachhaltige Investments and co-publisher of the book CSR und Finance. Recently, she published the article ‘No change without risk!’ in the Factory Magazine ‘Crime and Punishment’. Susanne Bergius is the co-founder and chief executive officer of the non-profit organisation Netzwerk Weitblick – Verband Journalismus & Nachhaltigkeit e.V..



»We are evaporating our coal mines into the air...  
Eventually, this change may very well heat the planet to levels beyond all human experience.«

Svante Arrhenius, Swedish chemist, 1896

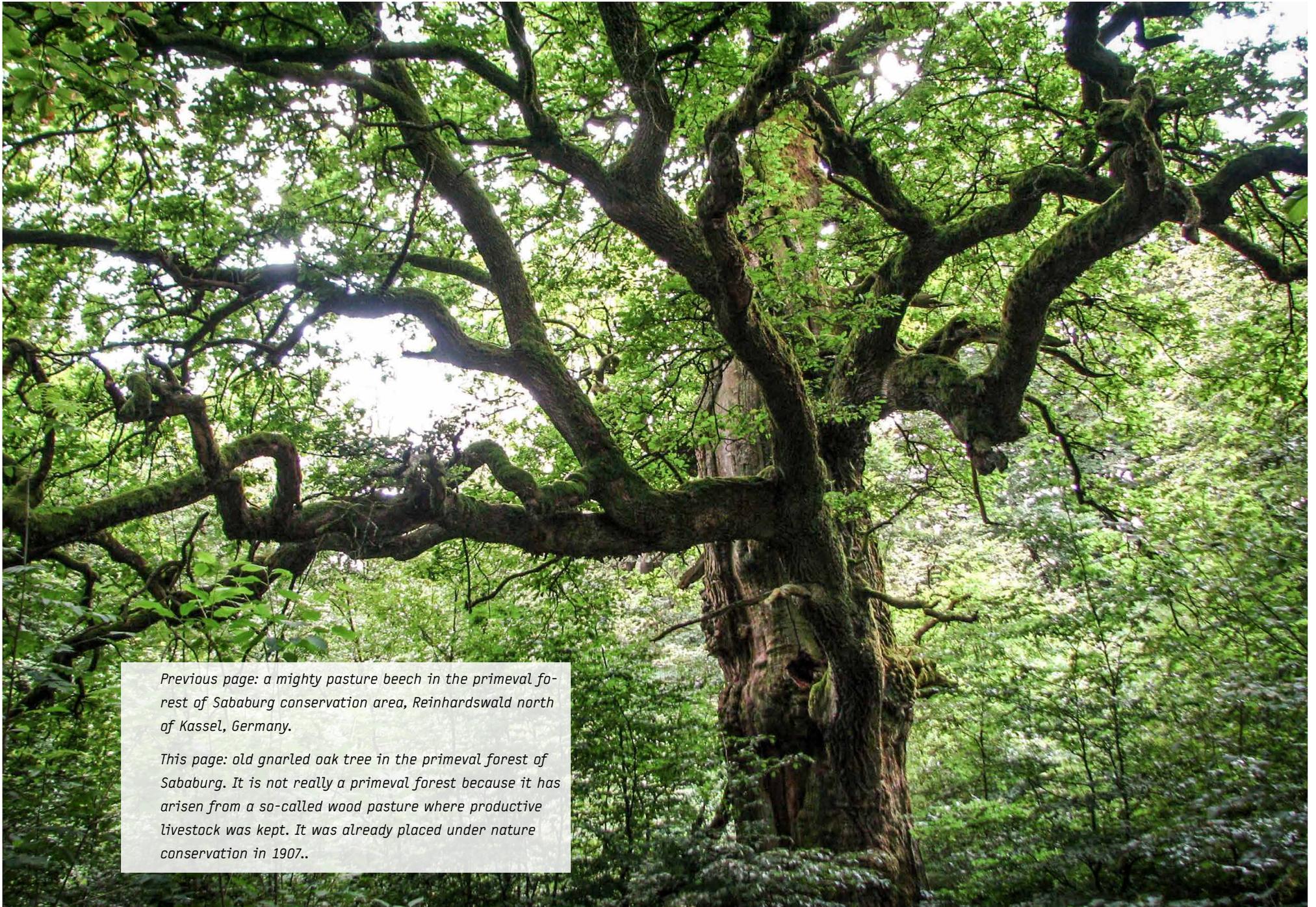


# Value the Forest

In international climate policy, forests are increasingly being considered as objects of investment. In the Paris Agreement, forest conservation plays a major role for the first time. Forest funding is supposed to be very profitable, but the rights of forest-dependent people are not being taken into account.

By Ralf Bindel

Translated from the German by Nadine Feuchter, Anna Ganskih, Sarah Schlichter, Sina Schlarb, Yuliya Kolyada, Sven Kotlarow, Katrin Haßberg, Bianca Bauer, Kathryn Batchelor and Hannah Rooke



*Previous page: a mighty pasture beech in the primeval forest of Sababurg conservation area, Reinhardswald north of Kassel, Germany.*

*This page: old gnarled oak tree in the primeval forest of Sababurg. It is not really a primeval forest because it has arisen from a so-called wood pasture where productive livestock was kept. It was already placed under nature conservation in 1907..*



*A beech forest in the entrance area of the primeval forest of Sababurg. The park-like, open and sparse forest developed because the livestock that had been driven into the forest for feeding reduced the number of sprouts, so that only very old nutritious trees remained.*

Do you know someone suffering from hylophobia, also known as dendrophobia, xylophobia or ylophobia? It is the irrational fear of trees, forests or wood. While it is very rare, like most phobias, it is usually associated with an incident that occurs in early childhood and is treatable. The fear of forests has already made its way into pop culture. Xylophobia has even appeared in 'The Simpsons'. Horror movies also like to play with this fear, with films like 'Blair Witch Project', 'Cabin Fever' or 'Black Forest' providing notable examples. However, most people associate forests with pleasant things. They think of rest and relaxation, a city's green lung, taking walks, hiking, mushrooms, animals, fresh air, peace. It was not just the artwork of the Berlin cartoonist Touché that made tree huggers notorious.

And one of the biggest online eco-magazines is called Treehugger.com. At least since German romanticism, the forest has been a cultural asset. It has always had a social function: as a natural environment and habitat, a source of inspiration, and a place for education,

relaxation and leisure. And every child has learned in school or even in kindergarten that forests also have an ecological function.

In addition, the economic value of forests is obvious: wood seems to be a steadily growing resource. If forests are managed correctly, they can provide many generations with enough wood over the long-term – it is not a coincidence that the term 'sustainability' originates from forestry. There are also the jobs to be considered: the so called Cluster Forst und Holz (forest and wood cluster) in Germany employs more than 1.2 million people. That is more employees than the automobile industry and the engineering sector.

### The forest as a carbon sink

Wood concentrates carbon dioxide as carbon in its biomass and also releases oxygen. The forest is, therefore, not only useful as a carbon sink in terms of climate protection, but also as an almost climate-neutral fuel supplier. Unlike photovoltaics and wind energy, this supplier is even capable of meeting

baseload requirements, while burning or rotting wood releases only as much carbon dioxide as it has previously saved. Timber and furniture wood even saves the greenhouse gas for a long period of time, mostly about 80 years. After usage, the wood can be used for energy – something you can't do with reinforced concrete. This is why future urban development with wood houses is so promising. According to the Cree-Concept developed by Rhomberg, an Austrian construction company, four to eight times less resources are needed when building high-rise buildings out of wood instead of conventional materials.

In Germany, 32 per cent of the land area is covered with forests. After Sweden, Germany has the biggest forest stock in the EU. In 2011, the German forestry sector had a turnover of about EUR 3m. Since 2010, more wood has been burned than processed. Less than one third of renewable energy is derived from wood but it only accounted for around 3 per cent of overall energy use. The increasing demand pushed the profit from forestry up: in 2012 to EUR 1.3bn. "Wood ►

is good business again,” writes the *Wirtschaftswoche*, a German business news magazine. As there are almost 2m private forest owners, it is a rather fragmented enterprise. Michael Rolland, Director of AGDW, the German forest owners' association, told the magazine that forests are seen more as a safe investment. “Forests have a saving bank function. Value preservation is more important than return. With surpluses of one to a maximum of two per cent per year in Germany, profit expectations are not the same as on the stock exchange,” says Rolland. He also observes that investment and the subsequent management are complicated and costly and that whether the forest generates returns depends on many factors. The *Wirtschaftswoche* recommends forests to everyone who wants inheritable assets that offer inflation protection. However, it also admits that forest funds and forest fund projects overseas are hard to control and hide many black sheep. On the other hand, local forests are beautiful investments, enthuses Rolland.

In recent years, forests in Germany have indeed worked as carbon sinks. In

2012, forests saved 51.9m tonnes of carbon dioxide which makes up 6 per cent of the total emissions. Yet Greenpeace warns that wood can certainly become a carbon source, if logging continues to increase.

Only 1 percent of the forest is protected in Germany and carbon reservoirs can only grow in unexploited forest areas. Therefore, environmentalists demand that at least 5 percent of the German forest be protected. More than 50 percent are publicly owned and should be available for protection.

### Forest protection for money

Everybody knows that the forests of the earth are vital for global climate control. Their function in regulating the CO<sub>2</sub> and O<sub>2</sub> balance is irreplaceable and cannot be measured with money. One third of the earth's landmass is covered by forests, but this percentage is decreasing. Even the climate negotiators have recognised this fact. For years, reforestation has played a certain role, including being part of the Joint Implementation

and Clean Development Mechanism of the Kyoto protocol. It is difficult to measure levels of engagement with climate change commitments as the definition of forest is not universal. There are around 64 different definitions around the world; some of them even include plantations. Furthermore, there is ambiguity about the actual amount of bound CO<sub>2</sub>. Nevertheless, it has been agreed that carbon sink projects within national territory increase emission allowances. According to the Heinrich von Thünen Institute, around 8.8 million hectares of natural forests (mainly tropical forests) are destroyed every year, or approximately 35 soccer fields per minute.

The increasing demand for meat and biofuels are to blame for growing pressure on the forests. The Amazon rainforest and the rainforests of Southeast Asia and Africa are the worst affected areas. One third of deforestation is caused by developed countries. The 27 EU states are responsible for 36 percent of internationally traded goods associated with deforestation. Deforestation throughout the world has dramatic consequences



for the climate and biodiversity. Almost 20 percent of global greenhouse gas emissions are caused by deforestation and forest degradation. Not only are the habitats of animals and plants being destroyed, but 1.6 billion people (500 million indigenous people) are also directly and indirectly dependent on the global forests, according to estimates by the World Bank.

The much-discussed mechanism called Reducing Emissions from Deforestation and Degradation (REDD or REDD+ for short) was introduced in 2005 and is especially important for global forest and climate protection. REDD is supposed to reduce deforestation, especially in developing countries. This is done by introducing a new approach to global climate and development cooperation, namely the trading of CO<sub>2</sub> emission rights and the payment for documented reduction of CO<sub>2</sub>. In order for these concepts to work, the reduction of emissions must be measurable and verifiable, like an accounting system for carbon. These reductions are paid for by states or international organisations like the World Bank, or they are traded as CO<sub>2</sub> emission rights which can be bought by companies to balance out their own emissions.



► A centuries-old willow oak tree called Kamineiche (chimney oak tree) in the primeval forest of Sababurg. The oak trees there are up to 1000 years old. As they reach their age limit and die off, a young secondary forest grows in the gaps.



*A mighty beech tree with a double-trunk in the primeval forest of Sababurg. Next to beech trees with thick or multiple trunks and centuries-old oak trees often grows metres high fern, which transforms the wood pasture into an enchanted forest.*



*Broken-apart tree in the primeval forest of Sababurg. In 1967, 133 plant species were determined in the conservation area and in 1964, 253 insect species were counted. Not only the impressive giant trees are characteristic, but also the high ratio of standing and lying deadwood, which provides habitat for the plant and animal species that decompose it.*

Global climate policy views the REDD+ mechanism as a cost-efficient opportunity to decrease the deforestation rate by 75 percent by 2030. In his publication titled “Die vermessene Natur” (Measured Nature), Thomas Fatheuer talks about a so-called ‘REDD-isation’ within the last few years, as REDD has become the guiding light of global forest policy at breath-taking speed.

### Forest dwellers with demands

The oil-producing country Norway is currently by far the biggest investor in REDD+. During the climate negotiations in Paris, Norway, Great Britain and Germany announced that they would invest USD 5bn in REDD+ over the next five years. According to the Wuppertal Institute, the recently signed Paris Agreement emphasises the importance of REDD+ for global climate protection, but neglects the concerns of human rights activists regarding indigenous rights, except for a general reference

to them in the preamble of the treaty, which is a sign of hope.

One REDD project after another is now emerging. They focus on the voluntary carbon market, for instance for compensation of flights or events. According to the Centre for International Forestry Research (CIFOR), there are 338 REDD+ projects worldwide, although almost half of them are spread over three countries: Brazil (53); Indonesia (44) and Peru (38). But usually the forests, those “cost-efficient opportunities”, are places for people to live. Life situations, historical rights and the danger of a possible displacement of indigenous peoples and local communities, to use the UN’s terminology, are not being sufficiently considered by the billion euro programmes. Examples from around the world show the influence of REDD+: forests can be privatised, rights of use can be reduced and local communities can even be driven out. “REDD projects are another way to privatise our common goods of nature. They place a price on our forests,” complains the Honduran indigenous movement COPINH. The Forum

Umwelt und Entwicklung 2014 (German Environment and Development Forum 2014) judged REDD+ to be green colonialism. Carbon sequestration is in a way being extracted and exported into the global north to allow the continuation of an imperial lifestyle. Jutta Kill, forest protection activist and REDD expert, stated that REDD+ is a “massive diversion”. In 2015, she presented an impressive overview of REDD projects. Such projects do not tackle the actual causes of industrial deforestation. “None of the currently implemented REDD projects have proven to be able to control the causes of poverty, deforestation, let alone climate change,” Kill told klimaretter.info. In her view, the USD 1.1bn for more forest protection, announced by the federal government in Paris, are just “more money for failed experiments”.



## Rights instead of REDD

Indeed, experiences in Brazil show that in the state of Acre, REDD can even lead to more rather than less deforestation. In contrast, deforestation in Amazonia has decreased significantly without REDD, firstly due to stronger prosecution of big landowners and abattoirs for illegal logging and secondly, a moratorium on soybean cultivation in deforested areas. Legal support of the traditional population, as called for by the World Resources Institute (WRI), turns out to be a particularly successful concept. “Over 37 billion tons of carbon are safely stored in community forests worldwide. The climate and people benefit from the strengthening of the rights of communities that live there,” says Dr. Andrew Steer, president and CEO of WRI.

A study by the institute comes to the conclusion that the communities are more successful in fighting illegal deforestation by woodcutters, natural resource industry and settlers if their governments expand their forest rights and also check and enforce them.

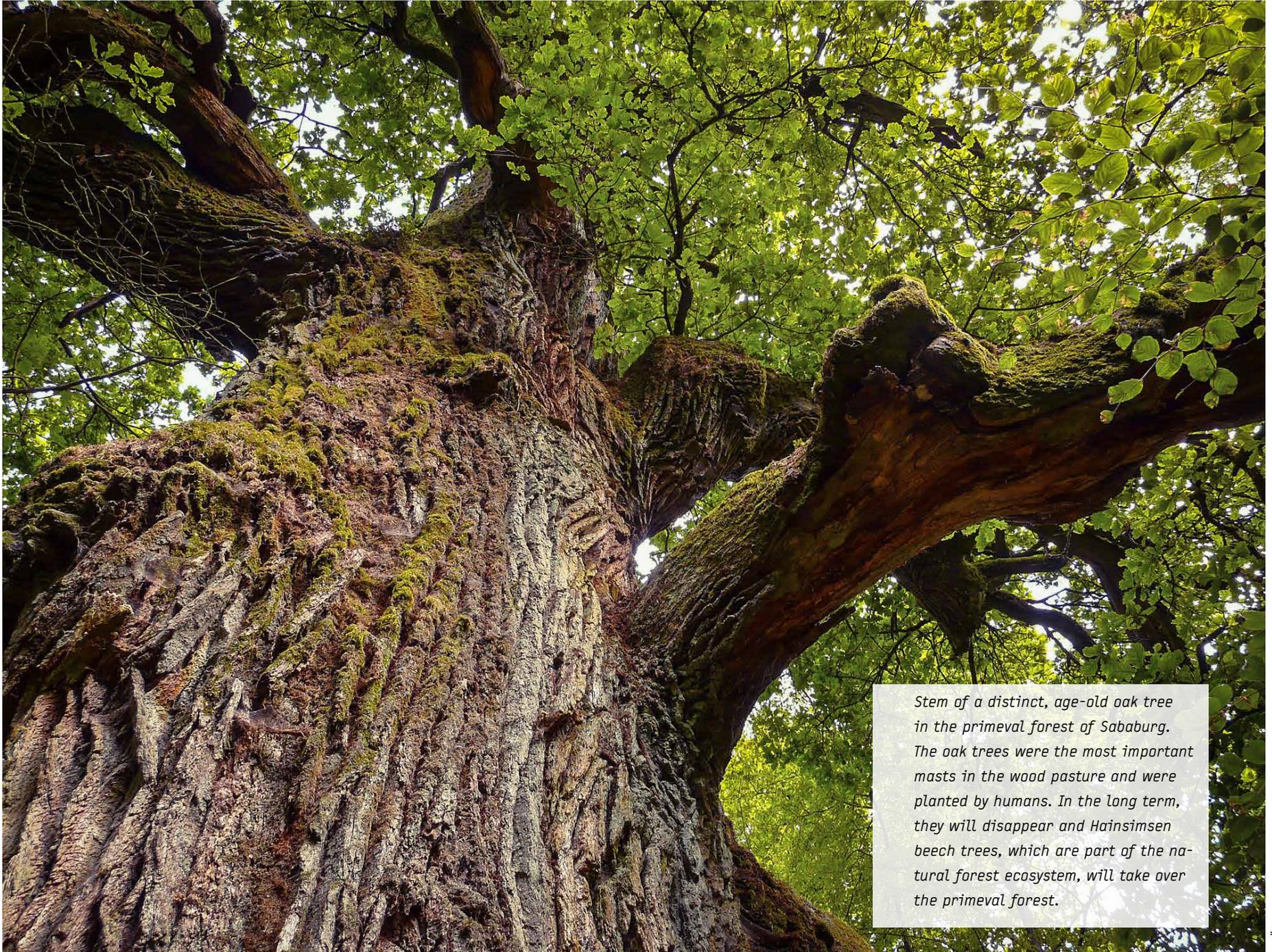
Despite a lot of criticism, a questionable balance sheet and a disappointed hope for the big money of the markets: REDD has come to stay, writes Fatheuer. The mechanism becomes an extensive global CO<sub>2</sub> strategy for generating climate neutrality. No matter how much one fears the forest, it will become one of the first resources that is an essential settlement element of human

activities, rustling in the background. It is, after all, the historical basis for petroleum, gas and coal, which drives the human world and with it climate change. ■

Ralf Bindel is the editor of factory. Dr. Martina Nehls-Sahabandu has picked and edited the pictures. She is a biologist and graphic designer and is responsible for the design of factory.

## The Primeval Forest of Sababurg

Primeval forests exhibit natural vegetation without any visible human influence. 36 percent of all forests worldwide are primeval forests, although their surface area is being reduced by six million hectares every year. Germany no longer has any real primeval forests. One of the few remaining forests resembling a primeval forest is the “Primeval forest of Sababurg” near Kassel, Germany. It has been under environmental protection since 1907 and it emerged from a wooded pasture area where livestock was held. These park-like grounds holds 800 to 1,000-year-old mighty oak trees, multi-stem beech trees and ferns which are several metres high. This unique vegetation creates the atmosphere of an enchanted forest. The pictures in this article are licensed under the Creative Commons licence and are freely available on the web.



*Stem of a distinct, age-old oak tree in the primeval forest of Sababurg. The oak trees were the most important masts in the wood pasture and were planted by humans. In the long term, they will disappear and Hainsimsen beech trees, which are part of the natural forest ecosystem, will take over the primeval forest.*



*Veteran oak in the primeval forest of Sababurg. This is one of the first German nature reserves and was painted by the Düsseldorf artist, Theodor Rocholl, who became famous as a painter of battle scenes and created several of his landscape paintings in Reinhardswald near Kassel, Germany. He inspired numerous later artists to study the 'primeval forest'. Even today, the forest is referred to as a 'painters' reserve'.*

*Dead old tree and regrowing forest in the primeval forest of Sababurg. The forest is a centre of attraction for tourists, families and school trips. The high number of visitors, especially on weekends and holidays, affects the nature reserve. Wildlife flee from noise and turmoil. The high levels of foot traffic result in damage to the old trees and accelerate their death. The ground vegetation is also driven back by this.*



»The fate of humans and the forest is, today, bound more closely to each other than ever before. Today, the forest cannot even survive without humans, and humans certainly cannot survive without the forest either.«

Thor Heyerdahl (6 October 1914 (Norway) – 18 April 2002 (Italy)),  
Norwegian explorer, archaeologist, anthropologist, ethnologist and environmental activist.

# The fear of biting the hand that feeds you

A city changes the way it invests: Münster has become the first German city to stop investing in fossil fuel generation. The divestment movement has been gaining momentum in Germany. However, the resulting decline of the fossil fuel economy also means that the municipalities that were key locations for fossil fuel economy lack funds – a change that has been particularly traumatic for Lusatia. However, with the support of federal and state governments, this does not have to spell disaster for the regional cities and villages.

By Susanne Schwarz.

Translated by Simone Kremeier, Mona Lang, Jennifer Heger, Sarah Michels, Kathryn B., Vanessa Waigum, Ella Dering, Birgit Bernhardt



A few days after Easter, Münster went about its business on the practical principle that you cannot make an omelette without breaking a few eggs. On 1 April 2016, the city's new investment policies were put into effect. These policies established that public money can only be invested in sustainable projects, making Münster the first German city to join the divestment movement and pull its funds from environmentally harmful industries. In November 2015, Münster City Council decided to exclude all potential investments which “produce nuclear energy or do not embrace sustainability but support environmentally-harmful energy solutions.” Moreover, the city excluded investments in fracking, military weapons and child labour.

According to the Münster Municipal Treasury, this involves investments valued at around EUR 18m, which are currently spread between two different funds. When asked, City Treasurer Frank Möller did not want to reveal which companies had been financing the said funds, nor to what extent. However, other sources have pointed to institutions such as RWE as well as the

Austrian and Italian energy companies OMV and Enel.

It is now up to external fund managers to decide which companies meet the new requirements. Companies that meet the exclusion criteria, such as nuclear groups and energy companies that use coal, will be removed from the list. Once these companies have been excluded, the fund managers will use the ‘best-in-class approach’: the remaining companies will be ranked and those with particularly sustainable or socially-minded business strategies will rise in the rankings.

### Divestment could prompt structural change

“A total of 500 institutions worldwide have divested their environmentally-harmful investments, including 58 cities such as Oslo, Seattle and Münster”, says Tine Langkamp, divestment organiser of the climate protection organisation 350.org. This organisation has made the U.S. and international divestment movement what it is today. The group keeps exact records about where divestment

decisions are being made. While no other German cities have yet followed suit – unlike the German pension institution Presseversorgungswerk and the insurance group Allianz – conversations about divesting have been taking place in various locations.

“A municipality’s decision to invest its money in sustainable instead of fossil fuel projects is certain to influence the strategy of the companies concerned”, says Daniel Vallentin, project manager of the Wuppertal Institute in Berlin and an expert on structural change in Lusatia. The region stretches from the south of Brandenburg to the east of Saxony and is home to the second largest German coalfield.

In this region, the Swedish state-owned company Vattenfall operates several lignite mines and power plants. In principle, cities should even be able to control through divestment and new sustainable investments the way in which things should proceed without coal some day. However, Vallentin doubts whether many Lusatian municipalities will actively promote structural change in this manner. He also says

that they obviously – and understandably – have an interest in lignite even if they are working on structural change elsewhere.

Lignite is an economic mainstay of Lusatia. In GDR times, lignite mining was considered a national goal and even today many inhabitants still work in this field. Moreover, the municipalities are financed by local companies and the trade tax that they pay. However, business is deteriorating even without widespread divestment. The municipalities will notice this first, even before it is reflected in the electric mix.

## Municipal funds for lignite are decreasing

In the past fiscal year, Vattenfall had to report figures that were even deeper in the red than in previous years. In 2015, the corporate group registered a loss of no less than EUR 2.1bn. The company had to write off EUR 3.9bn and additionally suffers from low spot electricity prices. Since the German lignite branch is one of Vattenfall's major worries, they plan on selling it. Things are also

looking bleak for the other large energy groups; RWE, E.ON and EnBW have not produced good results for years either. Fiscal revenue of the municipalities is decreasing as a result of these disastrous figures since they are dependent on the companies' revenues.

For the year 2014, Lusatian municipalities will even have to pay back money and it is likely that this will also be the case for subsequent years. Vattenfall has already announced that the losses will probably result in halving the tax pay-

ments in 2015 for the respective municipalities and states, and in tax refunds for the years 2014 and 2016.

The exact amount is subject to fiscal secrecy. Björn Konetzke, treasurer of the town Guben situated in Brandenburgian Lower Lusatia, concedes that the sum the town has to pay back is considerable. Nearly all municipalities in the rural district of Spree-Neiße are affected. Konetzke adds that Guben may even have come off comparatively well; Spremberg, for instance, has to pay back ►

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far more. Two of Vattenfall's world-scale plants, namely the Schwarze Pumpe power station and the Welzow-Süd surface mine, are located there. According to media reports, each municipal treasury has to pay an amount of several millions.

Konetzke remarks that it is only natural that the city treasury will suffer if trade taxes from lignite fall away. However, it is not certain that increased divestment, or even a politically established lignite phase-out would ruin Guben. Konetzke continues that it is not yet foreseeable how heavy the strain will be in the long run. Konetzke adds that there are indeed mechanisms which could be of help in dealing with such losses. There are, for example, the so-called rate support grants with which the states support the municipalities. The treasurer notes that the lower revenue could lead to higher rate support grants. This will not compensate entirely for the decreased fiscal revenue, but it will mitigate the losses.

## Divestment supplements political pressure

Climate specialists have no doubt that coal and especially lignite, which is particularly harmful for the environment, has to become a thing of the past. The climate change policy is already there on a national, European and international level, says Daniel Vallentin from the Wuppertal Institute. Of course: climate targets may now exist and the global climate deal agreed upon in Paris in December 2015 has also given new impetus to the discussion. From this perspective, divestment represents an added economic pressure.

For Vallentin, it is clear: this means that Lusatia has to adapt – even if the local government of Brandenburg permitted the expansion of the opencast mine in South-Welzow as recently as 2014. But Lusatia is not completely empty-handed without coal. “The coal industry employs approximately half of the industrial workers in Lusatia – that is an extensive part, but still not everything”, claims Vallentin. “There is a chemical industry, a metal-processing

industry and the food industry.” What is needed now is a schedule and a consistent policy for the district, so that people and companies can prepare and so “they don't have to act in crisis mode later.” This is also the conclusion of a study on structural change in Lusatia, recently carried out by Vallentin and colleagues from the ‘Wuppertal Institut’ for the Green Party of Brandenburg.

“Lusatia needs a structured and systematic process that involves every stakeholder and every political level as much as possible”, says Vallentin. The people and the local authorities would have to decide for themselves what the new perspectives could be. “We deliberately didn't recommend a particular future for Lusatia: this needs to be decided by the people who live there”, claims Vallentin.

But the new study should give them the right tools to make these decisions. Above all, the German coal regions should learn from each other, because Lusatia is not the only area having problems. “The approach used by the Rhenish Coal District sounds convincing”, says Vallentin. “The whole area was ►

divided into eight parts, with the idea that the strength of these parts would be individually analysed and improved. Not everything will change everywhere.”

## Instead of lignite: quality of life

The Rhineland is also shaped by coal economy: the coal-mining district between Cologne, Aachen and Düsseldorf is the largest one in Europe. Here, the RWE energy company runs open-pit mines and power stations. If the company is doing badly, the local authorities not only lose out on business taxes, but many of them are shareholders who are liable for the horrendous losses of the power giants. In the past, RWE dividends financed public libraries and swimming pools. This year, the company is hardly issuing a dividend for ordinary shares at all. Local authorities could find their own way out through divestment: after all, they could divert their money to other sectors that seem to be sustainable.

But all of this is still far away since it is not even a topic of discussion in many

city councils. And even if it works out, coal-mining will leave its mark. You can walk for hundreds of kilometres along the dry craters of open-pit mines.

Elsewhere, citizens might complain about the sight of a wind turbine near their village, but for many Lusatians and Rhinelanders, being surrounded by a dead lunar landscape is part of their everyday life. For a long time, they accepted their situation – but if the citizens living in this destroyed environment are not even compensated with jobs and money for their own cities and villages...?

The municipalities around the Rhenish open-pit mine Inden have already looked for solutions to this problem. In January, Inden, Aldenhoven, Jülich, Eschweiler, Linnich, Langerwehe, Niederzier and the district of Düren agreed on the Masterplan Indeland 2030, a development plan for the Inden region. By the end of the next decade, they want to create the lake to be called the Indescher See – the pit will be filled with water. This will hopefully result in a better quality of life for the local residents and be an incentive for tourism.

## The federal and state governments must help

There is already a similar project in Lusatia. Since 1976, former pit Restloch 117 has been a swimming lake and even more pits were flooded after the turn of the millennium. The Lusatian Lake District will continue to grow until 2030. Such projects are an important part of structural change for experts at the Wuppertal Institute for Climate, Environment and Energy. According to Vallentin, Lusatia needs more quality of life, more cultural events and more on-site educational opportunities. Then, the highly qualified people who start new businesses might come and stay. In his opinion, this is important for the Rhineland, but it is even more vital for the rural region in eastern Germany.

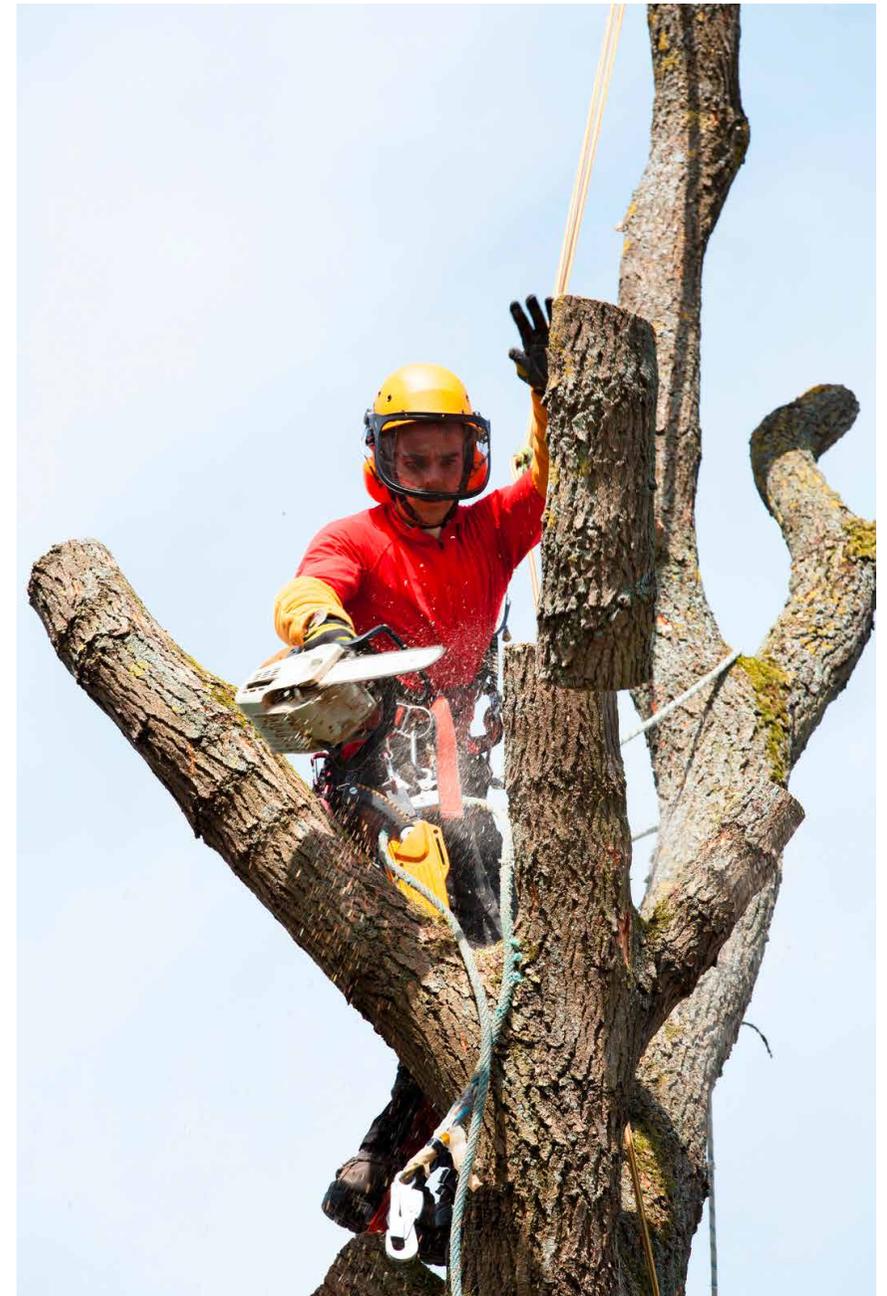
Restoring the environment and promoting education and culture, however, costs money that the municipalities simply do not have. The think-tank Agora Energiewende is therefore proposing a structural change fund for lignite regions. The federal government is supposed to feed this fund with an



annual amount of EUR 250m. Depending on the number and location of workplaces that are dependent on lignite business, the German states would receive a certain amount which is then passed on to institutions, municipalities and projects. Only then would they be able to begin divestment and the lignite phase-out – what some would call the bare minimum for protection from climatic disaster.

Meanwhile, the German divestment movement wants to continue working towards making fossil energy production unprofitable – as long as the lignite phase-out has yet to be decided by the government. The divestment movement is optimistic, especially in the capital, where the topic was debated by the state parliament for the first time in January. Berlin's exit from fossil fuel investments would again be a German novelty, making Berlin the first state to operate a divestment policy. ■

Susanne Schwarz studied social sciences and philosophy in Berlin, where she now works as a journalist, among others for the online magazine [klimaretter.info](http://klimaretter.info), the weekly newspaper *der Freitag*, *neues deutschland* and the German daily newspaper *Frankfurter Rundschau*.



»What we are experiencing at the moment is a major conflict between community orientation and the monopoly of corporate groups.«

Martin Khor, Director of the South Center in Geneva, March 2015



# Education is the Best Investment

Instead of subsidising fossil fuels, states could do more for wealth and sustainability – and even make money from it. Companies that invest more in education and vocational training have greater advantages, as shown in studies by the OECD. Wherever the state does not invest and education is financed privately, elites and inequality arise, which are counterproductive for a fair social system. Even in Germany, new changes must be put into place. By Manfred Ronzheimer.

Translated from the German by Rebecca Noszvai, Katrin Haßberg, Korbinian Feigl, Julia Hevesi, Sven Kotlarow, Emily Hardy, Lydia Shore, Katie Davis and Kathryn Batchelor.



“An investment in knowledge still pays the best interest.” It was more than 250 years ago in the young USA that Benjamin Franklin highlighted the importance to the economic benefit of education. In the country that was once the land of “unlimited possibilities”, Franklin’s portrait is still present on the 100 dollar bill, even though the real interests on the capital market are currently not ‘the best.’

A good education at school and on-the-job training are not only a basis for personal success in professional life and for upward mobility – the secular view of the educated classes. Within society as a whole, education ensures the wealth of nations and national economies. This is also why it was necessary, with the onset of industrialisation, for the state to provide a compulsory school system with a standard qualification. But education spans a broad spectrum – from the desire to learn to school frustrations.

“The dream of a good education for all is not yet a reality”, says Angel Gurría, General Secretary of the OECD – the organisation of leading industrial countries, based in Paris. Every year,

the economic organisation compiles an international education report according to uniform evaluation criteria. “The absence of access to high-quality education is the strongest form of social exclusion”, emphasises Gurría during the presentation of the most recent report: “it prevents people from profiting from economic growth and social progress.”

As shown in the international OECD comparison, Germany has made several advances on its way to creating more equal opportunities in education over the last few years, especially through the expansion of early childhood education. In 2013, 92 percent of three-year-olds participated in pre-school programmes, compared to only 80 percent in 2005. Germany was also significantly higher than the OECD average of 39 percent with a childcare participation rate of 59 percent for children aged 2 and above.

## Education is a market worth billions

A good education makes it easier for young people to enter the job market, as OECD numbers also confirm. Youth unemployment in Germany was 10.1 percent among 20 to 24-year-olds in 2014, which is far below the OECD average of 17.9 percent. A significant reason for this is the system of dual vocational training in companies and public vocational colleges. “With the dual system, Germany has good prerequisites to handle the integration of migrants into the workplace,” comments Stefan Kapferer, Deputy Secretary-General of the OECD, on one of the current challenges faced by the German education system.

However, special services for refugees that address their individual needs are necessary.

Major changes are also taking place in the higher education sector in Germany. 53 percent of an age cohort begin a degree or another tertiary education programme in Germany, compared to an OECD average of 60 percent. Drop-out rates are a persistent problem which ►

is why Germany is still below the OECD average for graduation rates in the tertiary sector, i.e. institutes of higher education such as universities and technical colleges (36 percent compared to 50 percent) – much room for improvement.

Education is a market worth billions in Germany. The recent data from the Bildungsfinanzbericht (financial report on education), compiled by the



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German Federal Statistical Office, reveals that, in 2013, EUR 148.9bn were spent on formal educational institutions (day care centres, nurseries, schools, professional education, universities) by both public and private sources. In addition, private households spent around EUR 5.7bn on private lessons, learning materials and suchlike, while public authorities spent around EUR 14.3bn on subsidising participants in formal education (especially BAföG, the German Federal Law on Support in Education). Other investments in education include “non-formal services” such as internal company training and continuous teacher training as well as child and youth services and suchlike, totalling EUR 17.4bn. About four-fifths of the education budget is financed by the public authorities. Public education spending has a share of 4.1 percent in GDP (gross domestic product). According to the figures of the German Federal Statistical Office, Germany is in a comparatively good position: “In 2012, education spending per participant of primary to tertiary education amounted to USD 11,400 in Germany, when adjusted for

purchasing power.” In comparison, the OECD average was USD 10,200 and the EU21 average was USD 10,400.

What is the point of these efforts? Lugder Wößmann has established the Centre for Education Economics at the Ifo Institute for Economic Research in Munich and correlates investments in education with economic outputs. With reference to his long time series, Wößmann declares that every additional year of education generates additional income with an increase of seven to ten percent. Those who study for four years earn 40 percent more. He also dares to quantify the economic impacts. His assumption is that if we managed to provide slightly better education for the 20 percent of German students who performed badly in the PISA study, economic output would increase by EUR 2.8bn within 80 years. This would result in a growth of four percent per year. Schools as economic growth engine. Not yet official economic policy.

The education economist also recognises non-material impacts, although they are hard to put in numbers. Wößmann asserts that even education

itself has a positive effect on health. He also adds that education reduces teenage pregnancies and criminality and has many positive effects that are good for society.

But not every investment in education leads to the same results. Wößmann analysed the long-term changes in an international context together with Eric Hanushek, an economist at Stanford University.

They examined whether there is a correlation between the considerable variation in GDP per capita between U.S. states and the educational level of the population. Through a 'human capital' indicator they were able to prove that between 20 and 35 percent of income differences are connected with quantity and quality of education.

## Better Education as a Basis

On a larger scale it was also possible to explain why the region of Latin America was completely overtaken economically by East Asia within one generation. "Today, the people of East Asia are - measured in GDP per capita - seven times as rich as their grandparents, the people in Latin America only two and a half times", notes Wößmann. The East Asian economic miracle cannot be explained solely by the number of years of education. Rather, different amounts of knowledge and skills are



taught in this period. “If we consider the performance of students in basic skills in mathematics and natural sciences, which have been measured in international tests since the mid-1960s, the differences are indeed striking”, remarks the Ifo insitute researcher. “In terms of knowledge, East Asian students were and are three school years ahead of their peers from Latin America.” Better education as the basis for the wealth of nations.

Does this mean that everything is in order in Germany? Not at all, according to critics who are being listened to. Two years ago, with his wake-up call on the ‘Academisation delusion’ the former minister for Cultural Affairs of the Federal Government, Julian Nida-Rümelin, initiated an educational debate. He feared that if over half of an educational generation were to enrol in universities, then there would be less of an interest in vocational training. This would ultimately lead to a ‘comprehensive deskilling’ in both vocational and academic training. The insight is growing “that continuing to go in the chosen direction could soon in fact lead to an

‘educational catastrophe.’ To avoid this, Nida-Rümelin favours a ‘new reform perspective’ “that combines humanisation and performance aspiration, differentiation and equal recognition as well as globalisation and diversity.” In addition to the emphasis on purely economic factors, greater importance must be attached to the aspect of ‘personality development’. For the professor of philosophy from Munich, the defects in the educational system go beyond that: “Education is one of the most important resources in a democratic society.”

Education for a resource-light society has not even been taken into account yet. As the recently completed project BilRes by the Wuppertal Institute has shown, even after the end of the UN Decade of Education for Sustainable Development, educational systems are still in the early stages in this regard. System knowledge on conservation of resources is only gradually being implemented in learning materials and curricula. The debate on the importance of transformation knowledge in scientific courses of study has only just begun.

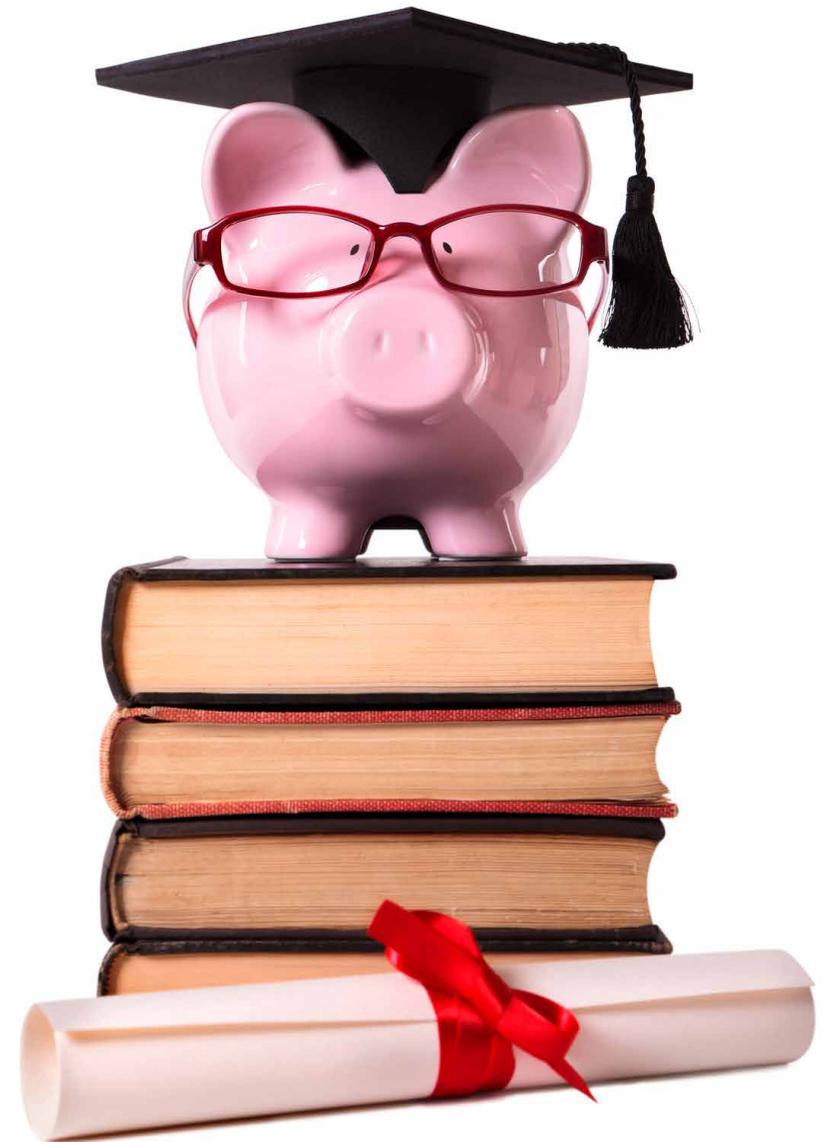
Another economist, Marcel Fratzscher, president of the German Institute for Economic Research, stresses the issue of educational equality in which Germany still performs very badly despite statistical improvements. In a recent publication Fratzscher both proves and complains that social inequality has increased considerably in Germany in recent years, which has resulted in a growing gap between educational opportunities. While the richest ten percent of the population own two thirds of the capital assets, the poorer half owns virtually nothing. “In no other Euro-zone country is inequality in wealth higher”, comments the economist from Berlin critically. In Fratzscher’s view, the lack of equal educational opportunity is an even bigger problem. In no other country does social background affect career opportunities like it does in Germany. “Whereas 70 percent of children whose parents went to university go to university themselves, only 20 percent of children whose parents did not attend university will go on to receive a higher education”, stresses the economist. Germany is a



leading economic nation but the education system is a “central weakness”.

A change could get under way if early and later education were prioritised differently. Just like his colleague from Berlin, the Munich-based education economist Wößmann wants more financial resources to be invested in the field of early education. “Going to university is free of charge, but we do charge fees for children’s day-care centres and nursery schools, even though it is these places that provide the fundamental basis”, explains the Ifo institute researcher. “This particularly impedes the early childhood education of disadvantaged children and families, because they have to count every penny.” According to the motto ‘Think about the future’ he thinks that study fees should be considered again. Against the general consensus in mainstream education policies Wößmann says that the abolition of study fees was a state subsidy for the future high-income earners and was not meant to be an education policy signal, because investments in education are particularly effective when they start early. Although education may be an option for prosperity in the economy, in German politics it is an ideological minefield. ■

Manfred Ronzheimer is a science journalist in Berlin and contributes to various publications. In his contribution to the factory magazine ‘Action and Trade’ he wrote about the virtualisation of sales and its counter-movement, Slow Retail.



»If your plan is for one year,  
plant rice.  
If your plan is for ten years,  
plant trees.  
If your plan is for one hundred years,  
educate children.«

Guan Zhong (645 B.C.), Chinese politician and philosopher

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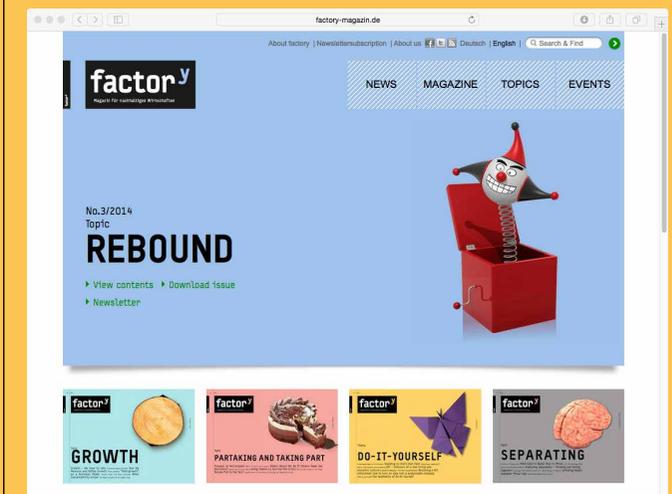
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