

## Less emissions, more quality of life

How to make transport sustainable?

# Pathways out of transport breakdown



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Every day, anyone who lives in a city or conurbation can see that in many places our transport system is on the brink of collapse. That is the case in my home city, Berlin. Every morning I cycle past kilometre-long lines of vehicles crawling bumper to bumper through the city. The number of hours that many people in Munich, Berlin or Hamburg spend sitting in traffic jams is rising year on year. This is a catastrophe not just for the climate but also for people's health, safety and quality of life. There is no alternative to a shift in modes of transport. We need to be less reliant on the car and switch to more environmentally friendly forms of transport such as cycling – including e-bikes – and of course public transport. This involves imposing restrictions on cars – particularly restrictions on parking. Some progressive cities are demonstrating different ways of doing things. Zurich is one such city. Here the public transport system has been expanded and a gatekeeping traffic light system introduced that allows only a certain number of cars into the city centre. When that number is reached, no other car can enter until one leaves. And when someone has waited long enough for that to happen, they will perhaps use public transport next time.

There is an urgent need for action. The steps involved in creating an environmentally sound transport infrastructure – such as improving rail links and building new trams and cycle lanes – have a long lead time before the new elements are actually available. Yet such a transport infrastructure is crucial to the achievement of climate targets in the transport sector.

The transport transition is not just the task of policy-makers and public authorities. As we show in this issue of *eco@work*, shifting transport away from the car towards more sustainable alternatives involves us all. The studies by experts in the Institute's Resources & Transport Division that are presented here emphasise this point.

Perhaps you have decided to use sustainable transport and are reading this issue of *eco@work* in the metro or train. I hope you enjoy it!

Yours,

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## CONTENTS

### IN FOCUS

- 3 **“Cross-sector collaboration is important and valuable.”**  
Interview with Sabine Nallinger (Stiftung 2°)
- 4 **In a jam**  
How can the transport transition succeed?
- 6 **Sustainability on the move**  
New mobility concepts as a contribution to the transport transition



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## “Cross-sector collaboration is important and valuable.”

A single measure is not enough. A single actor is not enough. If the transport transition is to succeed, everyone must act – not just scientists and businesspeople but also private individuals and policy-makers. Sabine Nallinger is Managing Director of Foundation 2° – German Businesses for Climate Protection. In conversation with *eco@work* she explains where businesses see the greatest need for action, outlines specific steps that businesses can take to improve sustainability and highlights the importance of cross-sector collaboration.

### Ms Nallinger, how optimistic are you that a transition to sustainable mobility can succeed?

I can see that things are happening at many different levels. And that really does make me optimistic. For example, consider the opportunities opened up by digital aids. They have made it much easier to link different forms of transport – including carsharing – and to do without a car of one’s own. There is also a noticeable change in awareness, especially among younger people. I think that people are very open to multimodal and sustainable mobility. In businesses, too, action on climate change is now a central issue.

But we really do need to get going. The transport transition is something that cannot be postponed if we take the Paris Climate Agreement seriously. Furthermore, it is not just about reducing emissions but also about improving quality of life for everyone. Sustainable mobility can also contribute to that.

### Where should businesses begin in order to contribute to the transport transition?

There are all sorts of starting points. One of the most important must be logistics. Forecasts predict a further sharp rise in freight transport – businesses must take action on this and manage their logistics far more smartly than they do now. Transporting goods is so

cheap that there is still scope to tap and some storage, for example, is taking place on the road. This needs to change, so that there is greater pressure to act. I am convinced that it would be worthwhile for businesses to focus now on less polluting transport options, shorter journeys and smart technologies.

### In a consortium project that was completed recently, the members of Foundation 2° discussed various ideas for greater sustainability in connection with buildings, industrial production and transport.

That’s right. This project was about cross-industry consideration of the areas that need to be tackled first in order to cut emissions on a large scale. But it was also about raising awareness of the challenges and opportunities we face. There were eight individual projects, including one on the subject of logistics: programmers created a platform where businesses could put forward ideas for more sustainable logistics. These were reviewed and then made available to anyone who was interested.

### What else was considered?

One project looked at setting up charging posts for electric cars in Aldi Süd car parks. The charging points would be available outside business hours and so would significantly improve the infrastructure for e-vehicles and make them

easier to use. Deutsche Telekom, which is creating an app for using the charging posts, is also involved in the project – as is the energy company EnBW, which is supplying the charging infrastructure and the electricity. The first charging posts are due to be trialled in Munich this year. This project not only demonstrates very clearly how much businesses can do – it also highlights the value and importance of cross-sector collaboration between different companies.

**Thank you for talking to *eco@work*.**  
The interviewer was Christiane Weihe.



Talking to *eco@work*: Sabine Nallinger,  
Managing Director of Foundation 2° – German  
Businesses for Climate Protection

# In a jam

How can the transport transition succeed?

To find out how the German transport transition is going, one needs only to enter the words for “climate protection” and “transport sector” in a search engine. This quickly turns up references to the “transport problem”, to calls for “a significant reorientation of policy” and to the need for “radical change”. This is because the transport sector has as yet contributed nothing to action on climate change. Its emissions in 2018, at around 163 million tonnes of CO<sub>2</sub> equivalents, were at the same level as in 1990, yet according to the German government’s goal they need to fall by 40 to 42 percent by 2030. Can the transport transition still succeed? And if it can, what is needed to make it happen? The Oeko-Institut explores these questions.

In many different fields of work there is agreement on the need for an about-turn in transport policy. Change is needed not only from the point of view of action on climate change but also in order to reduce noise, airborne pollutants and high accident rates and mortality figures. This point is emphasised by Dr Wiebke Zimmer, deputy head of the Oeko-Institut’s Resources & Transport Division. “Sustainable mobility involves far more than just reducing vehicle greenhouse gas emissions. For example, it is also about reducing resource use and land take.”

The Oeko-Institut acts as an expert in Germany’s transport commission. Since autumn 2018, Working Group 1 of the National Platform Future of Mobility (NPM) has been discussing how the transport sector’s climate target can still be achieved by 2030. The working

group comprises representatives of industry, science and environmental and transport associations. "The transport commission has already agreed on some measures – such as investment in infrastructure, lower prices for rail tickets, and carbon pricing – but that is not nearly enough," says Zimmer. When asked how sustainable mobility can actually succeed, she immediately homes in on the private car. "With regard to emissions, the electrification of vehicles on the basis of renewable energy is of course essential," she says, "but the transport transition needs more than just alternative propulsion systems, more than electromobility. We need a shift away from the private car, and that requires changes to the political and regulatory framework."

#### FEWER PRIVILEGES, ADJUSTMENT OF CHARGES

Around 80 percent of passenger transport in Germany involves the private car. Cars are responsible for some 60 percent of the transport sector's greenhouse gas emissions. According to Zimmer, the reasons for this lie partly in the legal conditions that have prevailed for many years, the existing infrastructure, transport and settlement planning, and attitudes to the car and images of it. "It starts with the road traffic regulations – they are designed mainly to expedite the flow of cars and they subordinate the needs of other road users," she says. "In addition, by comparison with other European countries it is simply far too cheap to own a private car, to park it and drive it about."

In her view, reducing CO<sub>2</sub> emissions in the passenger transport sector must involve a shift to public transport and to walking and cycling as well as a reduction in the overall demand for transport as a result of fewer and shorter journeys. "The promotion of environmentally friendly alternatives is not in itself enough. A combination of sticks and carrots is needed if the shift is to result in significant CO<sub>2</sub> reductions."

For example, the tax privileges enjoyed by motorists in the form of the commut-

ing allowance and the favourable taxation of company cars should be abolished, and the cost of motoring should be increased. This could be achieved by taxing diesel at the same rate as petrol, incorporating a CO<sub>2</sub> component into the energy tax or levying a toll on cars on motorways – a motorway toll of two cents per kilometre would result in a reduction of 1.8 million tonnes of CO<sub>2</sub> per year until 2030. The management of parking space is also an important lever. The Oeko-Institut is of the view that less public space should be made available for parking and that the use of such space should be made more expensive, thereby better reflecting the value of public space. "It is of course important to consider the social impact of such instruments and ensure that they do not impose an unreasonable burden on low-income households."

According to Wiebke Zimmer, another useful tool is a penalty and reward system under which climate-damaging vehicles become more expensive while buyers of low-emission vehicles such as electric cars receive a bonus. "This stimulates demand for CO<sub>2</sub>-efficient cars and it makes the polluters pay." This is important since it ensures that electric cars are not being co-financed by each and every taxpayer via the state budget but that the costs are borne by those who choose to buy high-emission vehicles. The researcher is also of the opinion that the introduction of a speed limit on German motorways could achieve a great deal. "This would not only reduce emissions – a speed limit of 130 km/h can cut CO<sub>2</sub> emissions by one to two million tonnes per year and is particularly cost-effective – but there is also evidence that fewer people would be killed in accidents. I also consider a speed limit to be a very important signal in the whole discussion about sustainable transport."

By contrast, the Oeko-Institut's researcher considers electricity-based fuels and advanced biofuels to be of only limited usefulness. "They should be used where there are technically no alternatives, such as in aviation and shipping – and then only when the required quantities are available," she says. "Moreover, I believe that electricity-based fuels are not

a worthwhile element of the transport transition – partly because they are less energy-efficient than electric vehicles and because they are very expensive to produce."

The expert from the Oeko-Institut is optimistic that a shift to sustainable mobility can succeed. But policy-makers will have to be significantly more proactive, she says. And she expects the general public to be sympathetic to the changes needed. "It is becoming increasingly apparent – especially in urban areas – that people are ready for change. The Bicycle Referendum in Berlin demonstrated this and triggered a number of other initiatives, such as the 'Aufbruch Fahrrad' ('Get on your bike') initiative in North Rhine/Westphalia and the cycling initiatives in cities such as Bamberg, Darmstadt and Frankfurt aimed at improving cycling facilities and making cycling safer. People recognise the benefits of sustainable transport and fewer vehicles for their own quality of life."

Entering the words for "climate protection" and "transport sector" in a search engine also brings up a host of material on strategies and measures by means of which the climate targets could still be achieved. For the transport transition to succeed, these must at last be put into practice.

*Christiane Weihe*



*Dr Wiebke Zimmer's work at the Oeko-Institut covers all aspects of sustainable mobility. With a degree in chemistry and a doctorate in physics, her tasks include developing strategies for reducing CO<sub>2</sub> in the transport sector and advising politicians and companies. The deputy head of the Resources & Transport Division is also an expert involved in Working Group 1 of the National Platform Future of Mobility.*  
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# Sustainability on the move

New mobility concepts as a contribution to the transport transition

Germany needs a modal shift in transport – with less use of private cars and a greater emphasis on public transport, walking and cycling. Without such a shift – in which carsharing can also play an important part – urban transport will not be sustainable. It cannot be achieved by one single measure: many different instruments are needed (*see also “In a jam” on page 4*). More sustainable transport behaviour must be both required and encouraged, and it must be incentivised by a variety of means – including by amending the legal and administrative framework and by providing new opportunities for people to adopt sustainable mobility practices. The Oeko-Institut has produced a number of studies that show how this can be done.

Whether people decide on other forms of transport depends largely on the mobility options available close to their homes. "There need to be practical and attractive alternatives to using your own car – alternatives such as cycling, carsharing or good public transport links," says Dr Manuela Schönau of the Oeko-Institut. With the German motor- ing organisation VCD and the German tenants' association, the researcher is exploring the issue of sustainable mobility in residential neighbourhoods in a project entitled "Housing guides mobility" which runs until the end of 2019. "First of all we looked at best-practice neighbourhoods such as the garden town district of Drewitz in Potsdam and the Lincoln estate in Darmstadt," explains Schönau. "From what we learned about these neighbourhoods we then drew up recommendations for action designed to make it easier for the property sector and local authorities to promote more sustainable mobility. These recommendations include fewer parking spaces for cars and more management of parking facilities, more green spaces and meeting places, 30 km/h zones, good bicycle parking facilities, accessibility, frequent public transport

services, rental (cargo) bikes and charging infrastructure for electric vehicles. "We also considered which stakeholders could implement such measures – and what processes are needed for this to happen."

The project, which is funded by the Federal Environment Ministry, shows that a transport transition in a residential neighbourhood requires the close collaboration of everyone involved – housing associations and the local authority, mobility providers and residents. "The reconfiguration often takes several years – that works only with committed stakeholders," says the researcher. "That is why the project's regional forums are so important – they enable stakeholders to network and exchange ideas." It is also crucial to ask residents exactly what they need and want in their neighbourhood, to inform them of all relevant measures at an early stage and to explain the benefits of these measures. The right regulatory framework is also vital. "Rules and regulations can obstruct the implementation of sustainable mobility measures," says Schönau. "At the housing scheme at Uferwerk Werder, for example, the local

authority's parking regulations required evidence of more than 70 car parking spaces, but only 25 were used." And of course it is also important for people to re-think their attitudes. "In my view each of us should examine our own mobility and ask ourselves how we can make it more sustainable. This includes being open to new forms of mobility and trying them out – and so perhaps using a cargo bike for the next trip to the supermarket rather than a car."

### INNOVATIVE MOBILITY SERVICES

The WohnMobil project has also addressed the issue of sustainable mobility in residential neighbourhoods, focusing on communal schemes such as housing initiatives. Here, too, mobility schemes such as the sharing among neighbours of cars, (cargo) bikes and public transport tickets can encourage a transport shift. With the Institute for Social-Ecological Research (ISOE) and the Institute for Ecological Economy Research (IÖW), the Oeko-Institut has worked participatively with two hous-



ing initiatives – “Uferwerk” in Werder and “Wohnen am Hochdamm” in Berlin – to develop services for residents. The project was funded by the Federal Ministry of Education and Research. “The study shows that mobility services linked to housing schemes have environmental, social and economic benefits at many levels,” says Dr Manuela Schönau of the Oeko-Institut. “Here, too, it is important that services are developed with the involvement of residents and are geared to their needs.”

### USING E-BIKES TO REDUCE EMISSIONS

In the Trafo 3.0 project, which is also funded by the Federal Ministry of Education and Research, the Oeko-Institut has explored the shaping of societal change from a social and environmental perspective. Looking at three areas, the project team analysed what promotes the necessary transformation and what impedes it – for example with regard to e-bikes in urban and regional transport. “We also supported practical initiatives, such as a project in Munich that enables new citizens to try out electric bikes,” says Ruth Blanck, senior researcher in the Oeko-Institut’s Resources & Transport Division. A shift from cars to e-bikes has many positive impacts: it reduces resource use and land take as well as noise and pollutant emissions, and active mobility is good for health. “The e-bike market is growing rapidly, because e-bikes enable people to travel further than on a traditional bicycle and they also make it easier to carry loads,” says the researcher. “E-bikes are also very good for commuters, because you don’t arrive at the office all sweaty.” With the right measures this dynamic can be utilised and taken further: “E-bikes are successful, but we have by no means reached the limit of what they can do. And by comparison with other forms of transport their greenhouse gas mitigation potential is relatively easy to increase.”

Trafo 3.0, in which a number of project partners and stakeholders were involved, shows that transformation is not easy to steer, but there are ways of

influencing it. “For example, innovative projects such as e-bike rental schemes can be promoted,” says Blanck. “Ending non-sustainable practices could also have a significant impact – there could be a scrapping premium for mopeds or even a ban on traditional two-stroke machines, of the sort that has already been introduced in some big urban areas in China.” According to the expert from the Oeko-Institut, another key factor in the further success of e-bikes is adequate infrastructure. “With electric bikes, speeds on cycle paths become more varied; this needs to be taken into account in infrastructure planning,” she says. “It means that cycle paths should be significantly wider than they used to be, to allow room for overtaking and also for relatively large cargo bikes. Better cycle parking facilities are also important. This benefits not only e-bikes but cyclists in general – and if more people take to cycling, motorists benefit too, because they don’t get stuck in traffic jams so often. Making this happen is in Ruth Blanck’s view primarily the responsibility of central government and local authorities. “The federal government can create the enabling environment and support projects financially, but implementation must of course be in the hands of local authorities.”

### USE OF CARSHARING

In the multi-year “share” study funded by the Federal Environment Ministry, the Oeko-Institut and the Institute for Social-Ecological Research (ISOE) have extensively researched the subject of free-floating carsharing. In a free-floating scheme, vehicles are available in a public place for spontaneous use; after use, they can be left in any public parking space. “We looked at who uses this type of carsharing, what inhibits or promotes it and at how electric vehicles are accepted,” says Dr Wiebke Zimmer, deputy head of the Resources & Transport Division. “The analysis also focused on the impact of carsharing on car ownership and transport behaviour and thus on emissions.” During the study, which was conducted in Stuttgart, Cologne

and Frankfurt am Main, carsharing users and a control group who did not use free-floating carsharing were questioned four times between 2013 and 2017. The analysis shows that young people educated to university entrance level are over-represented among carsharers and that electromobility is perceived positively. However, carsharing alone does not reduce greenhouse gas emissions, and the number of cars does not fall. “These findings tell us that carsharing schemes must be accompanied by other measures. Examples of the steps that need to be taken if free-floating carsharing is to contribute to more sustainable mobility overall include making private motoring more expensive and creating more space for cyclists and pedestrians,” Dr Wiebke Zimmer explains. And she emphasises again that the shift away from the private car towards more sustainable forms of mobility is possible and necessary. But a single instrument will not suffice.

*Christiane Weihe*



*Sustainable mobility is the focus of the research conducted by Ruth Blanck and Dr Manuela Schönau. Blanck, who studied mathematics at university, develops long-term scenarios for sustainable development of the transport sector and models of energy consumption and greenhouse gas emissions. Schönau, who has a doctorate in social sciences, specialises in issues such as mobility in the vicinity of people’s homes, the sustainability impacts of mobility services and digitalisation in transport.*  
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