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eco@work

Sustainable reading from the Oeko-Institut

Together for change

The contribution made by transdisciplinary sustainability research

Paths to change
Comment by guest contributor Dr. Kora Kristof

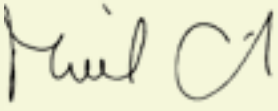
Transdisciplinary studies are nothing new

If I were asked when the Oeko-Institut started transdisciplinary working – that is, discussing the challenges of conservation with all stakeholders from society and the scientific community – I would say: on Day One. That is because the very first analyses done by our scientists in the 1970s were the product of the joint efforts of citizens' action groups, environmental lawyers and alternative research. Our experts took other people's knowledge and recombined it; spokespersons for environmental groups as well as other people brought this information to the policy-making table. I can say with confidence that our work at the Oeko-Institut was already transdisciplinary even before the term came into use.

Our last major review of the topic of transdisciplinary sustainability research was in our 2012 Annual Report. In this issue of eco@work we examine the subject again from various angles. We show how we used a transdiscipinary approach to our project work then and now, and also give a colleague from outside the Institute the chance to comment. In her guest contribution Dr. Kora Kristof from the German Federal Environment Agency explains what is needed to make a successful transition to more sustainability.

At the Oeko-Institut we are convinced of this: there are viable paths to change. However, a lot of partners are needed, all pulling together, to achieve it. Each has a different responsibility and different backgrounds in terms of knowledge and experience – but each is essential to the overall picture and to a successful outcome. At the Oeko-Institut this is always at the heart of our day-to-day working: we cooperate here across different disciplines, conducting intensive discussions and always seeking the best solution. The last time the entire Institute was able to do this was at Königsstein im Taunus in May. Every two years all our staff get together for a conference where we can exchange ideas about our work, the way the Institute sees itself, and future tasks.

I hope you find the new eco@work fascinating, and wish you a restful summer.



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Successful paths to change

Comment by guest contributor Dr. Kora Kristof

Resource conservation, zero net environmental loading, equity – these are the key objectives of the major changes facing us if we take seriously the limits to the carrying capacity of the Earth System, the welfare of all humanity and the idea of global, intergenerational justice.*

Many interesting niche sustainability solutions are already appearing, but they will only become mainstream, firstly, when the right conditions are put in place at the key points in the whole system. Secondly, people have to be convinced of the importance of sustainability – only then will it become part of everyday life: when shopping, at work or when managing or investing money.

For this to happen, it's not enough to address the question "What should change?" by itself. It is precisely in times of radical change that the question "What are the main factors for succeeding with social changes?" is increasingly asked as well.

It is only when we understand social changes better that we can also shape them more successfully. To do this we can learn from both scientific enquiry and empirical experience. Societal upheavals are often so complex that simple assumptions about the relationships between cause and effect are useless. Too many players are involved, it's difficult to survey the processes of change and it is not clear when events will happen. That is why attempts at change often fall short and decision-makers in politics, companies and other social movements don't achieve the outcomes they hoped for.

Nevertheless, in order to be able to make sense of a confusing world and act within it, people want to understand how processes of change function and which influences operate. That is why the sciences develop explicit models, and ordinary people develop implicit ones as well. They help us to filter out the constantly recurring patterns from the tide of information on diverse processes of change and to align our own behaviour to them. Models provide orientation in a complex world.

Models differ not only within and between the individual scientific disciplines but also from person to person and between different cultures. The environment in which they are used affects the models as well, as do the underlying concepts of how society, organisations and individuals "function".

Despite these differences, there are still common findings running through the scientific and empirical models, and key factors for success can be deduced from them. If these are given serious consideration they can smooth the paths to change (explored in detail in Kristof 2010a & 2010b).

* e.g. Rockström 2009, Jackson 2009, WBGU 2011, Daschkeit/Kristof/Lorenz/Veenhoff 2013

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New knowledge

Transdisciplinary sustainability research

Extreme weather events are increasing. The end of fossil fuels is in sight. Our society is ageing. Climate change, resource shortage and demographic change are challenges of our times. They have something in common, too: they affect us all – the scientific community and policy-makers and industry and civil society. That is why cooperation between different players is indispensable if we are to manage global challenges together: cooperation that is essential for transdisciplinary sustainability research, and that is practised in numerous Oeko-Institut projects.

Where do global problems originate? What are appropriate ways of tackling them? And how can our society make the necessary changes? Transdisciplinary sustainability research seeks answers to such questions. "Science alone can't answer these questions; new knowledge and the expertise of a range of players in society to generate such knowledge is needed, on account of the complexity of the issues", explains Dr. Bettina Brohmann, Research Co-ordinator for Transdisciplinary Studies at the Oeko-Institut. "If we want consumers to buy more sustainable products, for example, we need to ask them first what they expect from an alternative product. At the same time I need to discuss this information with policy-makers and others, so that a suitable support framework can be found." Within scientific work transdisciplinary sustainability research is not restricted to one or two players, either. "Transdisciplinary is always interdisciplinary as well", Dr. Brohmann explains. "If I want to look into how we can combat the hunger in the world, I need the expertise of agricultural and social scientists, and political scientists and economists too." Moreover, in the context of transdisciplinary sustainability research, science is no longer just for producing knowledge. "Research has a new role here in kick-starting and supporting processes of change and in generating knowledge that can be used by different players. When we formulate the research question, we integrate the implementation aspect from the outset", says Brohmann.

You could say that the Oeko-Institut was born with transdisciplinarity. "We have had a transdisciplinary approach from the outset", the research coordinator declares. She herself has overseen numerous transdisciplinary research projects, including the millennium project "Sustainable urban areas on inner city redevelopment sites: material flow analysis as evaluation tool", carried out jointly with two network partners and two from industry. As part of the project promoted by the German Federal Ministry of Education and Research (BMBF), two urban districts due to be developed sustainably were studied: the Vorstadt Nord district of Neuruppin in Brandenburg and the Vauban district of Freiburg

New cities

in southern Germany. In Neuruppin the plan was to reurbanise and renaturalise an area to create a district where town merges into countryside. In Freiburg the site of a former barracks was to be converted into a model sustainable district. „The aim was to assess the environmental and economic impacts of these projects, to examine the social aspects of sustainability and to study the collaboration between the various players", explains Bettina Brohmann. "In addition specific recommendations for action for both projects were to be developed from the results."

First of all there were discussions with residents, planners and investors. In these the aims of the stakeholders – such as optimised resource use and more community involvement – and suitable indicators for the achievement of these aims were to be established. In addition, local environmental, economic and social data was collected and the environmental and socio-economic impacts evaluated with a material flow analysis. "The analysis included not only CO_2 emissions, but also impacts on the regional economy and the involvement of (future) residents in the planning and decision processes", the Oeko-Institut scientist explains. Lastly the results of the analysis were compared with the aims of the local stakeholders, a list of measures for the sustainable development of the areas compiled and the results discussed in the districts. "A crucial finding of our analysis is that urban districts where residents have been involved in the planning and which have been redeveloped according to environmental criteria and using regional resources make a substantial contribution to sustainable development", says Bettina Brohmann.

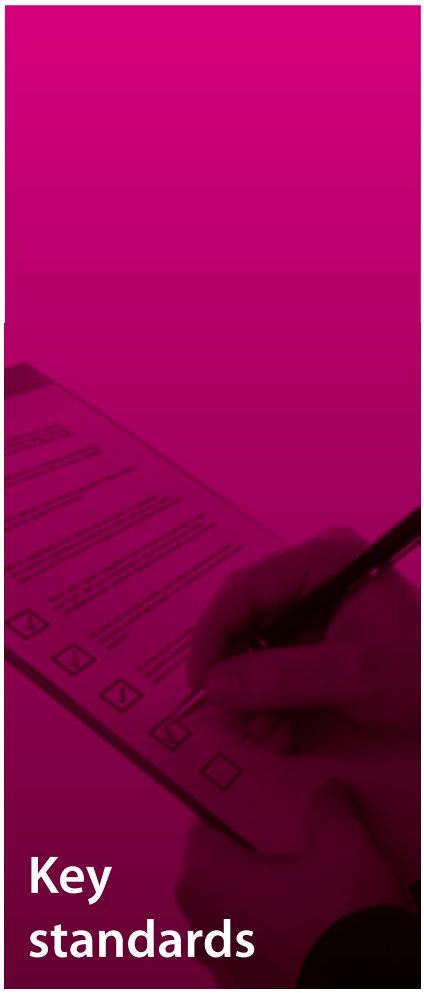
Dr. Dierk Bauknecht from the Institute's Energy & Climate Division reports on another transdisciplinary research project: the Baden-Württemberg Smart Grids Platform. "This project, which finished in 2013, looked at the development of solutions for the integration of electricity generation, storage and

Smart grids

consumption using smart grids", he explains. The renewables-based transformation of the energy system requires more flexibility – smart grids can help with this. Baden-Württemberg will feel the effects of nuclear phase-out more acutely than many other German states and so has set itself the goal of pioneering the development of smart grids. Smart grids can make a significant contribution to the state government's target of meeting a total of 80 per cent of its energy needs from renewables by 2020.

The project, launched by Baden-Württemberg's Ministry of the Environment, Climate Protection and the Energy Sector, brought 144 relevant players together. "Public utilities and energy companies were involved, as were network operators and appliance manufacturers", says Bauknecht. "As well as these, there was participation by experts from construction, information and communication, distribution and commerce, and from science, consultancies, politics and the authorities." All these stakeholders took part in a series of workshops to develop a roadmap recommending institutional measures as well as specific projects. Unlike a scientific study, the roadmap reflects the various players' differing interests and perspectives as well as their knowledge. And the outcome is not only the printed roadmap but also the communication process achieved between the participants. "There were four project groups", explains Bauknecht. "The Oeko-Institut oversaw the themes of regulation and the contribution of smart grids to the transition to renewable energy, while our project partners from Fichtner GmbH in Stuttgart looked after the themes of technology and business models." One key institutional recommendation from the stakeholders was that smart grids should be integrated as an interdisciplinary theme in research and teaching – existing courses of study could be expanded or research communities formed. With regard to actual implementation, one proposal from the participants was to set up a pilot project in which they could continue to work together to drive forward the development of smart grids. "The roadmap that has been drawn up forms the basis of a long-term process", the Oeko-Institut scientist declares. Meanwhile, the various stakeholders from the platform have formed a society where they are continuing their work on implementing the recommendations.

Sustainable cities and smart grids – two projects dealing with crucial topics for the future. Both projects demonstrate how it makes sense to integrate the specific expertise of players from different fields. Dr. Bettina Brohmann emphasises the importance of upholding key research standards when doing this. "For example, when involving stakeholders, the mistake is often made of addressing them as guinea pigs and not as active participants in the scientific projects", she says. "However, it is important to really cooperate with outside players – when designing the research



Key standards

project as well as in the working process and its evaluation." On top of this there are also numerous standards to observe. "For example, another important issue is the accompanying evaluation and observation of the process", Brohmann explains. "They form a key element of transdisciplinary sustainability research, but implementing them is no easy task."

In Brohmann's view a complete re-think is also needed on the question of how to achieve the transformation to more sustainability – such as in the area of private consumption. "We have spent years working on information tools and labels which are supposed to persuade consumers of the benefits of greater sustainability and to encourage alternative behaviour, but wouldn't it make far more sense to change the framework conditions as well?" she says. Taking the example of mobility, the research coordinator suggests that if you want to persuade people to get out of their cars and onto their bikes, you have to offer them something in return. "The first thing is to have affordable, functional bikes, then you need safe, readily accessible cycle stands and after that combined tickets for trains and trams which cyclists can easily take their bikes on, and that's just the start", she explains. Starting points like these would need to be found in many areas where more sustainability is the main target. "If we want to tackle the major global challenges we must have the confidence to branch out and approach the problem from a different angle", says Bettina Brohmann.

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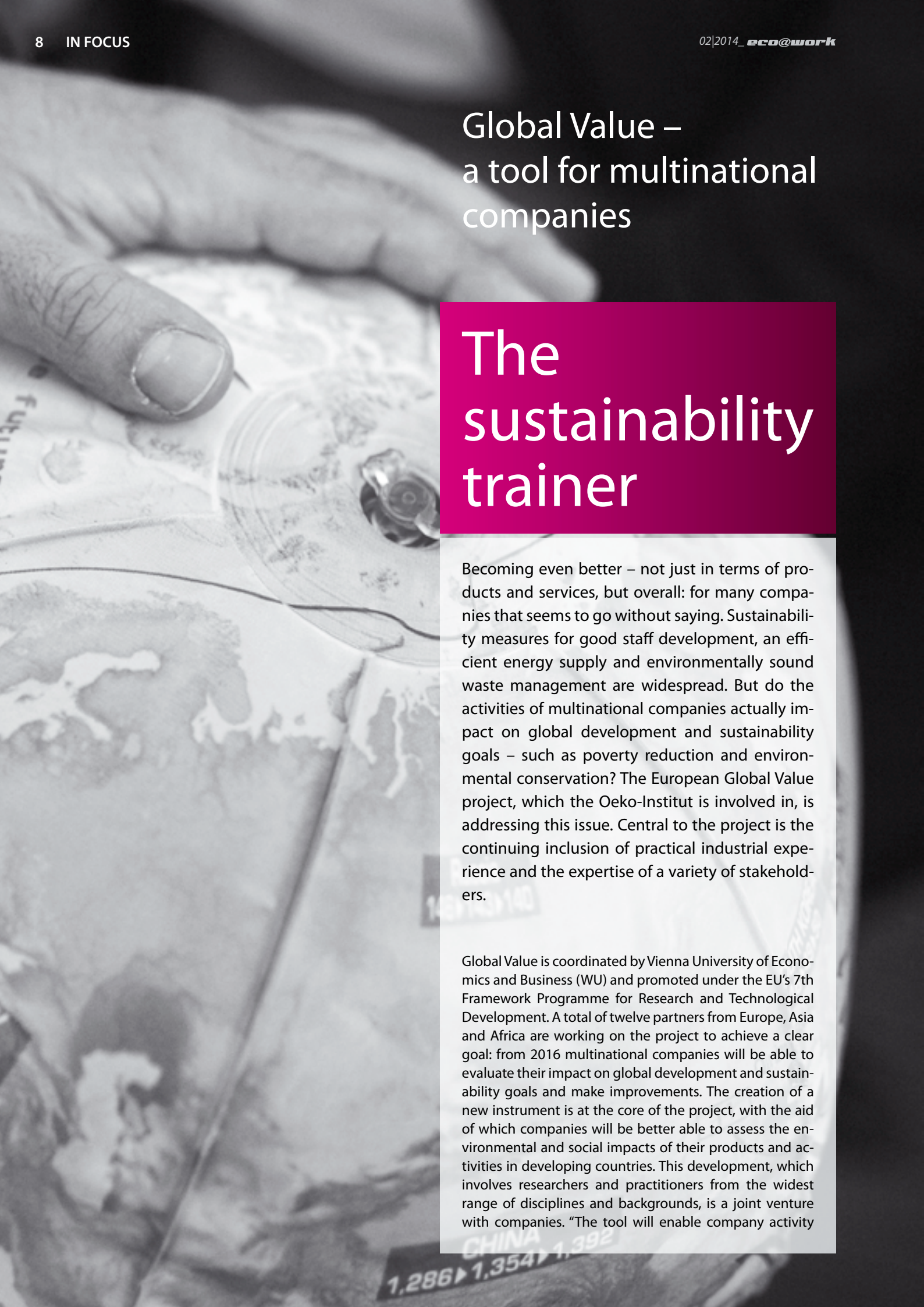

Global Value – a tool for multinational companies

The sustainability trainer

Becoming even better – not just in terms of products and services, but overall: for many companies that seems to go without saying. Sustainability measures for good staff development, an efficient energy supply and environmentally sound waste management are widespread. But do the activities of multinational companies actually impact on global development and sustainability goals – such as poverty reduction and environmental conservation? The European Global Value project, which the Oeko-Institut is involved in, is addressing this issue. Central to the project is the continuing inclusion of practical industrial experience and the expertise of a variety of stakeholders.

Global Value is coordinated by Vienna University of Economics and Business (WU) and promoted under the EU's 7th Framework Programme for Research and Technological Development. A total of twelve partners from Europe, Asia and Africa are working on the project to achieve a clear goal: from 2016 multinational companies will be able to evaluate their impact on global development and sustainability goals and make improvements. The creation of a new instrument is at the core of the project, with the aid of which companies will be better able to assess the environmental and social impacts of their products and activities in developing countries. This development, which involves researchers and practitioners from the widest range of disciplines and backgrounds, is a joint venture with companies. "The tool will enable company activity

to be assessed as fully as possible – encompassing procurement, production and distribution as well as voluntary corporate commitment", explains Christoph Brunn, an Oeko-Institut expert. With the aid of the web-based tool, companies will be in a position to identify and implement more responsible choices. A handbook and training materials are being developed alongside the tool to help companies with practical application. "Once it is ready the tool will be freely available worldwide", he says.

In the tool's development phase the practical experience of companies such as those in the textile and food industries is already being put to use – industry partners Bata and Olam will each test the tool at different stages of development and their feedback will contribute to continual improvement. These two partner companies have factories in Bangladesh und Tanzania, and research partners from these countries are participating in Global Value. In addition the tool development process is monitored by an "expert crowd": this panel of experts is intended to be an improved version of a traditional advisory board. It already consists of over 100 members and is to be expanded further in order to cover the main themes and sectors as comprehensively as possible. "The experts come from industry, politics and civil society organisations, and in the course of the project they will repeatedly contribute their knowledge and assessments via digital channels", says Christoph Brunn. "We are currently looking for more members for the expert crowd, and interested professionals can apply via the WU homepage." He adds: "The development of this tool is a transdisciplinary project – you can see that from the expert crowd and the industry partners, as well as the variety of research institutions involved."

The basis of the development goals to be defined, achievement of which will be tested with the tool, will be the eight Millennium Development Goals (MDGs). These came out of the Millennium Declaration of the United Nations Summit and include the eradication of extreme poverty and hunger as well as the achievement of universal primary education and the guarantee of environmental sustainability. The 189 states at the Summit pledged to achieve these goals by 2015, and a follow-up agenda is already on the way. "The new Sustainable Development Goals (SDGs) are to be developed by autumn 2014", explains Franziska Wolff, the Deputy Head of Environmental Law and Governance at the Oeko-Institut. The development of the SDGs is also being watched closely in the context of the Global Value project. "We have our own work package that keeps track of this process and ensures that the latest developments are integrated in the project", she says.

Examining the regulations

However, before they can really get started on developing the tool, the Oeko-Institut researchers have to complete important groundwork: they are working on institutional frameworks for sustainable business conduct, or systems of governance. These are interrelated regulatory structures for various environmental and development issues at national and international level, developed by governments, business associations and NGOs. "For example, in the case of fair trade it would be UN standards, national laws, voluntary labelling such as the Fairtrade mark and perhaps other civil society mechanisms such as the Clean Clothes Campaign", explains Franziska Wolff, who is leading the relevant work package of the Global Value project. In the IMPACT project, which finished in autumn 2013, the Oeko-Institut researchers looked into the effect on society of voluntary sustainability measures by businesses. In doing so they discovered that more stringent regulatory measures – such as taxes and compulsory reporting – are expedient and necessary for commitment to sustainability.

Now the Oeko-Institut is going to undertake a study on behalf of Global Value into the influence institutional frameworks have on sustainable behaviour by multinational companies. "First we identify the systems of governance relating to environmental and development issues", says Wolff, "and then we look at how, through corporate behaviour, these affect environmental and social aspects in the developing countries, and also how they affect the competitiveness of the multinational companies. Lastly, we are interested in how far development policy measures by companies are coordinated with government development cooperation." At a workshop to be held in June 2014, the experts on the Global Value team will discuss their initial findings with relevant stakeholders, representatives from industry, science and civil society. "We will be discussing our preliminary work relating to systems of governance with these stakeholders, and we will also be talking about plans for case studies", she says. That is because, after the workshop, other practitioners will have their say: in nine case studies on various themes including fair trade, human rights and conservation of biodiversity the scientists will be asking many relevant players for their assessment of the influence of institutional frameworks on companies and indirectly on the environment and development. "In the case of fair trade these might be representatives of the International Labour Organization (ILO) or the Fairtrade label, say", explains the scientist, "but of course companies themselves should also be asked to what extent the institutional frameworks influence them." At this stage of the project too, the expertise of industry and other stakeholders is the cornerstone of Global Value.

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