

ETH Zurich alumnus Mathis Wackernagel

The sustainability surveyor

Felix Würsten

With his concept of the ecological footprint, Mathis Wackernagel developed a handy yardstick for sustainability and has been travelling all over the world to promote his idea ever since. Rather than a missionary, he sees himself as an engineer who objectively addresses the obvious.

Mathis Wackernagel makes no bones about the fact that his own ecological footprint is way above average. While he eats vegetarian food with his colleagues at the office, cycles to work and lives in a relatively central house, all the flights he takes to the four corners of the Earth throw his personal eco-balance completely out of kilter. He has only just returned to Switzerland from the USA to debate new ideas on sustainability with students here at ETH Zurich.

He was invited by ETH Zurich's Sustainability Unit to be the keynote speaker for the new series "Pioneers in Sustainability." And Mathis Wackernagel is certainly a pioneer. After all, he co-developed the famous concept of the ecological footprint with his PhD supervisor William Rees. The ecological footprint is a handy yardstick to measure how much we live within nature's means – as individuals, as countries and as humankind overall. It expresses in metaphorical terms the area necessary to cover our resource needs. The idea is so ingeniously simple that Wackernagel's mother was worried her son would suffer the same fate as his uncle with his doctoral thesis: two years in, he discovered that someone else before him had already worked on the very topic he had chosen.

His mother's fears proved unfounded. No-one had come up with the idea of expressing sustainability in such concrete terms as a convenient number. And to this day, much to Wackernagel's astonishment, there are still people who

haven't realised that in a physically limited world we can't just increase our resource consumption at will. "In the past, I always thought that while bricks and mortar could only be changed slowly and with great difficulty, ideas could be reconsidered from one day to the next," he says, looking back. "Nowadays, I realise that's it's actually the other way round."

The concrete figures reveal just how hard it is to change ideas and attitudes: on 22 August 2012 humankind reached the so-called overshoot day, the day upon which the world's population used up all the resources that the Earth

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would be able to renew in a year. After that, we lived off our ecological reserves until the end of the year. Five years earlier, humankind didn't reach the overshoot day until 6 October, so we were consuming considerably fewer resources than today.

Despite this dramatic turn of events, Wackernagel does not cut a glum figure in conversation. He owes this to a certain dose of autism, he says with a smile. Only once is there a hint of sarcasm in his voice when he describes himself – with an eye toward the many prizes he has received – as an "award-winning class clown." Although Wackernagel is anything but vain, these accolades are important to him. For they give his organisation Global Footprint Network in California more credibility and raise its profile. "People



The times when he could devote his full attention to one thing as a doctoral student are long gone. Nowadays, sustainability expert Mathis Wackernagel is in demand all over the world and constantly on the go.

aren't content that an idea makes sense to them," he observes. "They need confirmation from others that they think it's a good idea, too."

Although he is constantly on the go as a sustainability pioneer and talks about the ecological footprint in front of all types of committees the world over, Wackernagel doesn't regard himself as a missionary. Instead, he sees himself as an engineer who soberly observes how much we are living beyond our means these days. "The biggest problem of sustainability is that we feel as if we're in Sunday school." However, not a lot will change with this attitude. "It's no use people having a bad conscience." For

"The PhD was a wonderful period in my life."

Mathis Wackernagel

Wackernagel, it is not about morality, but about our own interests. For instance, what does it mean for Switzerland that it today needs an area that is four times greater than its actual surface, in a world where more and more raw materials are being consumed and the country's income grows less compared to the rest? "For Switzerland, it's becoming increasingly costly to procure extra resources in the familiar manner," Wackernagel calculates, adding pointedly: "What is Switzerland's plan in this situation? I discovered that it hasn't got one."

For some time, Wackernagel has been focussing on the fact that the real world is limited – quite in contrast to what the ideology of perpetual growth would have us believe. In his youth, several things had an impact on him: his holidays on the farm, where he first became aware of the close bond between man and nature; the stories his relatives told who had experienced the lack of resources in the Second World War; then also the oil crisis of 1973, but above all the book *The Limits to Growth*. "Back then, I realised that we had to get out of the oil trade," he says. "But I had no idea that it would take so long."

His childhood experiences prompted him to study mechanical engineering at ETH Zurich. "I thought to myself: what people have concocted in terms of laws and ideas can crumble at any moment. But the laws of nature remain in place. And we will always need engineers who can apply these laws." He didn't find the degree itself quite as inspiring as he had originally imagined. However, the extracurricular events, such as with the philosopher Paul Feyerabend

or the geographer Theo Ginsburg, more than made up for this disappointment.

After his degree, he left ETH Zurich for Vancouver thanks to a grant, where he developed the idea of the ecological footprint. "My PhD supervisor was a biologist and understood the system's load capacity. I came from the conceptual, thermodynamic side, so our interests complemented each other perfectly," says Wackernagel. His time as a PhD student was one of the best experiences he ever had. "I was able to devote my full attention to a question that I was interested in, free from any other obligations." Unlike many of his colleagues, who he felt simply went through the motions to gain a doctorate, he developed an emotional bond with the object of his research.

This inner fire still helps him to externalise the concept of the footprint to this day. And in the meantime he is also enjoying successes with his relentless lecturing, such as when the directors of the Columbian Central Bank agreed with him that biocapacity – in other words, the measure of an ecosystem's regenerative ability – is ultimately the only currency that is rooted in reality. "I live from these mini successes emotionally," he says. "But if I tot everything up, sometimes I ask myself what our organisation can really achieve. We're thirty people out of 7 billion on Earth – we can only make so much of an impact." ■

Mathis Wackernagel, born in Basel in 1962, studied mechanical engineering at ETH Zurich before doing a doctorate in urban and regional planning at the University of British Columbia in Vancouver. During his dissertation, he developed the concept of the ecological footprint. Afterwards, he worked with various organisations on sustainability issues in Europe, Latin America, North America and Australia and founded the organisation Global Footprint Network in Oakland. He has published widely on sustainability and given hundreds of talks. He holds an honorary doctorate from the University of Bern, is a guest professor at Cornell University and in 2012 received the Blue Planet Prize, the world's most prestigious award for sustainability.

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