

“More sustainability through innovation”



Politicians, environmental associations and industry itself place tremendous value on sustainable actions. You are the member of the Bayer AG Board of Management responsible for Innovation, Technology and the Environment – in other words, you hold a key position for promoting sustainability. What does this term mean to you?

Sustainability to me means above all future viability. And at Bayer, future viability is directly linked to innovative capability. That's why sustainability already plays a key role in our research and product development: after all, only sustainable innovations can guarantee commercial success. And particularly in the current situation marked by rising raw material and energy prices, material and energy efficiency along with process and product innovations are key factors for ensuring a fundamental basis for this. And we also help to create a future worth living in at the same time.

Yet as a chemical company – and thus a major consumer of energy yourself – how do you intend to balance business growth with ecological and social responsibility?

That's the crucial point: if we improve just one of these three parameters, one of the other two usually worsens as a result. We can only free ourselves from this dilemma by revolutionizing broadly established production processes through new and innovative approaches, for example. Take the production of chlorine – an essential basic chemical above all for plastics, but also for many pharmaceuticals. This process is particularly energy-intensive. Using current processes, it takes roughly 2,700 kilowatt hours of electricity to produce a ton of chlorine from sodium chloride through electrolysis. This would meet the needs of a two-person household for an entire year.

And some 60 million tons of chlorine are produced worldwide. In other words, we're talking about enormous power requirements.

That's right. And that's why our researchers and engineers worked together with partners for many years to develop a completely new process. If the process were implemented everywhere in Germany, the country's power requirements could be reduced by one percent and emissions thus lowered by three million tons in the current power plant mix. Or to put it another way, we could thereby render obsolete a complete 700 megawatt power plant – or reduce electricity requirements by the amount consumed each year in a major city such as Cologne. If our current pilot plant – which produces 20,000 tons per year of chlorine – also meets expectations in large-scale, long-term testing, we will successively retrofit our entire chlorine production. Furthermore, we want to offer the process to other chlorine producers in Germany and internationally.

But such universal retrofitting costs a lot of money. Is this economically feasible?

I'm sure that it is, but to do so politicians must support the funding of production processes with significantly improved energy efficiency. After all, the improvement of energy efficiency offers enormous potential to reduce power consumption, as does the renovation of buildings. Energy consumption in buildings is responsible for about 30 percent of global greenhouse gas emissions. There is still a lot of reduction potential, and we are already contributing to this as well through our innovative ideas. Here I'm thinking, for example, of our EcoCommercial Building Program. Another example is the INVITE research center in Leverkusen, where Bayer Technology Services is working with partners on the develop-

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ment of resource-conserving, flexible and efficient production concepts. After all, a green future cannot be realized through the expansion of regenerative energy production alone...

...for which Bayer materials also offer numerous approaches.

Yes, our chemists, materials scientists and engineers of course are also working to drive forward renewable energies. One example is innovative solar technology: together with its partners, Bayer MaterialScience has developed an innovative solar roof system that intelligently combines power generation from sunlight with highly efficient thermal insulation. And in wind turbines, our polyurethanes and carbon nanotubes marketed under the name Baytubes ensure the manufacture of lighter-weight yet nonetheless extremely robust rotor blades.

Lightweight construction is also a particularly important issue as regards sustainability in mobility – such as in the automotive sector. How is Bayer supporting this trend?

Above all through intelligent plastics solutions. Tomorrow's cars will contain an increasing number of plastics parts. Among other innovations, the materials experts at Bayer MaterialScience have developed lightweight components for car interiors and external applications, such as polyurethane foam for bumpers and fenders. We are also working to replace glass windows with Makrolon, and new roof concepts for series-production vehicles with this versatile plastic are already on the market. And we don't just stay on the ground: the "Solar Impulse" aircraft of entrepreneur Bertrand Piccard is powered entirely by solar energy. Here, too, our high-tech materials ensure lighter weight and more stability so that the earth can be circumnavigated solely by solar power.

In industrial production processes and mobility, there are clear examples of added sustainability through innovative technologies. But where is the evidence of this trend in the health care industry?

Here as well, there is very direct evidence. After all, one of our areas of focus is sustainable health care. And sustainability in medicine for us means effectively treating diseases. Personalized medicine could be particularly efficient. In this connection, for example, along with many new active ingredients to treat cancer we are also, at the same time, developing the corresponding biomarkers – in other words the test for verifying individual effectiveness. This could make it possible to more accurately predict the efficacy of individual, targeted cancer treatments, which would be a crucial benefit not only for the affected patient but also for his or her doctor and health insurance fund. That in turn would have lasting significance for health care systems worldwide. In other words, biotechnology is also driving forward sustainability...

Yet unlike medical research, biotechnology in agriculture remains controversial in some countries.

Yes, that's true, and it's a trend I'm concerned about. After all, without new high-yielding seed varieties based on modern biotechnological methods, we will not be able to feed the growing world population in the future. We increasingly need biotechnological innovations to increase agricultural productivity. The resulting higher yields would thus improve both the social and economic conditions of people in all growing regions. As you can see, Bayer's business success in all of its markets is based on linking innovation with sustainability – in accordance with our mission: "Bayer – Science For A Better Life."