

New Thinking!

By Dr. Christine Lang, Executive Managing Partner of the German Bioeconomy Council

Since the 1990s, the German chemical industry has made a significant leap forwards in the area of sustainability. According to the VCI Factbook, 98% of the raw materials are now turned into products. It has been possible to reduce the level of energy intensity by more than half over the past 25 years. And there's more: initiatives like chemistry3 have been launched with the aim of further improving the key performance indicators. Progress in sustainability has also been achieved in other areas such as automotive engineering, where new hybrid and electric cars are being created. However, the "more effort = more sustainability" equation doesn't always hold true. Teasing out every last percent of sustainability is not only expensive, but also resource-intensive. The production of metals for batteries or new drive systems uses a huge amount of natural resources. Therefore, it isn't only a matter of preventing greenhouse gas emissions, but also of organizing this properly in terms of a holistic resource strategy.

The chemical industry as a key innovation driver?

The chemical industry in particular can be a key innovation driver in this direction. The BioEconomy Council illustrated this in its review of the chemical industry's competitiveness that was published as a concise MEMO in January. It is certainly true that industrial biotechnology has become firmly established in this country. Today, around 13% of all raw materials in the chemical industry are renewable. Profitable, and in some cases niche products, such as enzymes, amino acids, vitamins,

fine chemicals, and plastics, are manufactured from starches, oils, cellulose, or fats. However, the Council realizes that a comprehensive change in the use of raw materials is not yet in sight – and especially not at a time when the price of crude oil is so low.

Rethinking for new opportunities

The bioeconomy can only demonstrate its advantages in a systematic approach. What, however, does that imply? It is a matter of creating material cycles, opportunities for cascades and coupled utilization, and of rethinking industrial processes. And this needs to be done on the basis of a technological opening. The warning signs are already popping up: Germany is losing market share in the chemical industry as a whole, as well as in new areas such as the production of bio-based plastics. Manufacturing plants for succinic acid are being built in Italy, Spain and even in the Czech Republic – but not here in Germany. This is in stark contrast to the research services provided here. More than 700 patents in biotechnology were filed in Germany in 2010 – that's as many as in both France and the United Kingdom together. For Germany, utilizing its own (limited) supply of biomass is only secondary in the bioeconomy. It is biological knowledge that constitutes our raw material for the industry of the future. New thinking beyond the old paths is the key. The integration of bio-based processes not only offers expertise and competitive advantages, it also provides completely new opportunities for improving sustainability and resource efficiency. We must not let this opportunity slip through our fingers!



ABOUT THE AUTHOR

Dr. Christine Lang chairs the German Federal Government's Bioeconomy Council and is CEO of Organobalance GmbH. Since 2006, she is Applied Professor of Microbiology and Molecular Genetics at the Technical University of Berlin. She is a board member of DECHEMA and the German Association of Biotech Industries (DIB).