



## BE-Basic beyond Dutch borders

*What started as a biobased research programme on industrial biotechnology has become an integral approach that includes most aspects of the biobased value chain. BE-Basic is now ready to take the next step. "Our ambition is to grow and consolidate as leading European Institution."*

The BE-Basic R&D programme is the result of a thorough analysis of what a biobased economy could mean for the Netherlands. "If you base it on the current technology and use biomass to generate electricity, you see a slightly positive effect, in the form of several billions of Euros added to the gross domestic product. But you add only modest value to the economy and the environment," says Prof Luuk van der Wielen of the Delft University of Technology and Director of BE-Basic. He summarises the conclusions of a macro-economic impact study: "The study shows us that we need a high added-value product portfolio, in which the necessary power generation is balanced with the co-production of fuels, chemical compounds and materials, in order to make a real difference."

### *Integral approach*

BE-Basic's R&D programme was created with the aim of contributing to the greater part of the biobased value chain; from the conversion and fermentation of second-generation feedstocks to product purification and sustainability studies. Van der Wielen: "The industrial biotechnology component remains substantial but our environmental biotechnology component is reaching the same magnitude. For example through projects aimed at analysing, monitoring and improving soil and water quality as well as nutrient recycling."

The agro-forestry sector is the only area in which BE-Basic is not directly involved, although it is of essential importance since it is at the beginning of the value chain "The availability of sustainable biomass in the Netherlands and the countries around us is limited, in comparison with industrial needs. It is clear that Dutch biobased industry will mostly depend on sustainable biomass (derivates) imports or co-investments (with "BE-Basic Inside" technology) abroad, something the petrochemical sector has always done. That is why we have been focusing for many years now on creating connections with the large

crop-producing countries, such as Brazil for bagasse, and more recently Malaysia for palm residues and Vietnam for other tropical crops."

### *Global player*

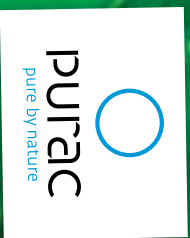
BE-Basic's integral biobased approach is highly appreciated by the industry, knowledge institutions and national governments, according to Van der Wielen. "Within the Netherlands we have gained a good reputation among national and international industries. Our German neighbours see BE-Basic as a textbook example of a global player. We have been welcome in Brazil since 2004 and we have developed substantial collaborative relationships there with partners including the Bioenergy Program of the State of Sao Paulo (BIOEN), the federal Bioenergy Center (CTBE) and various key universities. In Malaysia we were invited by the government to help establish a large programme similar to BE-Basic, intended to increase social, environmental and economic sustainability of the palm (biomass) sector, which is called the Oil Palm Biomass Center (OPBC). And very recently, we signed a collaborative agreement with the Vietnamese Academy of Science and Technology (VAST) to explore metagenomics for soil and water remediation and help achieve progress in industrial biotechnology for domestic feedstocks."

### *One-Stop-Shop*

At this moment, BE-Basic is focusing on the further roll out of R&D programmes. The implementation of the Bioprocess Pilot Facility in Delft for scale-up research also plays a pivotal role. "This national facility forms part of our asset base for accelerating the implementation of a biobased economy," Van der Wielen says. "With the planned merger of the KluYver Center for Genomics of Industrial Fermentation and BE-Basic we will strengthen our fundamental genomics capabilities." The merger of the KluYver Center with BE-Basic will combine scale with the quality of all leading scientists and industries to become a key European and global One-Stop-Shop for Industrial and Environmental Biotechnology, from fundamental science to industry-level piloting.

Van der Wielen is also striving to consolidate the foreign activities, with an emphasis on the European roll out, and on international collaborations with Brazil, USA, Malaysia and Vietnam. "In Brazil, we plan to establish a support office for joint programmes, and in Malaysia we are working on the further development of the OPBC. We are becoming a bit too large for the Netherlands alone, in terms of the required capacity but also the influx of international industries. Our ambition is to grow and become a European Institution, and to further strengthen our position as a global player." ◀





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