

So now, instead of following the Western paradigm they try to make use of some of the good developments.

*That would be great! Are you actively looking for other countries as well?*

Yes, very actively. Because I don't like reports in the cupboard! I like products. All the development we have done has been by students because big companies are not interested in developing products which are long term. Managers are just short-term thinkers. They are not interested in any investment with uncertainties. Even companies which are really in the same business, for instance in manufacturing beer kegs, are not interested, because it's another type of material to start all over again with, and it's a strain for their own production.

*But some beer kegs are going into production?*

Yes, but only with beer companies. We have two directions. One is just strategic because they spend a lot of money. World-wide, people are carrying those heavy steel cylinders. This one is so light that you can roll it like a wheel from the filling station to your home. There's a very nice mechanism in place, where people pay money for the packaging and you get a refund. They also pay for the product. If you bring a few million gas containers onto the market you get directly such a huge amount of money that you can invest in a factory. That's what we're trying to do in Vietnam, and that's something they've never heard of before. We're trying to teach them that but they've never heard about creating companies before. It's a real communistic bureaucratic culture, but they have no other choice, because everything they introduce is taken over by the Chinese, and the Chinese can produce everything far more cheaply.

*You feel a bit sceptical about lightness in new media? Or does it depend on how it's used?*

I think people use the Internet more or less for communication. People communicate more and more through the Internet. Before the Internet there was silence, but today those moments of silence, of thinking and reflecting, disappear with this jump inside the screen. As I have email, people write to me far more often, but most of the questions I get are totally different. A few years ago when people had to write a letter you never got such questions. You are doing the work which they should be researching. Instead of going to the library, looking in books. These questions, by comparison, are formulated so quickly.

*Do you think it's connected up to acceleration?*

Yeah, but it's being used in superficial ways. Because browsing is the best way to get ideas, it isn't actually helping create new ideas where you are thinking with your mind. It's a bit of a problem.

*Regarding the question of the embodied and life cycle energy efficiencies. Presumably you've done a lot on the issues around the size of the ecological footprint these new materials make, and in analysing their life cycles?*

Well, life cycle analysis, and making energies balance, is part of engineering these days. When we analysed moving, packaging, the articles and cars and transport, we found 80 to 90% of the life cycle analysis centred around transportation – nothing in manufacturing.

*So which part of transportation is it? The use of oils? Or is it the vehicle itself?*

It is especially in the weight of the vehicle, which has a direct impact on fuel consumption: It is energy consumption.

*What about the chemical creation of the new fibres? What are the origins of those, what are the ecological consequences?*

Well, with simple biological fibres, you have oxygen, and you have carbon, and you have water. The result is fuel mass. Of course these fibres – and they can be used in a lot of applications, for example the beer containers – are mostly out of natural products. The protection is just rubber latex.

*So if in the future the subsidiary chemical industry which makes synthetic polymers disappears because of oil or fossil fuel depletion, these wouldn't be affected? Is that something which is part of a scenario?*

I think oil will disappear as a primary fuel, as a primary energy supply. Just burning oil is the most stupid thing you can do, and I think it's going more rapidly than we think, because the price of crude oil is almost the same as thirty-four years ago. If the price had risen equal to Brent, for example, then we would

have triple the price nowadays. At some point, people will begin to understand that oil can never be saved to produce precious and high performance materials – to make products. That's adding to the cost. But after a lifetime of using the new products you can recycle or re-use the material. Some consumables, for example – packed bottles – are used in a lot of applications, such as in making cloths and fabrics. And in the US it is very popular to have recycled coca-cola bottles. So in terms of plastics, the efficient part can be re-used quite easily, and if it isn't, you can burn it, and from that burnt oil you can also use its calorific content.

