

Dr Gunter Pauli.

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The blue economy - an alternative strategy

A change is beginning to take place not just in business thinking but also in business models. One of the pioneers of this is serial environmental entrepreneur Dr Gunter Pauli, founder of Zero Emissions Research and Initiatives and author of 'The Blue Economy' in 2009 (revised as 'The New Blue Economy' in 2015) highlighting 100 innovations he believed could generate 100 million jobs in ten years. 'Blue' because he considers 'green' does not go far enough.

Concerned about the high unemployment he feels globalisation has caused, his main aim is to find ingenious entrepreneurial ideas that use, in the most sustainable way possible, resources we already have around us, put these ideas into practice, add value and create millions of jobs.

He says he has fallen short of his original plan, having generated from the first round of ideas 'only' 3 million jobs (and \$4 billion in investments) from

200 projects. Underpinning all of them is the idea of using as fully as possible, but always in the most sustainable way, the materials and resources we have to hand; as for example the leather and footwear industries.

For as long as people on earth want to eat meat, the leather and footwear industries will have a strong claim to be a fine example of how the Blue Economy can work, taking another industry's waste material and adding high levels of value to it, while creating employment for thousands of people around the world.

Dr Pauli's inventiveness has been evident ever since he left university. His first big breakthrough was at Ecover, now a global brand with a wide range of 'green' detergents, which he helped to rescue from financial difficulties in the 1980s and for which he left an eye-catching environmental legacy. Green thinking was, however, never really enough and in 1994 he set up Zero Emissions

Research and Initiatives, a diverse group of thinkers and doers. ZERI is a network of researchers, searching constantly for what the founder calls 'very pragmatic solutions to things that we know can be solved now'.

BRAINWASHING

In December 1997, following the third United Nations Climate Change Conference (COP3), he was given the task of drawing up a business model that would be in keeping with the Kyoto Protocol, the treaty that came out of COP3 committing governments to reducing greenhouse gas emissions. "When I made my presentation, there were four people in the room, me included," he says now. "No one was interested in changing the business model. You can change technologies and processes, but what is really required is a change in the business model.

"We're brainwashing all these MBAs to think in exactly the same way. Core

business with core competence, lower marginal costs, high productivity, low labour costs, just-in-time and economies of scale and, of course, great supply chain management. That's what we've all been doing for 30 or 40 years and the result is that we have massive youth unemployment and communities that are dying because everything is globalised."

JOB GENERATION

He estimates that during the course of the next 20 years, there are only ten countries that will generate net jobs. "That means the other 206 countries in the world will be losing them. Welcome to the world of globalisation." He reiterates that what is required is not a different way of conducting business in the same old way, but a new logic. Companies have not just to come up with ideas, but to do things to add value; so much value that they will out-compete everyone, but not on cost. His latest book 'The New Blue Economy' highlights 200 blue economy projects that have already been implemented. He insists, however, that this is only scratching the surface of what is possible.

He feels a truly green economy that is 'good for the world and good for



Key to the Blue Economy is using resources we already have around us to add value.

CREDIT: CONSORZIO VERA PELLE ITALIANA CONCIATE AT VEGETALE

business' has struggled to break through in more established economic environments because green products are too expensive. "What's good for us should be cheap or free. What kind of economy is it if what's good for us is

expensive and what's bad for us is cheap? This is madness, but is also why business schools never invite me to give talks to their students, and they're right not to because I exist to upset their way of doing things."

Thistles—the cheapest raw material in the world.

CREDIT: A LESIK/SHUTTERSTOCK





CHEAPEST RAW MATERIAL

One of the projects he is currently involved in is Novamont in northern Italy. Its mission is to develop materials and bio-chemicals through the integration of chemistry and agriculture, by starting up state-of-the-art biorefineries in agricultural communities. It wants farmers to be able to make the most efficient use possible of all their resources throughout the entire life cycle, generating social, economic and environmental benefits.

Novamont refers to its biorefineries as 'third generation', meaning they are dedicated to the generation of high-added-value products such as bioplastics from biomass. One of these facilities is in the north of Sardinia on the site of a former petrochemical plant that was processing two million tonnes of petroleum per year to produce 700,000 tonnes of chemicals which Novamont says was not resource-efficient. It decided to use thistles instead.

"There are 360,000 tonnes of thistles in Sardinia alone because the EU has been paying farmers not to farm and what you get when you don't farm is weeds, including thistles. The thistle is the cheapest raw material in the world as you don't have to plant it, or use

Tanners in Tuscany preparing hides for tanning. Dr Pauli wants to see a regeneration of artisan industries that use natural materials.

CREDIT: CONSORZIO VERA PELLE ITALIANA CONCIATE AT VEGETALE

pesticides; the only thing you have to do is harvest it. Shale gas will never compete while petroleum is a joke."

Novamont's thistles are yielding lubricants, natural herbicides with commercial value and, also, polymers. Waste from the thistle-refining operations is 20% of volume, but, unlike waste output from most chemical plants, it can be used in animal feed. The company has now taken over six former petrochemical plants in Italy and is raising the investment needed to transform them all into third-generation biorefineries that will bring benefits to all, while employing people at unionised European chemicals industry rates. Its costs are a tenth of those of other industrial biotechnology companies.

ROCK, PAPER, VALUE

Another venture is stone-paper or paper made from 80% stone and 20% polymers that Dr Pauli is also seeking to make from thistles. As Europe showed no interest in the idea, a factory in China will make one million tonnes of it, a figure he wants to reach 25 million tonnes a year eventually. This would

offer substantial savings in water compared to conventional paper production, which he says requires 60 tonnes of water for every tonne of paper produced. The new process uses no trees or water and the paper is recyclable for ever. "People say this is fantasy and simply don't believe it's possible; that's how stuck we are in the business models of today."

Using coffee waste to farm mushrooms is yet another off-the-wall concept. ZERI has helped set up 3,000 farms producing mushrooms in coffee waste. The network's founder says he thinks this is a failure. "We should have 500,000 farms, Nestlé produces millions of tonnes of waste from its instant coffee production. That would make millions of tonnes of mushrooms and Nestlé could generate 600,000 jobs." The global market for mushrooms is anticipated to exceed \$50 billion by the end of the decade.

Singtex, a Taiwanese technical textiles manufacturer launched S-Café in 2009, a yarn that includes recycled coffee grounds, which it says imbues textiles spun from the yarn with odour-

control, quick-drying and UV protection properties. ZERI projects that S.Café has inspired include coffee-enhanced nylon 6 for carpets to make rooms odour-free, polyurethane in refrigerators so that they absorb odours and paint that scatters UV. Dr Pauli says that adidas, Puma and Patagonia have all seen the possibilities of putting coffee-enhanced yarns into their clothing and possibly footwear. Chemicals from thistles, paper from stone and food from coffee waste are all examples of what can happen in a circular economy.

CHANGING THE WORLD

Dr Pauli admires natural things. For instance, he regards leather bags as being humankind's greatest ever invention. Not because bags now constitute an industry worth billions, but because having bags fashioned from animal hides in which to store food enabled our early ancestors to collect and transport (hands free) 15 times more food than it's possible to eat in one day.

He also likes silk and wants to push global production to one million tonnes per year from current levels that are closer, he claims, to 100,000 tonnes (up-to-date figures are hard to come by but during the United Nations Year of Natural Fibres in 2009, it was said that global production had been 100,000 tonnes in 2000 rising to 150,000 in 2006). He admires its renewability and natural antimicrobial properties and bemoans its substitution by synthetic materials derived from petrochemicals.

"We need artisans," he says. "Sometimes people say there is no demand any more for what artisans can do, but let's generate demand. It is just a question of communicating. Let's regenerate a culture of artisans using natural materials. Consumers can be transformed into agents for change."

He wants consumers to get behind a new initiative he supports in Peniche in southern Portugal, using ultrasound on specially equipped fishing boats to pick out from every catch any female fish carrying eggs and returning them to the sea. The boats produce air bubbles that make fish in the vicinity float towards the surface, where they are pulled into the hold by suction.

The boats are energy-saving and employ twice as many people as before and make three times as much money,

DANDELION RUBBER

Many others are also seeking alternative raw material sources that tap into hitherto unused natural resources. Alongside some of the world's biggest tyre makers, US-based rubber developer Yulex is also looking into using latex from the roots of the Russian dandelion and its domestication is under development at its US facility.

The over reliance on the South East Asian countries for natural rubber means the crop is susceptible to disease. Hevea in Brazil, its native country, is prone to South American leaf blight meaning the country now only produces 1% of the world's rubber. Early results suggest dandelion rubber could be on a par with hevea rubber in terms of performance but it is likely to take several years of development before it is fully commercialised and appears in footwear.

he says. Extra jobs have come from carrying out filleting, quick-freeze processing and extraction of most value-add products on board. Saving skins for making fish leather is not part of this yet, but could be one day. "Fish skins make great leather of course. However, the key is to save all females with eggs."

He insists that the fishermen of Peniche will only ever be at sea for 12 hours at a time and will always sleep in their own beds. "We need fishermen, but we can't consign people to a life that feels like slavery." The EC refused to give this proposal the time of day, saying that all it wants is to put in place quota policies that work. The Moroccan government on the other hand has

apparently shown substantial interest.

Dr Pauli claims that while the blue economy has ethics at its heart, it nevertheless points towards better productivity, cash flow, jobs growth and innovation. "It's got everything. When people carry out projects of this kind, they feel good. We need the transformation. We cannot have an economy in which 40% of the people on earth have to subsist on \$3.50 per day or less. We are fooling ourselves if we think that's enough. We need a re-industrialisation. We need to rethink industry. We need industries that have the capacity to create value with what we already have around us. We don't create value by hedging foreign exchange risk, even if there are people who can make \$10 million in a split-second by doing so; it does nothing to circulate money in local economies, which is what we need if we are to change the world."

Dr Pauli makes some cogent observations and it is clear that some of his ideas and ZERI's projects while sounding somewhat far fetched, do in fact work. His main problem however is that of every other prophet throughout history; convincing sceptical and risk averse people to change their way of thinking. Faced with the global problems that now exist in so many areas, it is indeed perhaps high time there was a change of direction – however challenging that might be to the vast majority of current thinking. 📌

Fish leather sneakers from Mors Footwear. Skins are one of the potential value-add products from the Peniche fishing project.

CREDIT: MORS FOOTWEAR

