The View from the Front Line: James Hagan, GlaxoSmithKline

GlaxoSmithKline is the world's second largest pharmaceutical company, employing over 90,000 people worldwide and with a turnover in excess of £22 billion. The company is currently broadening its activities from simply developing and manufacturing pharmaceuticals to the wider healthcare agenda, particularly in the developing world.

Dr James Hagan is the company's Vice President of Sustainability and Environment, responsible for providing leadership and guidance on sustainability and environmental issues across the breadth of GlaxoSmithKline's activities from research and development through to commercial operations.

Why and how did you get involved in this agenda?

I grew up in Pittsburgh, Pennsylvania amongst the city's steel mills with their classic environmental problems. For me they were a test case of being clearly non-sustainable. My father worked in the mills and so did many of his friends, and many of them came home in ambulances maimed from accidents – my father died from a work related injury. Obviously the environment was polluted, the air was grey and the rivers ran in colours. But the real issue for companies was that they failed to innovate and failed to evolve – now they no longer exist and that's put the whole community in jeopardy. They lost out in competition with the Japanese, who despite having a higher labour cost and no raw materials to speak of, managed to compete on cost, occupational safety and environmental grounds.

As a result I wanted to get an understanding of how things are made. I studied as a chemical engineer and did a masters degree in environmental health and another in management science. My PhD is in environmental engineering and science with a strong minor in environmental planning and management. I've since worked in the chemical industry and for the US Environmental Protection Agency.

What are the business drivers for GlaxoSmithKline to engage in this agenda?

The main driver is that, historically, we've had a situation where we take a huge risk in discovering the molecule that improved human health, but after that, there is a reluctance to innovate. We tend to make things the same way and we tend to market and sell things the same way. And throughout the industry there is an empirical approach – trial and error. So the level of science application to operations hasn't been profound. My responsibility when I started 26 years ago was not to provide end-of-pipe controls, but to improve the process itself. For example traditional pharmaceutical manufacturing is relatively inefficient. It typically consumes about 100 tonnes of

raw material for each tonne of active pharmaceutical ingredient, because we all use processes which were optimized in the late 1800s.

Initially, to get the company to accept what I was doing we made it a cost reduction effort, but I think they also realized there would be environmental benefits. If I reduced the raw materials we buy in there would a cost–benefit both from those raw materials costs and reduced waste, and there's a reduction in the level of risk we have from dealing with those materials.

The real complexity for us now is that people within the industry feel we should be doing the right thing – a positive force for good. Any negative response from the public and our reputation would suffer. Reputation has become a much more important part of the corporate structure than it was in the past.

What successes have you had?

We have a long-term sustainability plan which emerged in 2000, was escalated in 2005 and is being escalated again now in 2010. When I say long term, it is a specific plan for ten years with an aspiration of 20 years beyond that. We now have the ability to capture the data we need and the platform to talk to people about how the business can be transformed. We now have sustainability targets that R&D aims to meet when they generate a new product.

In practical terms, we have reduced that 100 tonnes of raw material per tonne product down to 37 tonnes – and our goal is 20 tonnes. We've had a climate change programme underway since 1995 when the first International Panel on Climate Change (IPCC) report came out. We have exceeded our targets – in 2001 we set a four year target of 8 per cent and achieved 13 per cent. We've now got a further target of 20 per cent energy reduction per dollar sales by 2010 and 45 per cent by 2020. For example we've shifted from air to sea in our logistics and we want to develop our distribution networks to improve efficiency there. We are working to eliminate bioaccumulative, persistent and toxic (BPT) compounds.

Eco-efficiency improvement is just one step on the path towards our desired endpoint of industrial ecology. For example, in India we have a facility that captures and uses rainwater. The wastewater is treated within the facility and used to irrigate crops for the staff cafeteria. We anaerobically decompose the sludge from the wastewater plant to generate methane to cook the food. So even on an industrial site we can approximate a natural cycle.

What are the big challenges for your organization?

The big challenge is the recognition of the need to move away from the status quo, to accept that there may be some risks in making those changes and being willing to accept those. We would like to adopt a model of industrial ecology and part of that is we're not going to produce any waste. That as a concept is difficult to comprehend, so we're trying to get to a point where we understand that changing the chemistry or changing the processes allows us to produce by-products which have value.

We have a huge amount of sunk cost in existing technologies – not just the capital sunk cost in physical plant, but also the personal sunk cost – many people in the organization have developed expertise in the technologies that define the company. If we move into innovative approaches, their expertise may no longer be useful and may become obsolete which can make

people anxious. In terms of the physical infrastructure we have to invest in new technology which may not be justified in a traditional business case so we have recognize that it is an investment for the future and how the company is going to evolve.

There are enormous social challenges for us in terms of equity in the wider world – in terms of gender, in terms of inter generational and intra-generational equity. We would like income levels not to be a fundamental impediment to healthcare. Women's rights are a huge issue when it comes to the population debate – and a fundamental right is having control over reproduction.

What's your advice for others in your position?

You need an understanding of the technology, because without that appreciation and understanding of the alternatives, you can never envisage the future. Anyone can understand the problem, but the key question is 'what's the solution?'.

Traditional environmental programmes are not sustainability programmes, but bolt-ons designed to control emissions. What we need to do is build in changes to the essence of the business as that's where sustainability lives.