

EDITORIAL

Sustainable Development—Time to Act

Sustainable Development has been adopted as a central environmental strategy for the UK (see, for example, Richard Griffiths' editorial in last November's *PSEP*, 75 (B4): 199). The Environment Agency—as well as several Government Departments and Non-Departmental Public Bodies—has a specific remit to have a regard to Sustainable Development in discharging its duties. The Department of the Environment, Transport and the Regions (DETR) has issued a wide-ranging consultation paper asking for comments on everything from measures of sustainability to resource management, transport, tourism, wildlife, research and education. Professional bodies and industry also recognize the importance of the concept, and statements of goodwill abound. It appears that the bandwagon is rolling and, given our confidence in human ability to solve problems, a brighter future should be just round the corner.

However, there are three significant questions to be addressed:

- What *is* Sustainable Development?
- What do individuals, organizations and countries need to do to deliver it—and if we can work out what to do, will those involved (that is, everybody) have the will to do anything about it?
- Even if the will exists, can we move to a sustainable situation given the explicit and implicit constraints on the solutions?

It would be easy to suggest that since we don't know where we're going, or who's coming with us on the journey, or whether the route to our destination is open, that we're unlikely to arrive.

On the first question we can make some progress. We can envisage some distant future where human needs are met by solar energy, our population is in balance with the carrying capacity of the planet, everybody is contented and wars have been abolished. Sustainable Development must just be a path between where we are now and where we want to be. Simple. Except that we don't yet appear to have the technology, organization, social skills or scientific knowledge to do it, and we may run out of resources trying. In other words, even if we could define Sustainable Development, making it happen could be beyond us.

To the questions above I'd like to add one more—*how* should we set about solving the problems? This is more than idle musing. To date, we have in general solved problems of balancing resource use, benefit and harm by setting limits at the boundaries of activities. A process can be operated provided it doesn't release more than a fixed amount to the environment. Implicit in Sustainable Development is co-ordination and collaboration. For example, it would be logical to move from the current paradigm of once-through materials use (obtain–use–dispose) to the more sustainable idea of using resources to drive a cycle of use and reuse.

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This involves taking a systems view of activities that may span several processes, organizations and possibly countries. It also involves the ability to co-ordinate the application of several different technologies.

Despite the need for co-ordination, there is an inherent fragmentation in the way the problem is being addressed. Fragmentation arises naturally from the divisions in the way we organize society—into companies, regulators, universities, regions, countries, chemists, engineers, social scientists, etc. There is also a problem of time-scale. Long-term thinking in politics is five years, in industry it is the length of a director's rolling contract and in the currency exchange markets it is a few weeks (at most). Swings of leadership, market sentiment and public opinion mitigate against a clear long-term strategy.

A microcosm of these issues exists in the research/technical community in the UK—discipline-based research councils, the tension between fundamental and applied research, the lack of a coherent vision for the research community, the search for well-defined value for money in industrial research and so on. Initiatives searching for direction (for example, Foresight) produce a mixture of clear, sensible consensus and wild dreams—diluting their credibility by not wishing to upset any of the contributors. Rapid change is difficult because of the substantial inertia of existing systems. New initiatives, philosophies and directions come and go, typically on a 3–5 year time-scale—often without seeming to deliver anything particular. If the research community is to contribute effectively to delivering Sustainable Development then it will need more than isolated, small-scale initiatives. Research must be fostered that crosses disciplines and is not constrained to sit in the traditional academic subject pigeon-holes. To do that, the influence of numerous interest groups must be loosened—a substantial challenge. Yet if we cannot find ways to change the attitudes and work practises of a small, well-educated community, what hope is there with Sustainability?

Not only do we seem to be ill-organized to meet the challenges of Sustainable Development, but recent history doesn't lend any particular weight to the view that we are capable of solving such problems. The energy 'crisis' of the 70s and 80s, when exhaustion of fossil fuel reserves was anticipated, led to little more than some energy-efficiency measures and a search for more oil. We have so far proved unable to deliver fusion energy, cost-effective solar energy, etc. Clearly the time-scale to solve these technical problems is tens or possibly hundreds of years. This is much longer than the attention span of almost all governments. Yet, the problems we now face are much more difficult than those of 100 years ago. Indeed the time required to develop solutions is increasing while, under the weight of growing world population and living standards, the time available to solve them is decreasing.

So what, if anything, does the chemical engineer have to offer? The contents of *PSEP*, both in this issue and past issues, can all be seen as being relevant to Sustainable Development. We can credibly claim core skills that span processing, technology, economic evaluation, human behaviour, risk assessment, systems and control. We are experienced in dealing with complex, many-variable problems. We are brought up to live with uncertainty. However, in the context of Sustainable Development perhaps our greatest asset is the ability to co-ordinate. With such a CV it would be natural to be at the centre of the debate. Despite this, it seems likely that the issue will be driven by social scientists, ecologists, lawyers and economists.

So why not do your discipline (and perhaps the planet) a

favour? If you have time before the deadline (29 May 1998) you could read and respond to the DETR consultation. It doesn't matter if you're not from the UK—a significant issue raised by the consultation is international co-operation and development. The document can be found on the DETR web site (<http://www.environment.detr.gov.uk/sustainable/consult1/index.htm>) or obtained from the DETR. If you can't respond in time, do watch the site for reports and developments. Moreover, further consultation on this difficult issue is more than likely. Not only can you help to raise the profile of chemical engineering, but you may well help the consultation to come to appropriate and realistic conclusions.

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