

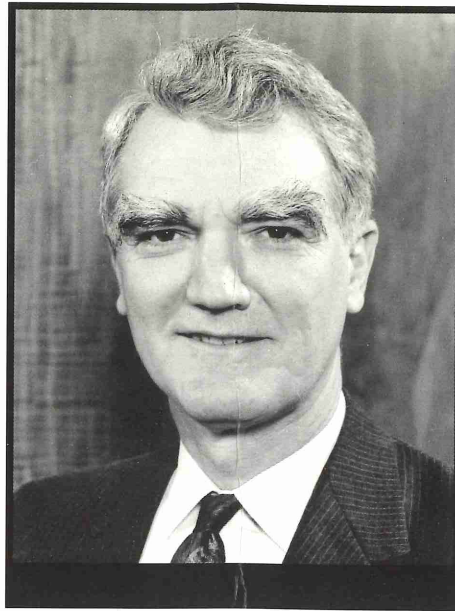


Environmental action – a shared responsibility

An address to 'Building global partnerships', the second international conference on health, safety and the environment in oil and gas exploration and production, co-sponsored by the Society of Petroleum Engineers and the Society of Indonesian Petroleum Engineers
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As a Group managing director his spheres of interest cover Middle East, Francophone Africa and South Asia, Exploration and Production, and Procurement and Logistics.

He was born in Antigua, West Indies, in 1940 and educated in Antigua and the UK. After graduating in Natural Sciences and obtaining a doctorate at the University of Cambridge, he joined Shell Internationale Petroleum Maatschappij BV in 1966 as a geologist.

He served as a geologist in Spain, Oman and Brunei. In 1972 he was appointed chief geologist in Australia and in 1976 he transferred to London to head up oil exploration teams in the UK North Sea. In 1978 he became services manager in Brunei, leaving in 1979 to become manager of the Western Division of Shell Petroleum Development Company of Nigeria's operations. From 1982 he was general manager of the Shell Group of Companies in Turkey and in 1986 he became chairman and chief executive of the Shell Companies in Malaysia.

Mr Moody-Stuart was appointed Exploration and Production coordinator for the Royal Dutch/Shell Group of Companies in February 1990, and a director of Shell International Petroleum Company Limited in July 1991.

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The upstream oil and gas industry's concern over the environmental implications of its activities is nothing new. Clean operations have always made for productivity and good neighbourliness. From the 1970s, however, environmental concerns ceased to be limited to the immediate vicinity of an operation. Acid rain gave pollution an international dimension, and globalisation rapidly followed with the debate over ozone depletion and the enhanced greenhouse effect. Since then, environmental issues, not least concerning our own industry, have been at the centre of economic and political debate.

Oil and gas together supply three-fifths of the world's energy. Most industry studies forecast that demand will continue to increase. Much of this will be in developing countries, to meet energy needs from increasing populations and to raise living standards towards the levels enjoyed by the industrialised world. Renewable energy sources, even under the most favourable scenario, cannot offer a realistic, economic alternative to fossil fuels for at least several decades. Nor, of course, are renewables by any means universally environmentally-benign. Together, oil and gas will continue to be the dominant source of world energy. They thus remain absolutely essential for economic development, economic life, or, in many cases, any life at all.

Yet the present position of the industry is far from comfortable. Real-term oil prices over 1993 were the lowest for two decades, and there is little prospect for any substantial increase over the next few years. Nor will cost pressures ease; existing fields mature and decline, and new discoveries are likely to be smaller or in more difficult areas. Cost-effectiveness is therefore crucial. To achieve this, the industry needs to retain the maximum flexibility of action.

At the same time, environmental and safety expectations will continue to increase. Two possibilities face the industry – one leads towards increased regulation, restricted flexibility, and reduced efficiency. The other leads towards increased self-regulation, and greater efficiency. To be allowed to follow the second route, we must demonstrate – through our actions – a responsible and constructive attitude to the environment. The industry as a whole will be judged by its poorest performer, so this commitment to improved environmental performance must be shared. Hence my title: 'Environmental action – a shared responsibility'.

This conference provides a timely opportunity to discuss the choices and judgements that 'environmental action' involves. The commitment of the Society of Petroleum Engineers (SPE), through the sharing of information and the development of common understanding, has been an important step forward for the industry.

One of the key events that have shaped the environmental debate was the publication in 1987 of the Brundtland Report, 'Our common future'. This defined the concept of sustainable development as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'. We all suffer if economic activity degrades the environment; yet clearly, our own and future generations can only meet their needs through economic development. With this comes the clear recognition that development is needed to pay for environmental protection. In that sense, 'sustainable development' really means 'environmentally-sustainable economic development'.

When we talk of the environment, we should not automatically assume that the best solution is to leave it totally

unaltered in perpetuity, or to return it to its original state – whatever that might have been. Indeed, mankind is consciously and steadily introducing change into his surroundings and societies, whether through land reclamation and flood control, or through housing, industry and infrastructure, or through agriculture and irrigation to feed growing populations. We cannot develop our economies without having an impact on our environment. Indeed, our very existence has an impact. It is our duty to ensure that changes are introduced thoughtfully and with care, particularly when they relate to potential effects that are not fully understood and yet could be very significant.

The basic activity of the oil and gas industry is the production of hydrocarbons – a finite resource. Quite clearly, what is produced now cannot be produced by our descendants in the future. In itself, like any extractive industry, it is therefore a fundamentally unsustainable operation, and we should not pretend otherwise. But without the economic development that oil and gas makes possible, we will not be able in due course to develop truly sustainable alternatives, or at least alternatives with extremely long reserve lives. Thus our primary responsibility must be to use oil and gas very efficiently, extracting the maximum from each development, and putting it to the best possible use.

Yet already dilemmas appear. How should society weigh the impact of different forms of pollution, or balance environmental with other societal needs – health, education, transportation, housing and so on? How do we reconcile international environmental goals with national economic priorities? The status quo is unsustainable and, for much of the world's population, also undesirable. Ultimately, society itself must determine

the balance of risk and benefit in environmentally-sensitive activities. This is a matter of political management and leadership, and we must expect governments and societies to be influenced by perceptions, emotions and human nature, and not always to follow strict scientific logic. We in industry cannot claim to have all the answers. However, we do have a responsibility, as well as an incentive, to try to help make sure that the solutions offered are indeed the most effective responses to the real problems. We also have expertise. So we must join in the discussion, keep open minds, and try and help cast the light of analysis on what is often a heated debate.

We will only qualify for the debate if our stance on the environment is built on a firm foundation. The 'negative' reasons for environmental commitment are abundantly clear – the extremely high cost of 'getting it wrong'; the potential liabilities arising from emissions or waste disposal; and the disturbance that can be caused to local communities. In the environmental world, as elsewhere, prevention is almost always much better than cure.

Negatives, however, are no basis for a vision. A company's environmental programme can only be built around 'doing it right', integrating technological, economic and managerial aspects to yield demonstrable cost-effective environmental benefits.

Introducing such a programme is not a simple matter, but it can be achieved if the right policies and strategies are in place. Our experiences in Shell upstream companies have been positive. Success requires that the environment becomes a real line management responsibility. Then the achievements and experience gained in one situation need to be disseminated rapidly and applied elsewhere.

Environmental programmes must reflect the fact that expectations have changed dramatically over the past decade, and are continuing to change. The older members of this audience will no doubt remember practices quite commonplace 30 or 40 years ago that would be unthinkable nowadays. Indeed, past operations – perhaps long since concluded – may still raise problems. Existing operations, previously accepted, may be overtaken by tougher standards or improved industry practices, while new installations must be planned in the light of environmental standards that might apply decades into the future, thus escalating expectations of what is possible. Each category of activity – past, present and future – requires separate consideration.

Let me start with the residue of past operations. Decommissioning, even if done in compliance with every standard then prevailing, may now be judged to be inadequate. Under these circumstances, governments may be tempted to introduce retroactive legislation – however unfair the principle may be. Equally important, in litigation, adherence to standards that were fully acceptable in the past may not always carry the day. The fact that society often actively sought the development brought about by an operation is ignored. These are very serious concerns: any company that practises continuous performance improvement inevitably lays itself open to charges of past under-performance. Conformance to the requirements prevailing at the time should therefore be sufficient defence. If all parties would accept the realities of changing technologies and standards, it would be more straightforward to agree with the appropriate authorities the most cost-effective way of resolving situations no longer considered acceptable. I suspect that few companies have a complete

inventory of their past activities, let alone plans for appropriate clean-up work. In part, this is due to a fear that a company's own efforts will be used as a stick with which to beat it. However, if we fulfil our obligations conscientiously, society is less likely to be misled by those only seeking idealistic solutions.

For existing operations, the first step is to inventorise all discharges to the environment – emissions, effluents and wastes. For Shell upstream operations, we have found that the awareness and understanding thus created in itself leads directly to improved performance. Then, specific waste reduction programmes and projects with quantified targets can be established, in order to achieve continuous, demonstrable improvement.

The overall goal is to minimise – and, where possible, ultimately eliminate – all emissions that have a negative impact on the environment.

For our upstream companies, the key objectives are to:

- Eliminate continuous gas venting;
- Reduce and ultimately eliminate gas flaring, except for emergencies;
- Prevent loss of drilling fluids to the environment;
- Re-inject production waters unless discharge is fully compatible with the surface environment;
- Reduce solid and other waste;
- Avoid CFCs or halons in new projects; control existing stocks to avoid loss, and phase these out with alternatives;
- Minimise the use of resources of all kinds – land, energy and raw materials; and
- Integrate the cost and benefit of environmental protection into investment appraisals.

All these objectives have the same common goal – to minimise environmental impact. However, the specific solutions – for example, the actual levels of emissions to be achieved – will depend on the receiving environment and on individual circumstances. Further, socio-economic factors will influence the rate of improvement. These considerations are embodied in Principle 11 of the Declaration of the 1992 UN Rio Conference on Environment and Development: ‘States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.’

We in Shell, and the oil industry in general, are currently being accused by some organisations of applying ‘double standards’ in our operations around the world, for example in West Africa as compared to the North Sea or California. We do not apply different standards in the dishonest or cynical sense, but neither do we pretend that we operate in an identical manner around the world. Rather, it is a matter of aiming to improve each operation in the light of its own individual circumstances.

Flaring of gas in Nigeria is a good example. Nigerian oil has a very high content of associated gas. The governments of developed countries, where there is a ready existing market for such gas, would not permit such flaring and neither would producers need to flare. In Nigeria, re-injection is only a limited alternative, because of the nature of most of the reservoirs. The government – the owner of the resource, and a partner in the operation –

concludes that revenue from oil production today, and that is essentially the only revenue the Nigerians have, is more important than the loss of resources and the potential local environmental impact. They are not comfortable with that, and nor are we, but in the short term it is difficult to see a way around the complexities that include domestic energy prices. Nevertheless, we are working actively in Nigeria and elsewhere to develop frameworks in which associated gas can be effectively used.

I venture to suggest that those people who accuse us of ‘double standards’ would be among the first to accuse us of cultural insensitivity if we did indeed try to impose identical standards everywhere in the world.

Of course, we should not pretend that we do not make mistakes. However high the standards, and however good the systems in place, unforeseen emissions can occur, whether from equipment failure, human error or management deficiencies. Here, the test is to have a system that can rapidly take the appropriate remedial action, and also learn from the experience.

I am sure that no company represented here feels totally satisfied with the standards of every one of its operations everywhere in the world – or even in a single country. Most obviously, this is because environmental performance is often influenced by the age of an installation. Older plants, however extensively upgraded and refurbished, cannot expect to compare with ‘state of the art’ technology. But I would go further: our own commitment to continuous improvement underlines that we are not satisfied with our performance today. By striving for continuous improvement, we are automatically rejecting consistency. To put it another way: striving for

consistency would be the kiss of death for continuous improvement.

Although any fair-minded person will at least acknowledge such progress, there will still be those who argue that we are not improving rapidly enough. A key to improvement, environmental or otherwise, is to set oneself tough targets. The wording of the Rio Declaration is not a 'let-out' to avoid our responsibility to improve environmental performance. We can all probably cite examples of operations where we continue to improve performance at levels well in excess of regulations.

We always need to keep the original objective in mind – limiting environmental impact – and not let one particular solution come to dominate. Consider oil-based mud. This has many benefits – safer drilling, lower energy consumption while drilling, and increased efficiency of resource recovery. The problems occur when oil-based mud enters the environment. There is a danger that we could move rapidly to the perception that oil-based mud is inherently bad, and should therefore be totally banned. If, however, we can limit the negative side-effects by restricting its escape, we can continue to benefit from its many advantages.

The same principle applies to waste disposal. Here the objective is to reduce the amount of waste to the minimum. We should certainly reuse and recycle wherever possible, but to use materials only if they are recyclable is, although seductive, probably inefficient. It may be more energy-efficient, even when every environmental consideration is taken into account, to burn some kinds of waste than to recycle. This is true of many plastics, especially if incineration is combined with heat and power generation. Perhaps in both these cases, the perceived solution (banning oil-based

mud or recycling all plastic waste) has come to dominate, and the original objective may have been forgotten.

Perhaps the industry does not put enough effort into trying to improve projects that are already environmentally 'good', or that already easily pass accepted levels. Environmental economics can be used in prioritising projects to help achieve the most cost-effective reductions in emissions. The process being used in our own operations was developed to provide a common yardstick to rank the cost of reduction for each emission stream. Although this is a great step forward, it does not overcome all the difficulties. Different environments will always have different ecological requirements. Different societies have different social and environmental values and priorities: each local community or government will understandably place greater emphasis on one or other impact. The final decision still requires judgement and balance: in other words, management – environmental management. If no judgement were required, common global standards would have evolved long ago.

An example of nationally-based response is the kind of environmental research project many companies support at local universities. This demonstrates that industry does indeed have an active concern for the environment, is good for the universities, can be very cost-effective and, if there is a problem, ensures that there is someone knowledgeable in the academic world to comment on appropriate solutions. It keeps the academic world informed of industry's concerns, and also provides the company with information on the local environment and local sensitivities.

Our industry must use the opportunity offered by new projects to demonstrate that we can indeed do things

right. Environmental impact assessment has proved to be the key tool for project planning. It is then essential to involve everybody in the company through detailed plans, implementation, supervision, audit and review. Environmental responsibility must be seen to be as much a part of individual accountability as is safety.

In Shell upstream companies, management systems for the environment are already following those for safety into a full-scale HSE management system. I see this as a major tool in integrating the environment into the Shell upstream business and into line management. Nowadays, HSE management systems and HSE cases are becoming common practice in, for example, Shell seismic ventures. National and international standards are starting to appear, such as BS 7750, the British Standard on environmental management, and the European Union's Eco-Management and Audit Scheme. Common approaches on management systems are to be welcomed, but we should remember that they are management systems to allow a company to meet its objectives, not prescriptive targets in themselves.

The existence of an international management system, once fully thought through and agreed, could make for greatly eased working relationships. New opportunities, often in countries where current operational standards are not those we expect elsewhere, may well involve joint ventures with both established operators and new partners, both governments and private industry. Additionally, arrangements with contractors will be much simplified – and thus more cost-effective – if they do not have to follow different specifications and practices for each individual project. International bodies such as the SPE, the

E&P Forum and the International Chamber of Commerce, as well as national associations, play a vital role in developing viable industry standards and then disseminating knowledge and expertise for our common benefit.

The next step is to communicate the industry position more effectively, so that stakeholders can understand our viewpoint and be more inclined to trust industry with the degree of self-regulation that is crucial for efficient operation. External environmental reporting, rather than being seen as an obligation, can be a valuable way for a company to demonstrate its performance and progressive improvement. But this reporting should be in the first instance at a national level, because it is at a national level where choices have to be made and trade-offs evaluated.

Governments will of course continue to play a key role as legislators and regulators. I believe that they will be most effective in achieving their objectives if they use a goal-setting approach: a mix of 'command and control', self-regulation and economic instruments that offers industry an incentive to achieve the greatest improvement at the least cost. The authorities can then check compliance. A good example, although not from the upstream, was the joint EPA/Amoco study of the company's Yorktown Refinery in the USA. Following the original regulations on emission controls would have resulted in very substantial expenditure. Reducing the emissions to the same level but in other ways could be achieved at something like a quarter of the cost.

We have to deal with, and strive to convince, not only government bodies but many other different groups, ranging from employees and local communities to environmental pressure groups, on a

local, regional, national and worldwide basis. Enhanced environmental performance can certainly boost corporate reputation. This is fundamental because, if our industry is to flourish, it must be seen not just as necessary, but as beneficial in its contribution to society.

Ladies and gentlemen: all my comments add up to one conclusion: the need for an industry approach to the environment that is recognised by

legislators and other stakeholders as consistent and constructive. The industry is seen as an entity, and judged by the worst performer. This conference presents an outstanding opportunity to demonstrate progress in cooperation. If it can help to build a common understanding based on the realities of upstream operations and a commitment to continuous improvement, then we can indeed consider this conference to have been a success.



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