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A strategy for sustainability

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This paper describes how an awareness of environmental issues, followed by a broader understanding of sustainability, has led to benefits for business, shareholders and society. It describes how the journey towards sustainability has facilitated greater innovation, enhanced individual and corporate responsibility and improved product delivery, in both construction and maintenance activities, for a large 'construction-to-services' company. The paper also identifies some of the business drivers for sustainability, together with the challenges and opportunities experienced in the implementation of a sustainability strategy. In addition, a strategy model is presented that shows how, by integrating sustainability with business strategy through the use of key performance indicators, benefits can be gained by businesses and communities. Examples are used to illustrate benefits gained by business, communities and clients, and advice is given on how to embed the principles of sustainable development in business strategy to the benefits of all stakeholders.

1. THE STARTING POINT

In the early 1990s the construction industry was the target of increasing media scrutiny, as a result of protests over a number of controversial road construction projects. In order to raise the profile of environmental concerns surrounding the projects, environmental pressure groups initiated direct action on sites. Some protesters also bought shares in construction companies to enable them to attend annual general meetings, and pose probing environmental questions to senior board members.

This direct approach highlighted that environmental concerns about construction activities were at the forefront of stakeholder perception, and therefore could genuinely affect an organisation's 'licence to operate'. This was the catalyst that initiated Carillion's (then operating as Tarmac Construction) journey towards sustainable development, and prompted the company to begin to assess and respond to the environmental impacts of its operations.

The development and publication of an environmental policy was an early and significant step. This was quickly followed by the appointment of an independent advisory panel, comprising six experts in environmental matters and corporate governance. The panel provided strategic guidance, and helped the company to develop and implement environmental management systems

and set environmental objectives and targets. These key first steps led to the formation of an environmental strategy.

In 1995 the advisory panel produced the company's first environment report, which was also the first published for the construction sector. It was at this time that environmental issues were introduced to project management plans and meeting agendas, and the first environmental advisers were brought into the company.

One of the early targets was to gain certification to ISO 14001, and the Crown House Engineering Manufacturing Centre became the first business in the company to achieve this in 1998. It was also the first UK business within the mechanical and electrical engineering sector to be certified to this internationally recognised standard.

As environmental management systems were introduced throughout the organisation, the level of understanding of environmental issues increased rapidly. Closer links were being created with non-governmental organisations (NGOs) such as The Natural Step (TNS) and the Worldwide Fund for Nature (WWF). These links enabled the staff to accelerate their learning and understanding of the social and environmental impacts of the construction process. They also learnt that dialogue with such organisations added value and ideas to project delivery. Meetings at both corporate and project level also led to a new appreciation of the common ground between the various NGOs and the company as well as a better understanding of the different viewpoints. The link with the WWF led to the company joining the WWF95+ Group, which promotes the use of timber from sustainable sources. With TNS, the company formed a partnership, and one of its projects became a TNS 'Pathfinder' project, described later in this paper.

Figure 1 maps the milestones in the company's progress from a characteristically reactive response to environmental issues to a proactive one, actively promoting sustainability throughout the construction industry.

2. THE MOVE TOWARDS SUSTAINABILITY

Sustainable development was described by Brundtland¹ as a process that

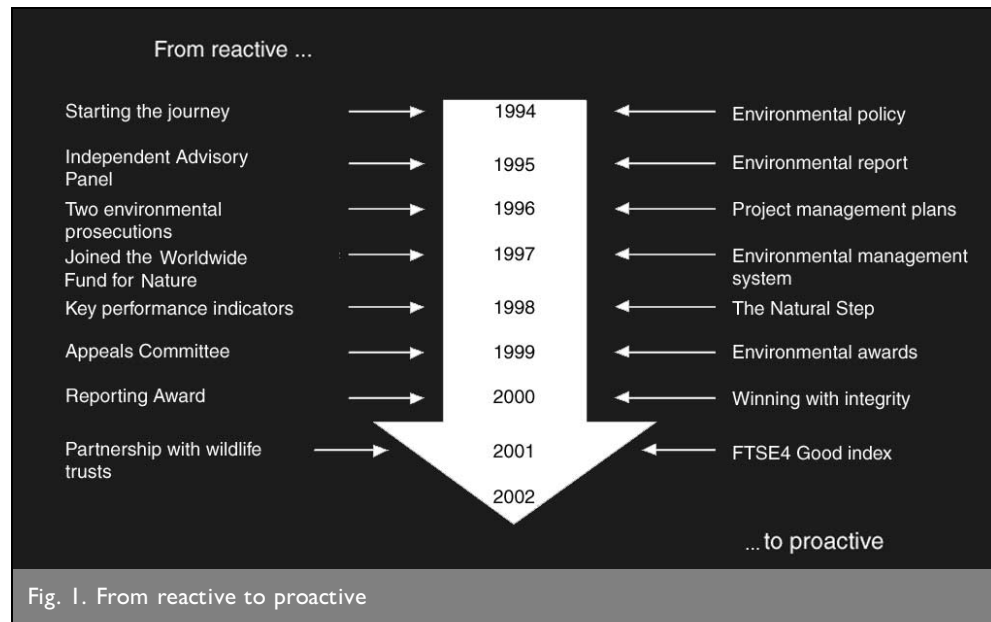
meets the needs of the present without compromising the ability of future generations to meet their own needs.

Brundtland's definition of sustainable development is about achieving a balance between the opportunities presented by economic growth and progress and the pressures upon us to protect natural resources and promote social equality. Therefore, sustainable development is about minimising the negative impacts and, where possible, improving and enhancing our environment to ensure a better quality of life for everyone, now and for generations to come.

The activities of industry and individuals are responsible for a complex range of economic, environmental and social impacts, which are often negative. For example, the construction industry alone generates 70 million tonnes of waste each year.² Construction activities can also result in the loss of natural habitats and, as a consequence, a decrease in biodiversity. For example, the Environment Agency³ has stated that the industry is responsible for 600 water pollution incidents per year. The construction industry also has a poor record for understanding social issues such as a proper engagement with local communities. In the design of the Princess Margaret Hospital Project, Swindon (named Great Western Hospital when opened in 2002), provision of a transport lounge for visitors and other public facility enhancements were the direct result of suggestions made by local people involved in the community consultation process.

It is not only industry that has an impact: the way in which individuals live can also generate considerable environmental and social impacts. For example, in 2000, the ecological footprint of the average person living in London was 6.63 global ha compared with a global share per person of 2.18 global ha—almost three times their equitable share of the planet's resources. In that year, water consumption in London was 876 000 000 000 litres, of which 28% was lost through leakage. Londoners also consumed 154 000 gigawatt hours (GWh) of energy (or 13 276 000 tonnes of oil equivalent) in 2000, resulting in the production of 41 million tonnes of CO₂. These statistics demonstrate that we are using resources and generating wastes at a phenomenal rate, and one that the earth cannot sustain.⁴ If we continue in this way, those who follow us will run out of natural resources.

As world leaders began to discuss sustainability issues and became aware of the scale of these issues and associated global impacts, a World Earth Summit was held in Rio in 1992. The summit raised the profile of sustainable development to the international stage, and the UK Government has responded to the commitments made at Rio by developing a Strategy for Sustainable Development for the UK entitled *A Better Quality of Life*.⁵ The Government's strategy sets out four key objectives



- (a) prudent use of natural resources
- (b) environmental protection
- (c) economic growth and stable levels of employment
- (d) social progress that recognises the needs of everyone.

This has evolved for sustainable construction to represent the following

- (a) constructing projects that are more cost-effective to construct and maintain because they have been constructed with less and yield more
- (b) constructing projects that contribute positively to their environment, using materials and systems that are easily replenished and help raise environmental performance over their full life cycle
- (c) promoting higher standards of living for people affected by the development.

The Government's sustainable development objectives provide a framework that incorporates all these issues and more.

3. IDENTIFYING IMPACTS AND DEVELOPING POLICY

The company recognised that, although it had an environmental policy and a suite of employment and social policies, the full sustainability impacts of a construction-to-services company were much broader. It had always focused on employees, training and development, as well as providing links with communities and other organisations. However, these issues had never been brought together in one coordinated approach. It was therefore recognised that the next step for the company was to identify its social impacts as well as its environmental ones and bring these together under the umbrella of sustainable development.

It was felt particularly important to reflect the government objectives for sustainable development and show how these linked in with the company's impacts and actions at corporate, business, project and personal levels. This linkage is demonstrated in the sun diagram in Fig. 2.

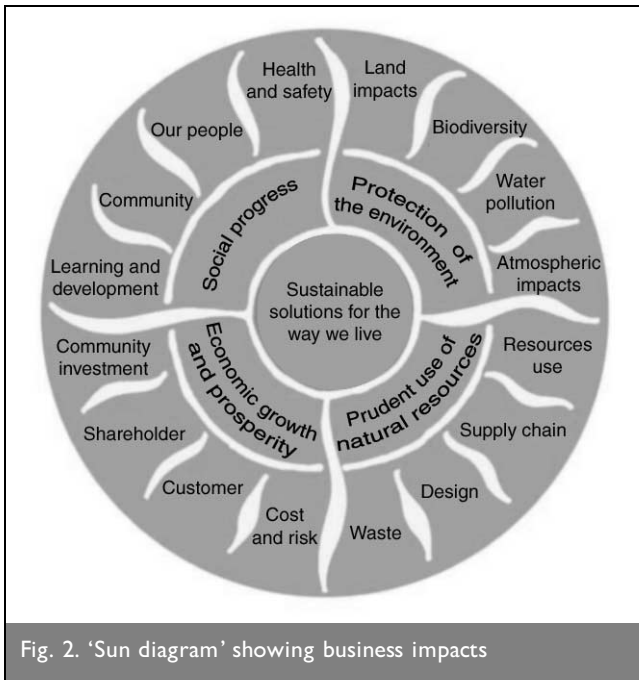


Fig. 2. 'Sun diagram' showing business impacts

Once the key impacts were identified, a sustainability programme was initiated to help the organisation deliver better engineered, built and maintained facilities for its customers. Through the sustainability programme the company expected to create and develop business benefit, demonstrate leadership and commitment (both internally and externally), and provide a framework for action.

The next step was to develop a sustainability policy, procedures, and training and to demonstrate the business case for becoming a more sustainable organisation. The policy states intentions and puts business sense and commitment to something that many employees felt and knew, in their hearts, was the right approach. The key elements of the policy were to demonstrate that sustainability was for the business and that it should be integrated within the company's strategy and values and not just bolted on.

Through workshops and stakeholder input, a simple, clear policy was developed, supported by four statements, which clarify its scope. The policy (Fig. 3) was developed so that it reflected not only impacts, but also current capabilities and

The Carillion sustainability policy

Carillion provides sustainable solutions for the way we live.

We will achieve this by:

- Sharing our vision and policy with all
- Turning our vision into reality by embedding sustainability into everything that we do
- Measuring and verifying our progress
- Promoting our vision as an instrument for change

Fig. 3. Carillion sustainability policy

future aspirations. It was felt important that the policy should be both concise and comprehensive, and could be applied at all levels, from corporate to individual.

A training and dissemination programme was used to help staff understand what the policy really meant to both the company and its staff. In this programme, the four supporting statements were further clarified to show how the policy could be integrated into the business, as shown in Fig. 4.

A key element of the policy was the objective to embed sustainability into everything that the company did. This could only be achieved if the following areas were addressed.

- (a) *Plc and business strategy*: this requires senior directors to have a real understanding of the principles of sustainability and the commitment and leadership to deliver them.
- (b) *Business systems*: integration of the principles of sustainability into the processes and procedures of the organisation.
- (c) *Training and development*: appropriate to all levels within the organisation.
- (d) *Communications, internally and externally*: supporting training and helping everyone understand that the sustainable route is the right one for us all; there is also a need to share success and influence others.
- (e) *The way we work as individuals*: to show that the ethics and standards we adopt in our own homes could, and should, also be applied at our work.

4. A STRATEGY MODEL FOR SUSTAINABILITY

Businesses can demonstrate to stakeholders that sustainable development is embedded in the control of their activities. However, this can be achieved only if sustainable development is part of the overall business strategy. The majority of business sectors in the UK are beginning to investigate the benefits of adopting the principles of sustainable development. The rate of this adoption varies within and across business sectors. The construction sector has been particularly slow in adopting a sustainable approach to business.

For this reason the company joined the Corporate Impact Reporting Initiative⁶ launched by Business in the Community. The objective of the project was to help companies develop and test indicators for sustainable development, and understand better how other business sectors were addressing the issues associated with sustainability. Partners in this group include major banks, insurance companies, retail companies and food producers. Joining this group was the catalyst that encouraged the company to review its key performance indicators (KPIs) and understand how best they could be built into and drive business strategy.

Early in 2001 the company's Sustainability Operations Group reviewed and updated the company KPIs. The KPIs were taken from a number of sources, including existing company KPIs, the Construction Industry Research and Information Association (CIRIA),⁷ Global Reporting Initiative⁸ and Impact on Society. Later in the year the strategy model (Fig. 5) was developed as a tool to help in understanding how KPIs could be used to improve sustainability performance, deliver business benefit, and support the delivery of business objectives.

<p>Sharing our vision and policy with all:</p> <ul style="list-style-type: none"> • our people • our customers • the community • the supply chain... up and down • government, institutions, academia, NGOs 	<p>Turning our vision into reality by embedding sustainability into everything that we do:</p> <ul style="list-style-type: none"> • plc strategy • business strategy • business systems • training and development • communications, internally and externally • the way we work as individuals
<p>Measuring and verifying our progress towards the vision:</p> <ul style="list-style-type: none"> • the vision gives us our long-term goal • indicators, objectives and targets allow us to measure our progress • progress means continual improvement • reporting demonstrates our progress • the vision gives us our long-term goal 	<p>Promoting our vision as an instrument for change:</p> <ul style="list-style-type: none"> • demonstrates our leadership • shows how we continue to improve • encourages innovation • demonstrates our professionalism

Fig. 4. Integrating sustainability principles

In developing the strategy model, and in order to bring a clear focus to the business benefits to be gained from measuring sustainability performance, a review of each KPI was undertaken to identify which business issues could be managed better by using KPIs. A number of indicators were identified as strategic to the business, whereas others helped to deliver business improvements. A third set of indicators, which the company will continue to report as a matter of good practice, were identified as important in demonstrating good corporate social responsibility.

Using this approach to review the value of each KPI has helped demonstrate the link to business benefit, and has shown how KPIs contribute to the delivery of company objectives.

The company then wanted to ensure not only that business benefit was achieved, but also that benefits to society and communities could be demonstrated—in other words, that delivery of the KPIs would help contribute to the delivery of sustainable development. Jonathon Porritt, Chairman of The Natural Step, the Government’s sustainability advisor and a member of the Carillion Sustainability Committee, assisted in undertaking a reality check to test how the KPIs could benefit society and communities and hence show how this approach could help contribute to sustainable development. For example, by managing the diversity of the workforce, and in particular, health and safety performance, a clear link could be made with delivering fairer treatment of people and communities.

5. ACHIEVEMENT OF BUSINESS BENEFIT

When any new ‘initiative’ is introduced to a company, there is inevitably some scepticism from employees, who may well have seen numerous ideas come and go over a period of years. It was therefore important to show that the sustainable approach was not a passing fad, but a business imperative, which provided demonstrable benefits for the business, environment and society.

Therefore a business case was assembled that comprised project-based case records, and from which a number of clear

benefits were identified. The case records demonstrated that being more sustainable enabled the company to

- (a) identify social and environmental impacts
- (b) reduce cost, use fewer raw materials and create less waste, resulting in savings
- (c) reduce risk and minimise the risk of prosecution
- (d) improve relationships with customers
- (e) improve relationships with the community
- (f) create more effective supply chain management
- (g) achieve greater employee motivation.

Benefits were therefore realised for all stakeholders and the whole supply chain, including client, constructor, supplier and maintenance contractor through to the end user and local communities.

The company has now made sustainability a major part of its developing business strategy. It has mapped business strategy onto the model, and has also used the model to help demonstrate the business case for its supply chain performance measurement process and its waste management strategy.

A reputation for addressing sustainability issues has resulted in increased competitiveness, enabling the company to bid for, and win, a £190 million contract at the University of Hertfordshire for the development of the de Havilland Campus. A spokesperson from the university stated that sustainability credentials were one of the deciding factors in awarding the contract.

‘The University has high expectations in the context of sustainability. We were pleased to find that Carillion’s proposals met those expectations and this was an important factor in Carillion’s selection as our private sector partner in the development of the de Havilland Campus.’

Professor Ann Smith, Co-ordinator of the University of Hertfordshire’s Environmental Strategy

The life-cycle costing model used at tender stage on this project helped the design team identify over £3 million in energy

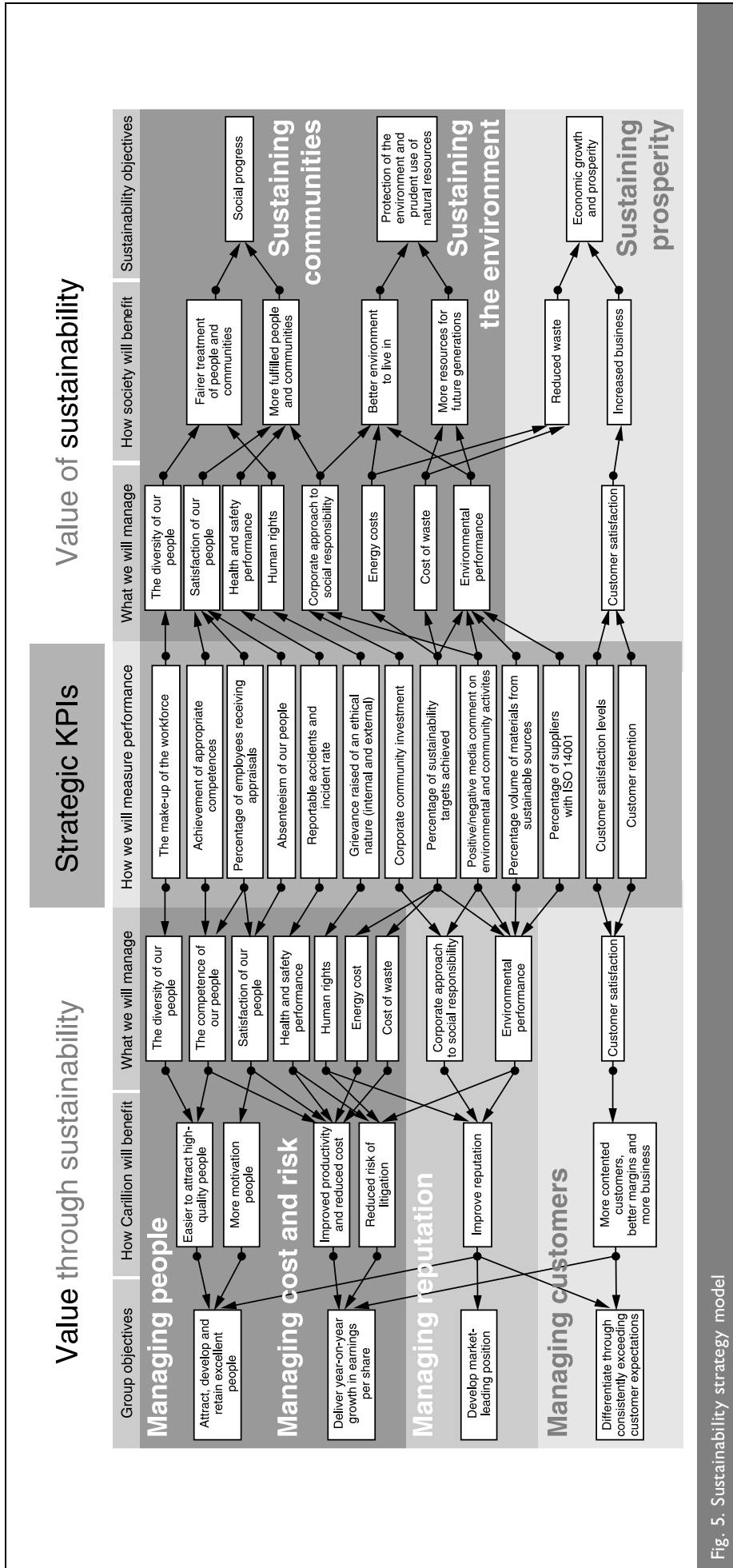
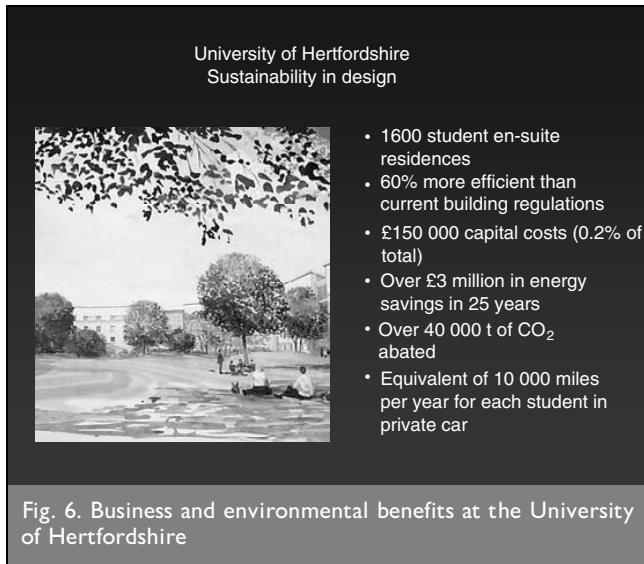


Fig. 5. Sustainability strategy model



savings that could be achieved over 25 years by investing an additional £150 000 in improved insulation and energy systems (Fig. 6).

At the Princess Margaret Hospital (PMH) project, Swindon, the company formed a partnership with TNS, which became a TNS Pathfinder project. For this project, a system conditions approach was adopted, with the specific aim of setting benchmark sustainability standards in the design, construction and maintenance of a major hospital project.

The system conditions approach had been developed by Dr Karl-Henrich Robert, founder of TNS and a Swedish cancer scientist, with the help of colleagues and contacts both in Sweden and worldwide.⁹

Through training workshops, and by involving the whole supply chain, the project team investigated and tested every aspect of the project against four system conditions.

In the sustainable society, nature is not subject to systematically increasing...

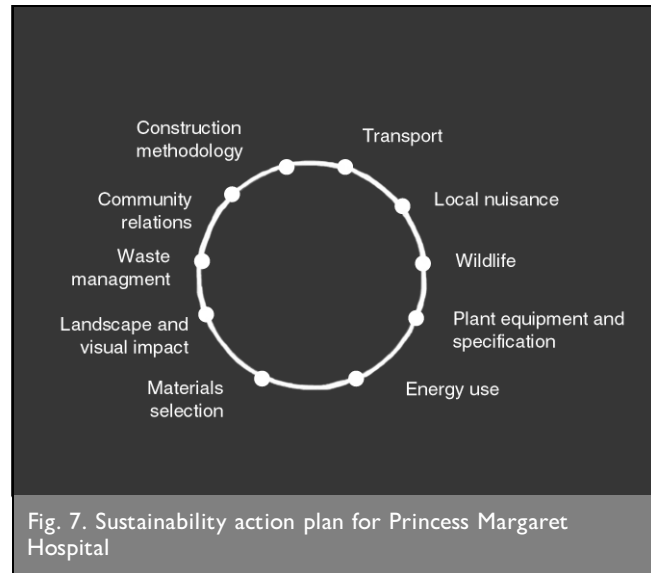
1. ... concentrations of substances extracted from the earth's crust
2. ... concentrations of substances produced by society
3. ... degradation by physical means

and, in that society ...

4. ... human needs are met worldwide.

Following this initial step, and with TNS help, a sustainability action plan (SAP) was used to assess impacts and to generate ideas and innovation. The SAP comprised ten key areas, and the whole project team (from designer and supplier to end user) assisted in the development of more sustainable solutions for every aspect of the project (Fig. 7).

It was on this project that the benefits of engaging with all stakeholders were not only recognised, but also realised. A case record of the Pathfinder project¹⁰ has been published that



records the initial results realised by adopting this system conditions approach.

The project team also identified the fact that, to demonstrate the business benefits deriving from a sustainable development approach, it would need to identify the costs and savings resulting from its sustainability decisions. The project worked with partners, the Department of Trade and Industry (DTI), Forum for the Future, CIRIA and Casella Stanger on a DTI Partners in Innovation Project to assess and initiate the development of a sustainability cost accounting system.¹¹

This was a natural progression of the environmental cost accounting work carried out at both Dartford and Gravesham Hospital and PMH Swindon published by the company in its social and environment (2000¹²) and sustainability (2001¹³) reports.

In summary, the site team initiated a change in culture on the project, which resulted in the whole workforce becoming enthused, energised and committed to a more sustainable approach to the design, construction and maintenance stages. This change involved everyone on the project adopting, developing and delivering the sustainability action plan. This was achieved through a blend of workshops and induction training delivered to and with the whole project team. The result of this process was to create innovation throughout the whole supply chain (from client to security man!). The project has achieved a score of 103% against the Movement for Innovation (M4I) Key Performance Indicators¹⁴ in a case study carried out by the Building Research Establishment.¹⁵

6. COMMUNICATION AND TRAINING

Motivating staff to question and change their working practices is crucial to the success of a sustainability programme (and of any change programme!). The company recognised that, to make its sustainability strategy effective, it has to be well communicated. Regular communication was undertaken using a variety of methods, all delivering a consistent message. These included the production of newsletters, regular features in *Spectrum* (the company magazine), the integration of sustainability into training courses and induction programmes, the

Risk and opportunities:

- Open up your thinking and create innovation
- Build for the environment, with the community
- Improve environmental standards, while saving cost
- Attract, retain and develop high-quality people
- Improve productivity
- Recognise and reduce risk
- Improve reputation
- Delight our clients' customers (same as ours!)

Fig. 8. Sustainability creating business opportunities

development of an e-learning tool, and workshops held for the supply chain, designers and other key groups.

For an organisation of the size and complexity of Carillion, delivery of training to all levels of employees was a challenge. This has been met through the development of an effective 'blended learning' approach, in which a combination of face-to-face training, printed base materials, on-line materials and remote or workshop-based contact with tutors and peers is used to engage, motivate and teach employees.

Communication and training were seen as the key tools to deliver this step change in understanding and delivering sustainable solutions for the way we all live.

7. LEADERSHIP AND OWNERSHIP

It was evident that leadership and ownership were vital to the process, and that the energy and enthusiasm of key staff members were crucial to the success that could be gained from adopting a more sustainable approach. The step change in project delivery at PMH Swindon clearly demonstrated the influence of key individuals in the success of a project. This had also been the wider experience in Carillion, where: sustainability has been used as a mechanism for a step change in the design and construction process. The most effective way to deliver change is to engage everyone involved in the project, and share in success by, for example, highlighting the fact that lots of small wins are as important as the big wins. This approach has helped to drive greater commitment, ownership, pride and innovation into projects. Sustainability has undoubtedly helped the company to improve its understanding and management of risk at project, business and corporate levels, thereby creating opportunities for the business to improve in many areas (Fig. 8).

8. IDEAS FOR ACTION

Once organisations recognise

the business benefits of adopting a more sustainable approach, it is recommended that they seek help to develop their strategies and action plans to enable them to realise the full benefits for all stakeholders. It is important that all members of an organisation have the opportunity to help it deliver a better product, in a more sustainable way, to the benefit of all. This requires a change in culture for most people and the recognition that personal ethics and standards can, and should, be applied to the workplace. Some ideas for action are given in Fig. 9.

9. DISCUSSION

So why is the construction industry so slow in adopting sustainability principles? There is more than enough sustainability knowledge in the marketplace¹⁶ to help organisations become more innovative, save costs, and deliver a better product for their customer. Business leaders and individuals are just not sufficiently engaged or enthused at present. New entrants to our industry are beginning to expect high levels of ethical, environmental and social performance. Clients are also beginning to expect higher standards, and suppliers too are waking up to a better way of working. Organisations that do not adopt a sustainable approach will find it increasingly difficult to attract employees, clients and suppliers. Now is the time to make the change and become more sustainable in everything we do!

10. CONCLUSIONS

The introduction of a company-wide sustainability programme has helped in delivering better-engineered, better-built and better-maintained facilities for customers.

All stakeholders, from client to end user, have seen benefits when a more sustainable approach has been adopted throughout the stages of design, construction, maintenance and use.

The company's sustainability strategy model has demonstrated that business and sustainability benefits can be achieved

Strategic idea for action:
At plc level...

- establish real commitment
- show leadership
- develop a policy
- develop procedures
- provide training and communication

Work with customers to...

- identify the most sustainable solutions

Work with the supply chain...

- their performance is your performance
- and your customers' performance!

If you design...

- bring sustainability in right on day one

Local ideas for action:
In the office...

- save paper, save electricity, find out where office supplies are purchased - are they sustainable?

Work with communities and schools to...

- identify the most sustainable solutions
- help safety and reduce conflict and vandalism

On site...

- add sustainability to site induction process
- manage social and environmental impacts

If you design...

- specify sustainable materials and construction methods
- identify life-cycle costs—and savings!
- innovate

Fig. 9. Ideas for action

through the use of appropriate key performance indicators. The model can be extended to demonstrate how other business issues, such as supply chain performance management, are aligned with business objectives while delivering more sustainable solutions.

Sustainability is a business differentiator, and has been a key factor in winning work in the construction-to-services sector.

Training and awareness in sustainable development presents many opportunities to support sustainable development programmes. An appreciation of the principles of sustainability motivates staff and can help to improve an organisation through cultural change.

Sustainability is for all. Appropriate communication and training are required in order to create the step change that enables benefits to be gained from adopting a more sustainable approach to the way we work and live.

11. ACKNOWLEDGEMENTS

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