

## Chapter 8

### BUSINESS AND INDUSTRY APPROACHES TO SUSTAINABILITY ASSESSMENT

Traditionally, companies and public sector trading organisations report on their economic performance. But, in response to public and community demand, increasingly more companies are introducing reporting mechanisms which also include consideration of their performance in addressing the environmental and social perspectives of their operations. This has come to be known as sustainability auditing and *triple bottom line* (TBL) reporting. Examples of such mechanisms are described below. Most tend to be based on answering a series of questions.

In a recent study, Buselich (2002) takes the view that a triple bottom line assessment cannot be considered a genuine sustainability assessment since the environmental, social and economic dimensions are not integrated from the start and “simply present a *list* of social, environmental and economic concerns to be analysed in decision-making, rather than integrating and analysing these concerns throughout the assessment process” and is, therefore, perhaps best thought of as ‘interim/transitional form’ of sustainability assessment.

TBL is being widely used. In Australia, for example, the City of Melbourne is working in partnership with the International Council for Local Environmental Initiatives (ICLEI) to develop a toolkit for integrating TBL into local government through corporate planning and sustainability assessment of proposals considered by council (ICLEI, 2002). The Integrated Sustainability Analysis (ISA)<sup>TM</sup> team at the University of Sydney has also developed a quantitative, consistent and comprehensive Triple Bottom Line (TBL) reporting framework. This has been applied in projects such as: TBL Reporting at the economic-sector level for 135 sectors of the Australian economy (funded by Environment Australia); and TBL Report for Wollongong Council and the Wollongong Population ([www.isa.org.usyd.edu.au](http://www.isa.org.usyd.edu.au)).

A growing number of European and North American research organisations, NGOs and others are examining and promoting mechanisms to enable corporate sector organisations to conduct their business more sustainably.

#### 8.1 Environmental sustainability assessment

In Australia, to promote triple bottom line reporting, the Total Environment Centre (TEC) is promoting *environmental sustainability assessment* (ESA) as a practical, systematic, transparent evaluation methodology which can inform stakeholders as well as encourage continuous improvement. It involves several ‘layers’ of sustainability performance assessment – each of which can be reflected in corporate reporting.

The proposed ESA process involves several components to track a corporation’s progress, moving from easy to hard. Answers to a series of questions build up a picture of overall environmental performance and the company’s impact on the environment. The questions cover six areas (Box 8.1). They should mainly be answered by individual companies in a self-assessment process.

To increase transparency and share resources and views, Community Solutions (2001) have proposed the establishment of an independent environmental Performance Evaluation Group (possibly including individuals from different sectors, e.g. finance sector, academia, corporate

### **Box 8.1: Environmental sustainability assessment: six questions areas**

**1. Regulatory compliance**

- Extent to which regulatory standards are met
- emissions to air
  - releases to water
  - contamination of land
  - waste management
  - threatened species and land clearing

**2 Awareness of environmental sustainability**

- Information collection on:
- relevant indicators
  - standards and benchmarks
  - monitoring processes
  - stakeholder perceptions

**2 Reporting on environmental sustainability**

- Universal indicators:
- emissions
  - greenhouse gas production
  - releases to water
  - contamination of land
  - waste management
  - use of non-renewable resources
  - use of renewable natural resources
- Indicators of local significance  
Acknowledgement of non-compliance with accepted standards  
Mechanisms to address problems  
Transparency of reporting and openness to external audit  
Identification of trends and relationship to targets

**3 Community engagement relevant to environmental sustainability**

- Involvement and consultation with the community  
Involvement with community in specific impact and target identification  
Extent of partnership formation with communities  
Openness to external community-based auditing

**5 Corporate commitment to continuous improvement in environmental sustainability**

- Level of sustainability seeking  
Organisational commitment at senior management and Board levels  
Training of staff  
Integration of environment and sustainability into all levels of decision-making  
Interaction with suppliers and others in the supply chain

**6 The extent to which the organisation has moved beyond compliance with respect to environmental sustainability**

- Adoption of current best practice
- clean production
  - life cycle analysis
  - restorative activities
- Closed loop, no-waste operations  
Service and value focus  
A 'natural systems' approach

Source: Community Solutions (2001). Available on:  
<http://www.nccnsw.org.au/member/tec/projects/EnvironmentalSustainabilityAssessmentforCorporations/esfc.html>

auditing/environmental reporting, environmental NGO). This group would work with individual corporations and industry bodies to set ‘best practice’ benchmarks for environmental performance against which companies can self-assess their performance, and would be available to audit ESA reports.

## 8.2 Corporate sustainability assessment

Corporate sustainability is a business approach that aims to create long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments. Launched in 1999, the Dow Jones Sustainability Indexes (DJSI) are the first global indexes tracking the level of sustainability of companies according to their financial, environmental and social performance ([www.sustainability-indexes.com](http://www.sustainability-indexes.com)). The Indexes are based on the Corporate Sustainability Assessment of SAM<sup>1</sup> Research and provide asset managers with reliable and objective benchmarks to manage sustainability portfolios.

A defined set of criteria and weightings (Table 9.1) is used to assess the opportunities and risks deriving from economic, environmental and social developments for the eligible companies.

**Table 8.1: Corporate sustainability assessment criteria and weightings**

(Source: [www.sustainability-indexes.com](http://www.sustainability-indexes.com))

Dimension	Criteria	Weighting %
Economic	Codes of conduct/compliance/corruption & bribery	3
	Corporate governance	5.4
	Customer relationship management	3
	Financial robustness*	3.6
	Investor relations	2.4
	Risk & crisis management	3.6
	Scorecards/measurement systems	4.2
	Strategic planning	5.4
	Industry specific criteria	Depends on industry
Environmental	Environmental policy/management	3
	Environmental performance	4.2
	Environmental reporting*	1.8
	Industry specific criteria	Depends on industry
Social	Corporate citizenship/philanthropy	2.4
	Stakeholders engagement	4.2
	Labour practice indicators	3
	Human capital development	1.8
	Knowledge management/organisational learning	3
	Social reporting*	1.8
	Talent attraction & retention	2.4
	Standards for suppliers	1.8
	Industry specific criteria	Depends on industry

\*Criteria assessed based on publicly available information only

<sup>1</sup> SAM: Sustainable Asset Management, Seefeldstrasse 215, CH-8008 Zurich ([info@sam-group.com](mailto:info@sam-group.com))

A major source of information is the SAM questionnaire (designed to ensure objectivity by limiting qualitative answers through predefined multiple-choice questions) which is completed by companies participating in the annual review. Further sources include company and third-party documents as well as personal contacts between the analysts and companies. Various company documents are analysed, including:

- sustainability reports;
- environmental reports;
- health and safety reports;
- social reports;
- annual financial reports;
- special reports (e.g. on intellectual capital management, corporate governance, R&D, employee relations);
- all other sources of company information; e.g. internal documentation, brochures and website.

Analysts also review media, press releases, articles, and stakeholder commentary written about a company over the past year.

The SAM corporate sustainability assessment calculates a performance score for each company. Reviewing, assessing and scoring all available information in line with the corporate sustainability criteria determine the overall sustainability score for each eligible company in the DJSI World investable universe. The assessment is conducted in three stages (Table 8.2)

External verification is undertaken by PriceWaterhouseCoopers to ensure that the corporate sustainability assessments are completed in accordance with the defined rules. Based on SAM Research's corporate sustainability assessment, companies are ranked within their industry group and selected for the Dow Jones Sustainability Indexes, if they are among the sustainability leaders in their field.

Individual companies are also using corporate sustainability assessment tools. For example, in the USA, Crystal Flash – one of the largest regional petroleum product and convenience store operations in Michigan – has recently investigate the sustainability of its business using a sustainability assessment developed by the West Michigan Sustainable Business Forum (Box 8.2)

### **5.3 Product sustainability assessment**

In response to consumer pressure, more and more producer companies are offering environmentally-friendly products. But there is growing pressure for companies to go further and demonstrate that their products are produced in a sustainable way. In the 1990s, life cycle analysis (LCA) emerged (standardised in ISO 14040-14043) and is used by many companies as a tool to evaluate the potential environmental impact of a product, process or activity throughout its entire life cycle by quantifying the use of resources ("inputs" such as energy, raw materials, water) and environmental emissions ("outputs" to air, water and soil) associated with the system that is being evaluated.

**Table 8.2: Stages in the SAM corporate sustainability assessments**

(Source: [www.sam-group.com/e/anlagephilosophie/assessment.cfm](http://www.sam-group.com/e/anlagephilosophie/assessment.cfm))

	<b>Weighting of answers if questionnaire is signed by senior management</b>	<b>Weighting if not signed</b>
<b>Stage 1: Questionnaire assessment<sup>1</sup></b>	70%	50%
<b>Stage 2: Quality and public availability of information<sup>2</sup></b>	20%	33.3%
<b>Stage 3: Verification<sup>3</sup></b>	10%	16.6%
<ul style="list-style-type: none"> <li>• Truthfulness of questionnaire</li> <li>• Review of a company's involvement of critical issues</li> </ul>	If necessary, points are deleted. Eligibility of each company is verified at this stage	
<b>Final score<sup>4</sup></b>	100%	100%

*Notes:*

1. All answers provided in the questionnaire receive a score. Each question has a predetermined weight for the answer, the question, and for the theme and class within the question. The total score for the question is the combination of these weights.
2. The scope and coverage of a company's documentation is evaluated for each dimension: economic, environmental, social. The evaluation is scored according to a scale (low, medium, high) for which there are criteria. Using a similar scale, the public availability of information is also evaluated for the three dimensions.
3. The verification process assesses whether or not a company implements and commits to its stated policies and management practices.
4. A company's total corporate sustainability score at the highest aggregated level is calculated according to the following formula:

$$? [CLW*CRW*QUW*?AS*(QAW+DAW*DAS)] - QVS \quad \text{for all questions}$$

- TS = Total score
- CLW = Class weight
- CRW = Criteria weight
- QUW = Question Weight
- QAW = Questionnaire assessment weight
- DAW = Weight of quality/public availability, and truthfulness of information
- DAS = Score for quality/public availability, and truthfulness of information
- AS = Answer score
- QVS = Questionnaire verification score

**Box 8.2: Corporate sustainability assessment: the case of Crystal Flash, Michigan, USA**

*The company*

Crystal Flash is composed of a network of convenience store and gas station sites, And commercial, agricultural and residential, bulk petroleum and LP gas storage and distribution locations. Other services include a network of do-it-yourself used motor oil recycling collection centres, an industrial oil/water recycling plant, and an industrial parts washing business. The company is an active participant in community affairs and is widely recognized for its environmental programs and support for environmentally sound public policy.

Internally, Crystal Flash has implemented improvements to its underground storage tank systems at all of its sites years ahead of regulatory deadlines. The company is also on the leading edge of investigating and providing cleaner fuels. Crystal Flash has implemented an energy saving programme at all of its facilities, and is implementing a "green material" programme for its new or remodelled

buildings. Looking to the future, the company set out to identify areas of opportunity within the organisation to improve its overall rating on sustainability.

### **Scope of the assessment**

Petroleum products are widely recognized as an environmental threat and presented a significant challenge to the company to operate in a more environmentally sustainable way. In addition to petroleum products, all areas of the operation were included in the assessment. This included its corporate centre facilities; the operation of its 33 gas station/convenience stores; its 10 bulk plants with aboveground storage tanks; its heating services, which markets and sells heaters and furnaces to the commercial and residential sectors; its agricultural fuel distribution service; and its industrial/commercial recycling service facilities.

### ***A team approach***

As part of the company's annual strategic planning process, a cross-functional team was established. It comprised 15 people from various positions within the organization, including the bulk plants, trucking operations, store cashiers, store managers, corporate administrative assistants, operations managers, vice presidents, and the president of the company. The team set out to obtain a sustainability rating in each of eight key areas of operation: environmental management systems; product/service design; facilities; purchasing; operations; packaging; delivery/installation; and marketing and sales. It would use the total as a baseline score to judge progress in improving the sustainability of its future operations.

The team used the "Concise Self-Assessment Guide to Environmentally Sustainable Commerce," a sustainability assessment tool developed by the West Michigan Sustainable Business Forum. An outside facilitator guided the team through the assessment process, covering:

For each of the eight key areas, one of five answers was selected for a set of questions. Numeric responses for each of the questions were added for each category and divided by the total number of questions. The result was an average score ranging between one and five for each of the eight areas. This score serves as the baseline for future evaluations. The higher the number the higher the sustainability index. Since all of the answers are subjective and there were numerous opportunities for differences of opinion on any given question by team members, the facilitator led the group on a consensus building exercise for each question. Even though there were differences of opinion on how to score each question, after the entire group expressed their views, the facilitator proposed scores until all major dissension was eliminated. The final score was then entered and the process continued until the assessment was completed.

### ***Conclusion***

Crystal Flash found that they scored very well in a number of the eight areas of sustainability assessment. Above average scores were obtained in environmental management systems, facilities, and the delivery and installation categories. The assessment also revealed areas where sustainability improvements were needed, including: product/service design, purchasing, and marketing and sales categories. Once an average score was developed for each of the eight areas, a total average score was calculated for the entire process - a total sustainability score of 44.5 percent for all of Crystal Flash's operations. The assessment provided important insights into how to allocate resources to improve the company's sustainability.

Source: [www.sustainable-busforum.org/graphics/cfcs.pdf](http://www.sustainable-busforum.org/graphics/cfcs.pdf)

Proctor and Gable has used LCA since the late 1980s as one of its key product sustainability assessment tools (along with environmental risk assessment, cost/benefit analysis, comparative risk assessment, and socio-economic impact analysis):

“For a typical product, LCA takes into account the supply of raw materials needed to produce the product, the manufacturing of intermediates and finally the product itself, including packaging, transportation of raw materials, intermediates and the product, use of the product and disposal of the product after use.

Two types of systems of particular interest to P&G are the life cycle of a product (such as a detergent) or an activity (such as washing clothes). LCA studies are conducted for the purpose of answering certain questions, and those questions drive the design of the LCA study. One such question could be: How does the potential environmental impact of a new product compare to that of products that are already on the market?”

([www.scienceinthebox.com/en\\_UK/sustainability/lifecycleassessment\\_en.html](http://www.scienceinthebox.com/en_UK/sustainability/lifecycleassessment_en.html))

For examples of P&G’s use of LCA, see Owens (1996) and Sauter and Feijtel (2000).

In parallel to LCA, in Germany, a similar tool – PLA (*Productlinienanalyse*) - was developed by the Oko-Institut in Freiburg. It was then used experimentally in collaboration with Hoescht AG in Germany and China as a product development tool and called PROSA (Product Sustainability Assessment). PROSA consists of five basic steps (Box 8.3).

### **Box 8.3: Product sustainability assessment (PROSA): five basic steps**

- **System analysis** – providing a comprehensive description of the product and its environment, presenting a qualitative new product perception in a system-oriented correlation;
- **Sustainability references and indicator selection** (because sustainable development is a process, different region- and time -specific priorities must be set. A standard set of indicators cannot be created – they need to be derived from sustainability references).

This step provides information about

- the region and utilisation-specific sustainability references of the analysed product;
  - an indicator set that allows benchmarking of product utilisation and correlation with other products or services;
  - a basic statement on whether the product fulfils the minimum requirement of sustainability conditions.
- **Indicator application to assess products/services** – providing statements about the product:
    - Whether it meets the necessary basic requirements of sustainability;
    - Whether it contributes to sustainable development in a regional context;
    - Whether its impacts when used are positive or negative as regards sustainability;
    - How it is to be positioned – regionally and with regard to its specific utilisation – in relation to competing products and systems;
    - How it is to be placed between the two conflicting areas: “contributing to satisfying unmet basic needs” and “environmental advantages compared to product and system competitors”;
  - **Identifying impact factors**; both general strategic impact factors and more specific ones related to sustainable development;
  - **Transformation to courses of action** – resulting in:
    - An aggregation of impact factors to possible product and utilisation-oriented ‘optimisation trails’;
    - Courses of action for each trail and an assessment if each course.

Source: Balada (2002):

In 2001, the Oko-Institut ([www.oeko.de/oeko\\_en/top?en.html](http://www.oeko.de/oeko_en/top?en.html)) initiated the 'PROSA project' to further develop this approach and to harmonise it with similar methodologies as "a tool to assess and develop companies, products and services or to moderate dialogue processes. It stands at the interface of innovation and consumption, as it takes the lifecycle perspective of products and services and stresses the two-way communication between product development and consumption" (see: [www.sustainable-transformation.net/pages\\_methods/prosa.asp](http://www.sustainable-transformation.net/pages_methods/prosa.asp))

PROSA's holistic approach involves the integrated application (depending on the issues being examined and the specific indicators) of various methods relevant to the individual indicators – linking elements of scientific and everyday knowledge, data and methods to form an overarching cognitive structure. PROSA aims to link the methods and concepts of the natural sciences, technology, social sciences and economics in a system model and analysis framework. It seeks to influence societal (and industrial) processes and outcomes, by developing actor-focused, integrative and target-focused solutions.

Key elements are: mega trend and scenario analysis, life cycle assessment and costing, consumer research, and internal/external workshops. PROSA has been tested in a number of case studies in various companies and branches of industry.

In the last few years, there has been considerable progress in the area of sustainable products and services. One innovation is 'ecodesign' - an approach that addresses the relationship between a product and the environment. UNEP's manual on ecodesign (Brezet and van Hemel 1997) offers a step-by-step methodology to companies and has been used by hundreds of companies, offices, consultants, government agencies and universities.

#### **8.4 Sustainability assessment for enterprises (SAFE)**

Much of the academic debate on sustainable development seeks to put the abstract concept or model into concrete terms by using goals and indicators for its measurement. Companies play an important role in this as they are expected to play a key role in finding a model for the whole of society. Sustainability assessment for enterprises (SAFE) is an instrument developed by the Wuppertal Institute in Germany, working with small and medium-sized companies. It offers a direct, non-academic, practice-oriented approach to making sustainability a real possibility to individual companies and also individuals ([www.wupperinst.org/safe](http://www.wupperinst.org/safe)).

SAFE is a dialogue and action-oriented instrument, carried out in several steps (Box 8.4) and claims to offer:

- support in improving competitiveness;
- starting points and support in switching to resource-conserving production methods;
- drawing up company profiles to derive potential for improvement and options for action;
- active participation of employees in the process of change;
- higher motivation and involvement of the employees;
- supporting the potential for communication within the company; and
- carrying out performance control.

Its goals include:

- finding a practice-oriented approach to sustainability;
- improving participation and dialogue within the company;
- exhausting potential for improvement;
- using the know-how of employees;
- supporting the competence of employees; and
- contributing to the sustainable development of the company.

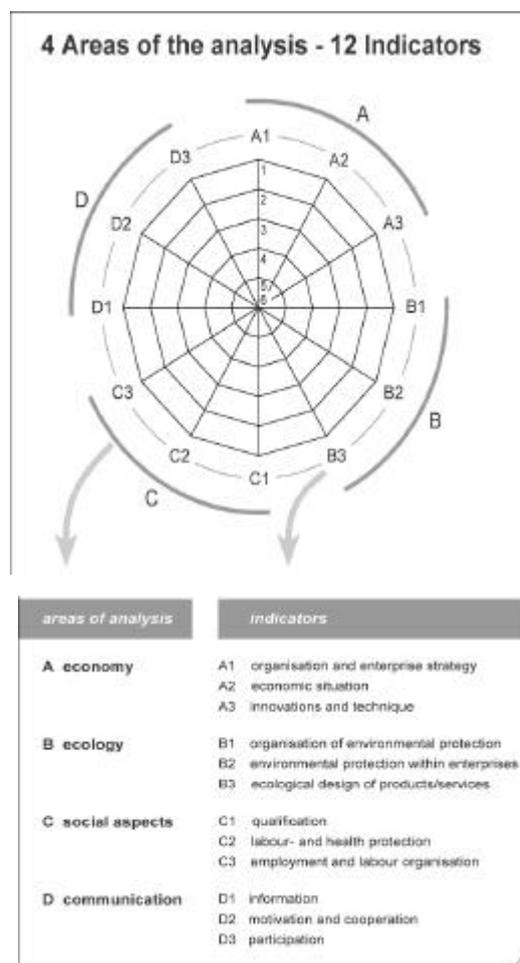
### Box 8.4: Six steps in Sustainability assessment for enterprises (SAFE)

The assignment is first clarified with the company, to agree goal, parameters and participants and discuss other issues. Once initiated, SAFE involves:

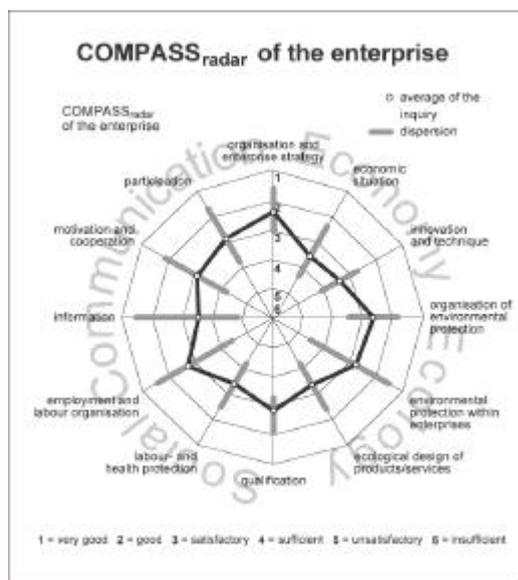
1. Setting up the "SAFE-Team" in the company consisting of about 6-20 employees.
2. A "Status quo-Analysis": a first "sustainability check" using a questionnaire (requires 30-60 minutes (Figure 8.1A).
3. Evaluation of the questionnaire: members of the SAFE team take over the assessment and the preparation of the presentation (requires 4-6 hours) (Figure 8.1B).
4. "Future Workshop" to discuss: the results - based on a profile of the enterprise and a strengths and weaknesses profile, suggestions for improvement and employees' qualification wishes, and to determine priority actions and improvement measures.
5. Implementation of the agreed measures.
6. Control of the measures carried out (e.g. through a "Controlling Workshop").

Phases 1-4 should be carried out within a short period of time (2 days up to a maximum of 4 weeks). The time for the controlling measures (Phase 6) depends on the measures to be implemented. It could be up to 3-6 months later.

**Figure 8.1A: SAFE status quo analysis analysis**



**Figure 8.1B: SAFE questionnaire analysis**



There are two ways to work with SAFE:

- the company works with SAFE on its own. This is generally possible because all the information needed can be found in the SAFE handbook (Baedeker et al. 2002, and see [www.wupperinst.org/safe](http://www.wupperinst.org/safe)). Prerequisites are: being able to work independently with the SAFE instrument, a suitably receptive company culture, and people with good process and moderation skills and experience in companies; or
- the company works with SAFE with external support. The external help will support the process and take over moderation tasks. Experience shows that it is better to work with external support as the qualitative results are better. An important argument is their neutrality in the moderation of the whole process. Especially in conflict situations can they help greatly and give good input.

According to the Wuppertal Institute, experience so far has been very positive. In all companies the participants were very motivated and committed. The number and kind of improvement measures implemented was far greater than expected. A large number of successful measures were implemented which led to cost savings, exceeded the expenses incurred.

### **8.5 Sustainability assessment model (SAM)**

The *Sustainability Assessment Model* (SAM) has been developed by BP (in conjunction with the University of Aberdeen and Genesis Oil and Gas Consultants) for use by industries to assess the sustainability of project developments (Baxter 2002), though it can also be used to assess specific design decisions and also the performance of organisations.

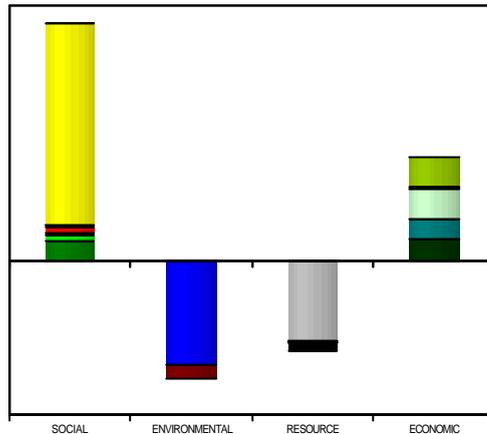
SAM has emerged from a mix of primary research, conceptual work, and applications of the principles within real projects at BP. A mix of projects have used SAM including a variety of oil and gas field developments, gas generation from landfill, and a forestry planting scheme. It assesses the positive and negative impacts of projects through their full life cycle, taking into account externalities. The method builds on full cost accounting techniques (Bebbington *et al.* 2001) which quantify the internal and external costs and benefits related to particular actions. But it also seen as indicating whether a project is acceptable. Potential project impacts (positive and negative) are dealt with in four categories: economic, resource usage, environmental and social. Data on impacts is presented in graphs (using a positive and negative axis) to indicate their “signature” (see, for example, Figure 8.2) . Impacts are monetised to provide an index which ‘measures’ the sustainability of a project. The method is likely to be limited by the availability of quantitative data.

### **5.6 Sustainable Project Appraisal Routine (SPeAR)**

Another flexible, qualitative tool for project sustainability assessment is the *Sustainable Project Appraisal Routine* (SPeAR). It was develop by Arup, the consultancy company, to demonstrate the sustainability of a project, process or product and to be used either as a management information tool or as part of a design process. The methodology can also assist in setting sustainability objectives, tracking the sustainability of a project through its life cycle and assessing alternatives where a decision is to be supported.

It has been used by both public and private sector organisations and also applied to assess the sustainability corporate strategies and policies. SPeAR is based on a four-quadrant model that gives a unique ‘visual’ profile of sustainability (Figure 8.3). The diagram structures the issues

**Figure 8.2: A SAM signature for a ‘typical’ oil and gas field development**



By way of explanation, all of the bars above the horizontal line represent a positive benefit for a capital sub-category while all bars below the horizontal line represent a disbenefit for a capital sub-category (as measured in monetary terms). The various colours in each bar represent one element within the capital sub-category. The transformative process of an oil and gas field development is thus described by the signature: financial and social benefits are obtained at the expense of environmental and resource usage costs.

The economic benefit bar is usually the only visible account of an oil and gas field development for the organisation that is undertaking the development. The signature, however, draws out the externalities (both positive and negative), that arise over the full lifecycle of an oil and gas field development. Also the major benefits and disbenefits of oil and gas field development (represented in the social and environmental sub-categories) arise after the oil and gas is extracted and are thus beyond the direct control of the organisation extracting the oil and gas or of any one group in society. In addition, three aspects of the signature dominate all others: the use of oil and gas resources (the grey shading under resource use), air pollution impacts of combusting oil and gas (the blue shading under environmental impact) and the social benefits arising from the product (which is the yellow shading under social impacts).

While an examination of the signature is instructive, it may also be used in a more focused manner to tell a story about whether or not a particular development could be said to be a sustainable development. In order to make such an assessment, some assumptions about the substitutability between different capital groups are necessary. Further elaboration on this point is necessary.

It has been noted that there are both positive and negative outcomes from an oil and gas field development. It would, therefore, be reasonable to assume that in each sub-category of capital where the number is positive, capital has been sustained, and where the number is negative, capital has not been sustained. The extent to which the capital sub-categories can be combined depends on the extent to which it is believed that capital is substitutable. There is a spectrum of views on this matter and these will affect an evaluation of whether or not a project could be said to be sustainable in terms of its SAM signature.

At one end of the spectrum, if all capital is assumed to be substitutable and if the sum of all bars in the SAM signature is positive, then the development could be said to be sustainable. It is, however, usually assumed that critical capital cannot be substituted (critical natural capital, for example, is made up of those elements of the biosphere of which there is only one). If this approach were taken then all capitals could be added together, but the project could not be deemed to be sustainable if it resulted in loss of critical capital. It is not always obvious what critical capital is. Species are often considered to be part of critical natural capital, but in the context of oil and gas it is not clear if a stable climatic system is critical natural capital. If a stable climatic system is critical capital then the signature represented in this figure would not constitute a sustainable project due to the air emission combustion impacts of the oil and gas field. Likewise, thinking about whether or not critical social capital exists is in its infancy.

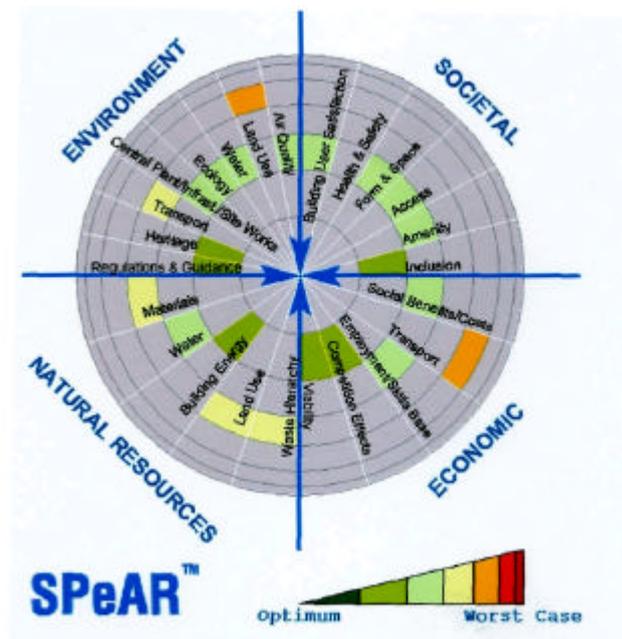
A further possible position is to allow substitution between elements within a capital sub-category but not to allow substitution between capital sub-categories. In this approach a project could be said to be sustainable if every sub-category had a net positive impact and if there was not loss in critical capital (however defined). Under such a decision rule, one would tolerate, for example, road deaths, given the benefits that arise from mobility. Such a principle could be extended to argue that no negative moves in capital could be tolerated if a project was to be described as a sustainable project. This would restrict substitution still further. The application of substitution criteria is a value-based decision that can be undertaken after modelling flows in the signature form.

Finally, it is important to note that the need to undertake remediation in order to have a sustainable project could arise from the application of SAM. In such an instance the loss of capital could be remediated for in some manner. For example, air emission impacts of transportation could be remediated by planting trees to soak up carbon emissions. In this instance the SAM signature would change in that a negative impact would be reduced. Overall the economic bar on the signature would remain the same with the split of the bar being affected by any remediation activities that involved the organisation outlaying money.

Sources: Bebbington and Frame (undated) and Bebbington and MacGregor (2003)

of sustainability into a robust framework, from which an appraisal of performance can be undertaken. It displays issues in four key areas: societal, environment, economic and natural resources, showing both positive and negative results, allowing interrelationships between aspects of sustainability to be assessed. Those closer to the centre being closest to sustainability objectives. The sectors of SPeAR and the underlying indicators are not weighted, so that all sectors are seen as making an equal contribution to sustainability.

**Figure 8.3: Example SpeAR diagram for University of California Mercur campus**



SPeAR contains a set of core sectors and indicators that have been derived from the literature on sustainability. The software is, however, capable of including indicators that reflect the context and scope of the project and so create a bespoke appraisal. The appraisal is based on the performance of each indicator against a scale of best and worst cases. Each indicator scenario is aggregated into the relevant sector and the average performance of each sector is then transferred onto the SPeAR diagram. The logical and transparent methodology behind the SPeAR diagram ensures that all scoring decisions are fully audit traceable; and the diagram provides a unique profile of performance, highlighting both strengths and weaknesses from the perspective of sustainability.

The appraisal is undertaken at a particular time. However, sustainability is not static and, as sustainability drivers change, so will the potential for further gains in resource efficiency, environmental protection, social equity and economic viability.

The information generated by the appraisal prompts innovative thinking and informs decision-making at all stages of design and development. This allows continual improvement in sustainability performance and assists in delivering sustainable objectives.

To date appraisals have been undertaken for urban regeneration schemes, development plans, manufacturing processes and products and has also been used to support a strategy formulation process.

Buselich (2001) describes how the approach works:

“The SPeAR assessment framework works by SPeAR consultants developing a set of indicators for the particular project or organisation and preparing a spreadsheet (which enables accountability of assessment results). In the case of projects, comparisons (such as comparing the ecological value of the existing site to the value of the site after development – positive or negative improvement) are fundamental to assessment. Indicators shown on the diagram normally remain constant but if required an indicator can be substituted for a more appropriate one. The indicators on the spreadsheet depend on the context. The framework is versatile and simple to understand, but the assessment processes involved, such as compiling and analysis of indicators, involve specialised knowledge. Arup assert that this is where their consultancy services are important. In any case, Arup hold rights to the use of the software behind the SPeAR sustainability assessment framework. Arup’s use of a circular diagram and background spreadsheet is a useful idea for the integration process involved in sustainability assessment and for representing results of assessment”.

## 8.7 Sustainability assessment for investment

### 8.7.1 Bank Sarasin method

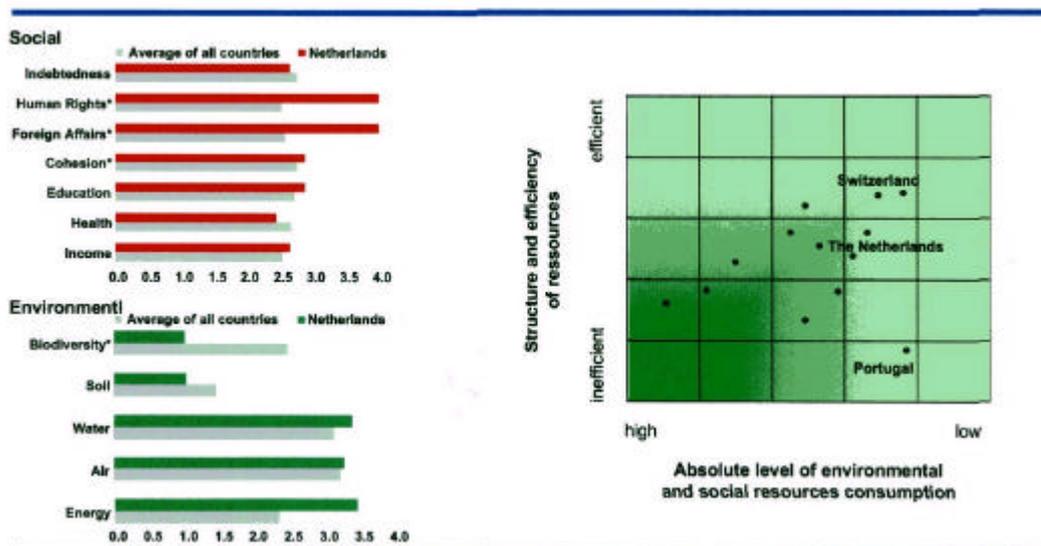
In order to limit the risks of investment, the Swiss asset management bank, Bank Sarasin, undertakes sustainability analyses of industries, enterprises and countries in accordance with ecological and social criteria using its own methodology

Its *sustainable country analysis* provides a sustainability rating for individual countries based on an assessment of its management of natural resources and its stability. It assesses:

- The quality of management of ecological, social and human resources;
- Political and institutional structures
- The structure and efficient use of resources;
- The absolute level of resources consumption

An example of a country rating for The Netherlands is shown in Figure 8.4

Figure 8.4: Bank Sarasin country rating: The Netherlands



Individual companies and industry sectors are assessed by a process of information gathering, pre-screening and financial analysis (Box 8.5), followed by sustainability assessment:

- The absolute environmental impact of an industry sector is assessed according to the WBCSD-criteria: energy efficiency, material efficiency, toxicity, etc., e.g. Airlines have a high energy consumption, therefore even an efficient airline gets a low absolute rating.
- The absolute social relevance of an industry sector is assessed according to the stakeholder approach: clients, suppliers, employees, investors, etc. - e.g. The tobacco and alcohol industries endanger the health of the consumers often at the expense of the general public. This leads to low absolute rating of the whole sector.

### **Box 8.5: Bank Sarasin sustainability assessment procedure**

#### **I. Information gathering**

- General company information
- Monitoring of several hundreds of newspapers through news services
- Specialized electronic media and internet
- Research reports (financial and non-financial)
- Company visits and management contacts
- Information from specialized Swiss and foreign research institutions, NGO's
- (Questionnaire with a total of 140 relevant industry-specific questions)

#### **II. Pre-Screening**

Ecological/social exclusion criteria

- Generally according to clients' preferences
- Sarasin standard products:
- Production of nuclear energy, armaments, automobiles, chlorine and agrochemicals, pornography, tobacco. Genetic technology is decided upon on a case to case basis

Financial exclusion criteria

- Liquidity (limited tradability)

#### **III. Financial Analysis**

Company analysis

- Quantitative: P/E (absolute and relative to the market and sector), earnings growth, PEG, CFPS, dividend yield, enterprise value/sales, margins, profitability ratios, balance sheet ratios, interest coverage, free cash flow
- Qualitative rating: Management, product range, earnings visibility, acceptance in the market, sentiment, momentum

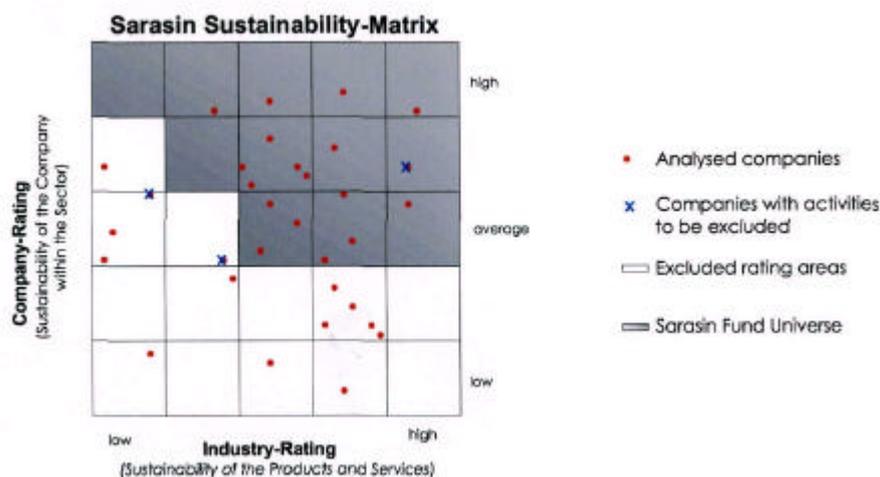
Economic scenarios

- Definition of most likely economic scenario
- Forecasting horizon 3 and 12 months
- GDP, inflation, interest rates, currencies, equity markets

Source: [www1.fidic.org/conference/2001/talks/Monday/knoerzer.asp](http://www1.fidic.org/conference/2001/talks/Monday/knoerzer.asp)

Relative sustainability of the company within an industry (ie against its peers; how well it manages its environmental and social risks) is plotted against the absolute sustainability of the industry and its technologies (contribution to environmental and social risks; compared to other industry sectors (Figure 8.5).

**Figure 8.5: Absolute sustainability portfolio**



### 8.7.2 Centre Info method

Centre Info, another Swiss-based organisation, has also developed a method for *country sustainability analysis* that complements country ratings based on economic criteria, and is used in the selection of bonds or in the weighting of countries in bond or security portfolios. The approach is based on the World Bank's categories of capital: social, human and natural. These three types are subdivided into 12 criteria evaluated by 34 indicators (Spicher 2000) (Table 8.3).

**Table 8.3: Centre Info capital indicators (Spicher 2000)**

Capital	Criteria	Indicators
Social capital	Political institutions	<ul style="list-style-type: none"> <li>• Political rights</li> <li>• Corruption</li> <li>• Press freedom-1</li> <li>• Press freedom-2</li> </ul>
	Human rights	<ul style="list-style-type: none"> <li>• Civil liberties</li> </ul>
	Social participation	<ul style="list-style-type: none"> <li>• Newspapers diffusion</li> <li>• TVs</li> <li>• Internet connections</li> </ul>
Human capital	Inequalities	<ul style="list-style-type: none"> <li>• Unemployment rate</li> <li>• Inequality index</li> </ul>
	Gender equality	<ul style="list-style-type: none"> <li>• Gender-related HDI</li> <li>• Material mortality</li> </ul>
	Health	<ul style="list-style-type: none"> <li>• Public expenditure</li> <li>• Death before 60 yrs</li> <li>• Life expectancy</li> <li>• Measles vaccines</li> <li>• Diphtheria vaccines</li> <li>• Number of nurses</li> <li>• Number of doctors</li> </ul>
	Education	<ul style="list-style-type: none"> <li>• Adult literacy rate</li> <li>• Public expenditure rate</li> </ul>

		<ul style="list-style-type: none"> <li>• Schooling rate</li> </ul>
Natural capital	Energy	<ul style="list-style-type: none"> <li>• Energy consumption</li> <li>• Energy efficiency</li> <li>• Nuclear energy production</li> </ul>
	Air	<ul style="list-style-type: none"> <li>• CO<sub>2</sub> emissions</li> <li>• Air pollution</li> </ul>
	Water	<ul style="list-style-type: none"> <li>• Organic pollutants</li> <li>• Fresh water consumption</li> </ul>
	Soil	<ul style="list-style-type: none"> <li>• Deforestation rate</li> <li>• Fertiliser use</li> </ul>
	Biodiversity	<ul style="list-style-type: none"> <li>• Protected areas</li> <li>• Threatened plant species</li> </ul>

The indicators measure different phenomena, so a common measuring unit is used to aggregate and incorporate these data. Each indicator is assigned a performance notation (on a scale 1-5) and these are averaged to produce a note (score) for each criteria and again for each form of capital, and finally capital notes are averaged to produce an overall sustainability note or rating (see example of social capital calculation for Belgium, Table 8.4).

**Table 8.4: Centre Info calculation of social capital note: example for Belgium**

(Source: Spicher 2000)

Indicators			Criteria		Social capital note	
Political rights	5.00					
Corruption	3.00					
Press freedom-1	5.00					
Press freedom-2	5.00					
Average	4.50	? Corrupteur: - 0.25 Convention: +0.05	Political institutions	4.30		
		?	Human rights	4.00		
		?	Social participation	3.87		
			Average	4.06	4.06	

## 8.8 Sustainability assessment at Shell, Canada<sup>2</sup>

Shell Canada measures sustainability against seven principles of sustainable development (Table 8.5). For each of these principles, a guide is given on what would be considered sustainable. Each component is evaluated against this guide and performance measures/indicators and recorded as a risk benefit assessment (Table 8.6). Decisions are reached (ideally) following group discussion.

<sup>2</sup> Based on Nixon & Nathwani (2004)

**Table 8.5: Shell Canada sustainable development principles**

<b>Shell SD principles</b>	<b>Description</b>
<i><b>Economic aspects</b></i>	
1. Generate robust profitability	Successful financial performance is essential to our sustainable future and contributes to the prosperity of society
2. Deliver value to customers	Customers are the lifeblood of our business. We seek constantly to strengthen existing customer relationships and develop new ones
<i><b>Environmental aspects</b></i>	
3. Protect the environment	The natural environment supports all human activity. We continually look for new ways to reduce the environmental impact of our operations, products and services throughout their life.
4. Manage resources	Efficient use of natural resources, for example, energy, land and water, reduces our costs and respects the needs of future generations. We constantly look for ways to minimise their use.
<i><b>Social aspects</b></i>	
5. Respects and safeguard people	We aim to treat everyone with respect. We strive to protect people from harm from our products and operations
6. Benefit communities	Wherever we work we are part of a local community. We will constantly look for appropriate ways to contribute to the general well-being of the community and the broader societies who grant our license to operate
7. Work with stakeholders	We affect, and we are affected by, many different groups of people, our stakeholders. We aim to recognise their interest in our business and to listen and respond to them.
<b>Overall SD evaluation</b>	

**Table 8.6: Scoring sustainability at Shell Canada**

<b>Score</b>	<b>Significance</b>
Very positive (++)	Acceptable – benefits clearly outweigh risks
Positive (+)	Acceptable – benefits outweigh risks
Neutral	Acceptable
Negative (-)	Requires further investigation, and/or risk mitigation
Very negative (--)	Unacceptable unless adequate risk mitigation can be demonstrated

## **8.9 SIGMA (Sustainability-integrated guidelines for management)**

The SIGMA project (sustainability-integrated guidelines for management) was launched in 1999 with the support of the UK Department of Trade and Industry. It aims to provide clear, practical guidance to organisations on how to move toward sustainable development, specifically by addressing social, environmental and economic dilemmas, threats and

opportunities. SIGMA guidelines have been developed through a partnership of the British Standards Institution, UK Forum for the Future and AccountAbility (an international professional body for accountability) and involved a range of sustainability practitioners and theorists.

The guidelines consist of guiding principles that help organisations to understand sustainability and their contribution to its achievement, and a management framework that integrates sustainability issues into the processes and phases of decision-making. A key feature is the link into existing management systems and frameworks such as ISO 9000 (quality) and 14001 (environmental management) series. This is designed to provide compatibility with existing systems and help organisations to build on what they have in place already. From that standpoint, the SIGMA guidelines are primarily a business planning tool. But they are intended to be flexible and usable by organisations from the private, public and voluntary sectors, regardless of size, industry or stage of development in understanding the sustainability challenge.

Specifically, they are based on the recognition that:

- sustainable development poses a challenge to the traditional mindset of organizations;
- corporate performance is judged not just by services, products and profits, but also by the impacts they have on human and social well-being and on the natural environment; and
- changing expectations bring both risks and opportunities that need to be addressed up front and explicitly.

Individual organisations select the guiding principles that best fit their values, vision, mission, strategies and operations. They should then communicate them to stakeholders and use them as a compass for informed and participatory decision-making. The principles have been developed from, and are compatible with, a range of existing codes of conduct and best practice. Where an organisation has already adopted or signed up to such codes, it can use the SIGMA guiding principles to benchmark the scope and coverage of its existing approach.

The concept of a 'triple bottom line' is widely used to describe sustainable development in an organisational context. From a business perspective, this is a revolutionary idea. It implies that companies will operate not just to deliver profitability and shareholder dividends (the economic bottom line), but to deliver improved performance against the social and environmental bottom lines (see Box 8.6). The SIGMA guiding principles build on and extend this idea by reference to five types of capital that need to be managed, protected and enhanced in an integrated fashion. These are complementary with the triple bottom line, in that manufactured and financial capital are incorporated in the economic bottom line, human and social capital represent the social bottom line, and natural capital constitutes the environmental bottom line.

The SIGMA management framework is a four-phase process comprising leadership and vision, planning, delivery and review, feedback and reporting (Table 8.7). It may be used to integrate existing management systems, building on existing approaches or establish a stand-alone management system. The 'Plan, Do, Check, Act' model that underpins the SIGMA management framework is familiar already to many organisations. As a result, many of the activities and outcomes called for in the framework may already be in place.

The SIGMA toolkit consists of a range of supporting tools, guides and case studies to support the implementation of the guidelines and to address specific sustainability issues and challenges. Some of the tools in the toolkit were developed specifically for SIGMA. Others, such as GRI (give in full) and environmental accounting, have been taken from external sources since they present the best current approach. All the SIGMA-specific tools have been developed in conjunction with piloting organisations. For example, the sustainability

### **Box 8.6: The triple bottom line and sustainable capitalism**

“The TBL concept has taken a firm hold among progressive corporations. It is proving to be a helpful conceptual tool but it has certain limitations:

- It seems to imply equal weighting between the three respective bottom lines. In fact, as will be explained, ecological sustainability over the long term is in fact pre-conditional – i.e. without it, there would be no other bottom lines of any description!
- The ‘social bottom line’ does not distinguish between individuals (essentially intellectual and creative capital) and society (organisational and institutional capital).
- Most people automatically assume that the economic bottom line simply means increased profitability year on year, increasing per capita income, and exponentially increasing GDP. In fact, this economic orthodoxy is incompatible with both ecological sustainability and social sustainability.
- For the business community, there is much more to the economic bottom line than simply focusing on increased profitability. For instance, what other economic multipliers is a company able to develop in its dealings with its host community or business partners? What is its overall contribution to the local economy? What is it doing to build entrepreneurial / professional skills?

#### **Natural capital**

The World Business Council for Sustainable Development (WBCSD) has defined “eco-efficiency” as:  
*“the delivery of competitively priced goods and services which satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle, to a level at least in line with the Earth’s estimated carrying capacity”.*

Such an approach now has the widest possible support in leading companies. After all, eliminating waste and improving efficiency are what companies should be doing for their shareholders anyway, regardless of what they should be doing for future generations.

There are many varieties of eco-efficiency initiatives: zero emissions; life cycle assessment (LCA); reduced ‘eco-footprints’; Factor Four; etc. Inevitably, this has led to confusion. Almost all of them suffer from an inability to properly address the genuinely radical idea of sustaining natural capital as a precondition to achieving all our other aspirations

Without doubt, the pursuit of eco-efficiency is vital, particularly in industrialised nations. These are responsible for most of the world’s resource consumption and pollution. But it is not synonymous with sustainability. Although business has found it relatively easy to respond to the environmental dimension of sustainability, it has barely begun to address the social dimension. This is where we need to turn to human and social capital.

#### **Human capital**

Companies see human capital to be mainly about their staff and their business partners and suppliers. When the first started producing stand-alone environment reports in the early 1990s, they were surprised to discover that one of the most important audience for them was the own staff! It is now widely understood that any serious commitment to the sustainability agenda has to be both led by the CEO/Chairman and owned as widely as possible throughout the company. There are all sorts of indicators of a company’s success in meeting the aspirations of its staff to become a genuine ‘learning organisation’.

The responsibilities of a company to its business partners and suppliers have become an area of increasing concern over the last few years. Many companies are developing supply chain initiatives to help advance their own sustainability agenda, and are looking to behave more ethically and responsibly in their dealings with suppliers, particularly in developing countries.

Developments like the Ethical Trading Initiative and the social accountability standard (SA8000) have emerged in direct response to those internal and external pressures.

### **Social capital**

The social dimension of sustainable development is gaining increased attention – for good political and corporate reasons. Great interest has been generated by Shell’s ‘Social Report’ and the Cooperative Bank’s ‘Partnerships Report’. NPI (in full) has launched a Social Index, and commentators report a marked increase in activity in this area.

As everyone agrees, this agenda is not about philanthropy. Corporate Community Investment, for instance, goes a great deal further than that. Many members of organisations such as Business in the Community have committed to a much more systematic way of “putting something back into the community”.

Nor is this agenda simply about enhancing reputation with a view to enhancing profits; there is an ethical core to it that goes deeper than the business benefits, be they direct or indirect. For large trans-national companies, there is no avoiding that ethical challenge. In their different ways, human rights and business integrity appear increasingly board agendas.

As yet, there is no consensus about the significance of this process. Some have dismissed it as the latest management fad; others see it as the principal vehicle for a profound re-evaluation of the balance of power between business, government and civil society. Either way, there is a growing recognition of the reality of interdependence: business can only thrive while society thrives; and for people to thrive, the planet must thrive too. Thinking holistically is not some New Age privilege, but a strategic business imperative.

A company’s management of its human and social capital is often captured under the notion of ‘Corporate Social Responsibility’. In its 1998 Social Report, Shell uses the following definition of social accountability:

*“The overarching ambition of an organisation to be accountable to its stakeholders and to society at large. It embraces the need for an organisation to act responsibly in contributing to sustainable development, and be accountable for its performance through externally verified reporting to pre-determined standards and performance criteria. It also implies a suitable degree of transparency with regard to the basis on which decisions are made”.*

### **Manufactured & financial capital**

Businesses are most comfortable with this part of the sustainability agenda! But even here, there is a direct challenge to conventional notions of wealth creation and economic growth that most politicians seek to avoid if they possibly can. For instance, the UK Government’s recent consultation document on its Sustainable Development Strategy talks blithely of the four components of sustainable development:

- social progress which recognises the needs of everybody;
- effective protection of the environment;
- prudent use of natural resources; and
- maintenance of high and stable levels of economic growth and employment.

This demonstrates the classical politicians’ desire to have their cake and eat it! The pursuit of conventional economic growth as we have known it since the Second World War is unlikely to be compatible with the other three components. Not only must we redefine what kind of economic growth we want, but we must accept that there inevitably will be occasions when environmental protection precludes certain types of economic development. Without a statement of principle as to the pre-conditional importance of protecting our natural capital, the underlying thrust of the economic system towards exponential growth will tend to overwhelm environmental protection when the two are in conflict”.

Source: Wilsdon 2002

**Table 8.7: SIGMA management framework**

Management Phase	Purpose
<i>Leadership and Vision</i>	<ul style="list-style-type: none"> <li>• To raise awareness on sustainability issues and how they may affect the organisation’s license to operate and future direction.</li> <li>• To secure sufficient senior level management understanding and commitment to integrate sustainability and stakeholder engagement into core processes and decision-making.</li> <li>• To develop a business case for sustainability.</li> <li>• To formulate a long-term sustainability vision and high-level strategy.</li> </ul>
<i>Planning</i>	<ul style="list-style-type: none"> <li>• To establish the organisation’s current strategies and performance with regards to sustainability, including consideration of the identification and management of organisational actions, impacts and outcomes and current and future legal and self regulatory requirements.</li> <li>• To formulate short-term sustainability action plans that support the agreed sustainability strategies and address the organisations significant actions, impacts and outcomes, with defined objectives, targets and responsibilities.</li> </ul>
<i>Delivery</i>	<ul style="list-style-type: none"> <li>• To align internal and external communications and training with strategic and tactical planning and the organisations sustainability vision.</li> <li>• To ensure that identified actions, impacts and outcomes and current and future legal and self regulatory requirements are managed.</li> <li>• To deliver sustainability strategies and associated action plans.</li> </ul>
<i>Monitor, Review and Report</i>	<ul style="list-style-type: none"> <li>• To generate and maintain efficient internal and external feedback loops to monitor progress against stated values, strategies, performance objectives and targets.</li> <li>• To meet the information needs of internal and external stakeholders via a process of reporting and by incorporating feedback into effective strategic and tactical reviews culminating in appropriate change.</li> </ul>

accounting guide summarises the current state of research and availability of tools and approaches that help organisations measure their sustainability performance in terms of resource flows and assets and liabilities in the context of Generally Accepted Accounting Practice (GAAP). In addition, different ways of bringing the information together are presented to help organisations understand options for new accounting frameworks. Users that are already implementing changes in their accounting practice, data sources for environmental coefficients and values are provided. This guide is mainly aimed at financial professionals and users with good sustainability knowledge.

The sustainability scorecard has been prepared that allows organisations to identify key drivers and how they are linked and to use this information to develop targets and measures.

**[MORE TO BE ADDED ON THIS ISSUE]**

