

Developing a Sectoral Sustainability Indicator Set taking a Stakeholder Approach

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A conceptual paper including business case presentation to be presented at
the 10th International Conference of the Greening of Industry Network
23-26 June, 2002, Göteborg, Sweden

Abstract

This paper examines stakeholder participation in sectoral industry initiatives towards sustainable development, looking in particular at developing a sectoral sustainability indicator set. Indicator sets at the sectoral level are crucial to promote sustainable business development. They help to consider fundamental differences between distinct industry sectors by drawing a sector specific picture of an industry's economic, social and environmental impacts. In this way sectoral indicators are a prerequisite for appropriate measurement and systematic management of an industry sector's sustainability performance. Additionally, a sectoral approach provides the opportunity to link sustainability initiatives at a macro-economic level (e.g. by the European Commission, Eurostat, the OECD, the German Enquete Commission of Inquiry) with those at the micro-economic level (GRI, AA2000, SA 8000, ISO 14001, CSR Europe). A methodology, called COMPASS, is presented which illustrates how industry can interact with different stakeholders (scientists, members of the public and regulators) in order to develop a sustainability indicator set for an industry sector. Experiences from applying this methodology in practice, where sectoral sustainability indicator sets have been developed taking a stakeholder approach, will be presented. Conclusions are drawn on how the approach for indicator development presented in this paper can capture the specific characteristics of sustainable development.

Keywords: Stakeholder approach, sectoral initiatives, sustainable development, indicator set

1. Introduction

Sustainable development remains a formidable challenge to the society of the 21st century. A number of initiatives have been put forward on how to reach sustainability at a macro-economic and micro-economic level. These initiatives are based on different points of view of economic, social and environmental systems and promote sustainable development with different approaches. In order to put these initiatives into business practice it is necessary to promote sustainability at enterprise and sectoral level and to translate the broad concepts into specific concepts and measurable indicators useful in day-to-day business decisions. For companies and sectors it is important to know what kind of targets and actions will lead them on a path to sustainability. That is true for economic targets (high profit, high competitiveness, low investment payback, etc.), as for ecological (high life-cycle-wide resource productivity, low toxicity, high biodiversity, low erosion, etc.) and social targets (from employee satisfaction, a low unemployment rate to overall stability in society).

Different organisations (e.g. UNCSO, Eurostat, OECD, EEA, Enquete Commission of Inquiry, Forum Environment and Development) have already introduced sustainability targets and indicators on the macro-economic level. Furthermore, various concepts for implementation of sustainable development are suggested such as, for example, "Industrial Metabolism"¹, "Cleaner Production"², "Factor 4/10"³, "Eco-Efficiency"⁴, "management of resource flows"⁵, "corporate social responsibility"⁶ or "social accountability"⁷. Those initiatives can, however, not automatically be applied to the meso and micro-economic level. An adaptation to the relevant actor and the specific conditions is needed.

Business at the micro-economic level is increasingly being expected to engage in the macro-economic targets such as protection of scarce resources, poverty eradication or education, which used to be regarded purely as issues for governments. Over the past two decades, governments throughout the world have stepped back from their traditional roles; privatisation programmes have seen the state withdraw from many sectors, and there is now a widespread reluctance to intervene in society as much as in the past. The result is higher expectations of the private sector. At the same time, the accelerating pace of globalisation has created corporations whose power often seems greater than the governments of many countries in which they operate. Consequently, there are now increasingly higher expectations of companies' environmental and social performance. They are expected to take responsibility for their environmental and social impacts; to understand the interests and demands of all stakeholders and to demonstrate through greater transparency that they are behaving responsibly.⁸

¹ see: Ayres, R.; Simonis, U.E. (1994): Industrial Metabolism – Restructuring for Sustainable Development; United Nations University Press, Tokyo, Japan.

² see: UNEP (1994): Cleaner Production; United Nations Environmental Programme Industry and Environment, Volume 17 No.4.

³ See: Weizsäcker, E.U. von, A.B. Lovins, L. Hunter Lovins (1997): Factor Four – Doubling Wealth, Halving Resource Use, Earthscan Publications Ltd, London). Schmidt-Bleek, F. (1994): MIPS and Factor 10 for a sustainable and profitable economy. Wuppertal, Germany. Wuppertal Institute. Kuhndt, M, Liedtke, C. (1998): Translating a Factor X into Practice, in: CONACCOUNT Conference Report, Amsterdam, The Netherlands 1998

⁴ see: Fussler C. (1996): Driving Eco-Innovation, Pitman Publishing.

⁵ Haake J., M. Kuhndt, C. Liedtke, T. Orbach, H. Rohn, Firms and Dematerialisation (1998), in: Sustainability in question – the search for a conceptual framework, edited by J. Gowdy, F. Hinterberger, J. van der Straaten, J. Kühn, Cheltenham, UK: Edward Elgon Publishing

⁶ European Commission (2001): Commission of the European Communities: EU CSR Green Paper: Promoting a European Framework for Corporate Social Responsibility, COM (2001) 366 final, Brussels. WBCSD (1999): Meeting Changing Expectations: Corporate Social Responsibility

⁷ Zadek, S; Pruzan, P; Evans, R. (1997): Building Corporate Accountability. Earthscan.

⁸ WWF UK (2002). To whose profit? Building a business case for sustainability. Surrey. UK.

For business actors it seems more effective to integrate the sustainability concept voluntarily as a key strategy within their business activities. In that respect, sustainable development should be initiated by personal responsibility, involvement and on one's own initiative. However, as different stakeholders often have divergent views on what is really encompassed by the term sustainable development, it is crucial to develop a more concrete view on the broad concept. Sustainable Development should be seen as an ongoing search process with components of the past, the present and the future. A re-active position, i.e. no statements of a company or sector concerning sustainable development, will cause stakeholders' criticism because sustainable development cannot be reached without the contribution of every actor at all levels of economic activity. Thus, the different industry sectors should play a proactive role, which also enables them to influence the sustainability process.

This paper discusses how sustainable development can be approached on the sectoral level using a stakeholder approach. Firstly, the paper elaborates why a sectoral indicator set can be an important element of business action towards balanced economic, environmental and social performance. Secondly, the COMPASS methodology is presented as a means to designing an sustainability indicator set for a sector taking a stakeholder approach. Finally, conclusions are derived from practical experiences with different sectors.

2. The need for a sustainability indicator set at the sectoral level

In order to achieve business goals, indicators are accepted as management tools used throughout business. Companies commonly use indicators or indicator sets, e.g. for target setting, monitoring and steering performance, benchmarking or reporting to internal and external stakeholders. An indicator can be defined in a simple way according to Hart: "An indicator is something that helps us to understand where we are, which way we are going, and how far we are from where we want to be. A good indicator alerts us to a problem before it gets too bad and helps us recognise what needs to be done to fix the problem."⁹

According to the WBCSD, indicators are specific measurements of an individual aspect that can be used to track and demonstrate performance. Indicators make it easier to communicate about sustainable development. They translate the concept of sustainable development into numerical terms, descriptive measures, and action-oriented signs and signals.¹⁰ The IISD defines indicators as presentations of measurements. They are bits of information that summarise the characteristics of systems or highlight what is happening in a system. Indicators simplify complex phenomena, and make it possible to gauge the general status of a system. You can find indicators everywhere, from the gauges and dials on a car's dashboard, to readings taken by a doctor, to the financial reports in the business pages of a newspaper.¹¹

From those definitions, but also from management theories, it is apparent that indicators are useful tools for information gathering and assessment, and thus crucial elements of any management process. Considering the increasing internal and external information demand on sustainable industrial development, sustainability indicators are essential tools for business to manage the change towards a more sustainable future.

⁹ Hart, M. (1999). Guide to sustainable community indicators. Hart Environmental Data, 2nd ed.

¹⁰ WBCSD Working Group on Eco-Efficiency Metrics & Reporting (ed.) (1999). ECO-Efficiency Indicators & Reporting. Report on the Status of the Project's Work in Progress and Guideline for Pilot Application. Geneva. p. 4

¹¹ IISD (2001a). Intro to indicators. What is an indicator? Available (online): <http://iisd.ca/measure/faqindicator.htm>. 17.04.2001.

For **internal** decision-making, companies and sectors increasingly recognise the value of a detailed and balanced information basis. The advantages of an integrated approach to social, environmental and economic business goals (triple-bottom-line) have been shown in a variety of publications.¹² In that sense, sustainability performance information can be useful at different levels: It can support management at the operational level to evaluate and continuously improve its performance and progress in order to realise cost-saving potentials and to comply with the regulatory framework, at the tactical level to improve products and services, as well as at the strategical level to benchmark the company or sector against competitors or to give guidance on investment decisions (see table 1).

Table 1: Corporate decision situations requiring sustainability information.

Level of decision	Question type	Examples of decisions where sustainability performance information is helpful
Strategic level	1.Strategic planning	<ul style="list-style-type: none"> • Corporate policy development • Long-term strategies for technological development • Strategies for research and development of a sustainable product portfolio.
	2.Capital investments and acquisition	<ul style="list-style-type: none"> • Investments in new technologies or production lines improving the sustainability performance.
Tactical level	3.Design and development (products/services and processes)	<ul style="list-style-type: none"> • Product and service developments at different levels of improvement • Process development • Technology development
Operational level	4.Communication and marketing	<ul style="list-style-type: none"> • Marketing decisions: sustainability information can be used by companies to advertise their products as "more sustainable" or to protect themselves against adverse claims about products by competitors, NGOs and consumers. • Product labelling (ISO 14020, Type III) • Sustainability reporting for external communication, co-operation and networking
	5.Operational management (including operational purchasing and procurement)	<ul style="list-style-type: none"> • Internal monitoring • Identify and prioritise management opportunities • Compliance with existing or upcoming regulation or initiatives (e.g. IPP) • Sustainability management and auditing • Product stewardship and chain management • Supplier choice, especially relevant in view of issues like e.g. chain liability • Benchmarking: companies can compare themselves with each other or may want to monitor their own sustainability performance over time

¹² See for example: Claussen/Kottmann (1999). Umweltkennzahlen im Einsatz für das Benchmarking [Using Environmental Indicators for Benchmarking]; Hroch and Schaltegger (2001). Berücksichtigt die betriebliche Umweltberichterstattung aktuelle umweltpolitische Themen? [Does Corporate Environmental Reporting consider topics of current interest in environmental politics?]. to be published in UmweltFocus; Figge F./Hahn, T./Schaltegger, S./Wagner, M. (2001). Sustainability balanced scorecard. Wertorientiertes Nachhaltigkeitsmanagement mit der Balanced Scorecard. [Sustainability balanced scorecard. Value orientated sustainability management with a Balanced Scorecard] Centre for Sustainability Management. Lüneburg.

Source: adopted from UNEP (1999) and CHAINET (forthcoming).¹³

From an **external** perspective, industry is facing an increasing demand for sustainability information from different stakeholders and organisations. Examples are:

Financial institutions and insurance companies are increasingly taking triple-bottom-line business performance issues into account. About 180 financial institutions have signed the "UNEP Statement by Financial Institutions on the Environment and Sustainable Development"¹⁴ in which they recognise that sustainable development is the collective responsibility of government, business, and individuals. They are committed to working co-operatively within the framework of market mechanisms towards common environmental goals and to pursuing best practice in environmental management, including energy efficiency, recycling and waste reduction. Furthermore, they will seek to form business relations with partners, suppliers and subcontractors who similarly follow high environmental and social standards. As a response to the statement, an increasing number of financial institutions have developed or are developing investment funds with an ecological and/or social and/or ethical focus. For the assessment of companies they increasingly ask for relevant information like sustainability performance evaluation, benchmarking and sustainability ratings. The demand for sustainability information by financial institutions can act as a driver for companies to improve their performance. Externally, companies are starting to use those sustainability evaluations by financial institutions for their marketing activities as well as an evaluation of their environmental or social performance relative to other companies.¹⁵

Governmental organisations, NGOs and multi-stakeholder initiatives show a growing interest in the social strand of sustainability, especially in framing corporate social responsibility (CSR). The number of initiatives outlining voluntary approaches to CSR have rapidly increased over the last three years (see the following figure). These initiatives have been led by different national and international governmental bodies, by business and civil society organisations. Much effort has been expended to agree on standardised information demands. However, so far just a few tools for sustainable business development have been standardised, like the AA1000 for social auditing and SA 8000 (see table 2).

¹³ UNEP (1999). In CHAINET (forthcoming). Guidebook by European Network on Chain Analysis for Environmental Decision Support. Centre for Environmental Science. The Netherlands.

¹⁴ UNEP Division of Technology, Industry and Economics, Economics and Trade Unit (2000). Financial Services Initiatives. Available (online): http://unepfi.net/fii/sig_alpha.pdf.

¹⁵ Orbach, T./Kuhndt, M./von Geibler, J. (forthcoming). Financial Institutions – A Driver for Sustainable Industrial Development. Wuppertal Paper. Wuppertal.

Figure 1: Recent developments in corporate social responsibility.

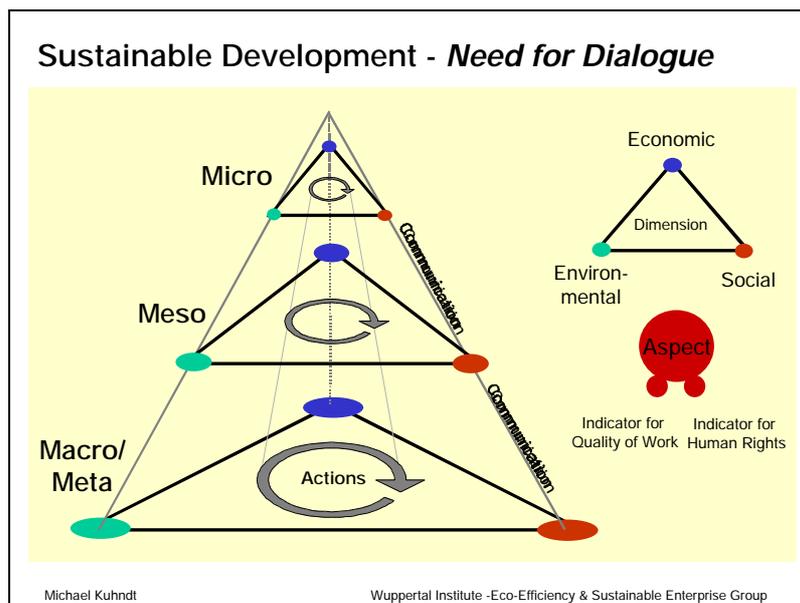
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- AccountAbility AA 2000 (release in April 2002)
 - EU Commission Green Paper on CSR (June 2001)
 - Global Reporting Initiative (GRI): Sustainability Reporting Guidelines (June 2000)
 - OECD: OECD Guidelines for Multinational Enterprises (revised June 2000)
 - EU Commission: Social Policy Agenda (adopted June 2000)
 - Amnesty International and the Prince of Wales Business Leaders' Forum (PWBLF): Human rights – is it any of your business? (April 2000)
 - World Business Council for Sustainable Development (WBCSD): Corporate Social Responsibility: making good business sense (January 2000)
 - AccountAbility AA 1000 (November 1999)
 - European Business Network for Social Cohesion CSR Matrix (October 1999)
 - Global Corporate Governance Forum (September 1999)
 - UN Secretary General: UN Global Compact (January 1999)
 - CSR Europe: Communicating CSR (1998)
 - Social Accountability International (SAI): SA 8000 (October 1997)

Source: Kuhndt, M., Geibler, J.v. and Liedtke, C. (2002).

NGOs pay attention to effective ways to promote sustainable business development. NGOs not only target their actions directly at industry, they are increasingly approaching business indirectly by influencing other relevant stakeholders of industry. For example, the environmental group Greenpeace is using mass media to reach customers of companies. Thus, it can be a relevant actor in changing companies such as Shell, which is now a recognised leader in reporting its social performance. Friends of the Earth ran a campaign in 2000 aimed at persuading insurance companies to adopt more sustainable investment policies. The Eco-efficiency and Sustainable Enterprises Team at the Wuppertal Institute is currently developing a methodology to benchmark financial organisations with respect to their sustainability activities in order to stimulate those.

In summary, sustainability performance information about an entire sector and on single companies is relevant to the needs and interests of different stakeholders and may encourage further dialogues. Hereby, sustainability indicators are also a means of communicating between the micro, meso and macro-level, as illustrated in figure 2. For example in the international context, sector specific indicator sets can contribute to discussions about environmental and sustainability performance assessment and reporting taking place in arenas such as Integrated Product Policy (IPP) and/or the Global Reporting Initiative (for GRI, see table 2).

Figure 2: Communication between different levels.



Source: Kuhndt, M. and Liedtke, C. (1999).

The work on suitable indicator sets is not yet finished or harmonised on any level of socio-economic activity. Especially on the meso and micro-level, differences between companies and sectors complicate the development of commonly accepted, internationally harmonised and practicable methodologies, which enable comparisons between nations, regions and enterprises including targets and indicators for all dimensions of sustainability. However, the similarities between companies within a sector, e.g. their common process technologies and related impacts, common framework conditions and similar market positions, can be used to specify what sustainable development means for companies within this sector. Thus, the meso-level is asked to take an active part in the search and selection process of sustainability indicators.

3. Designing a Sustainability Indicator Set for a Sector

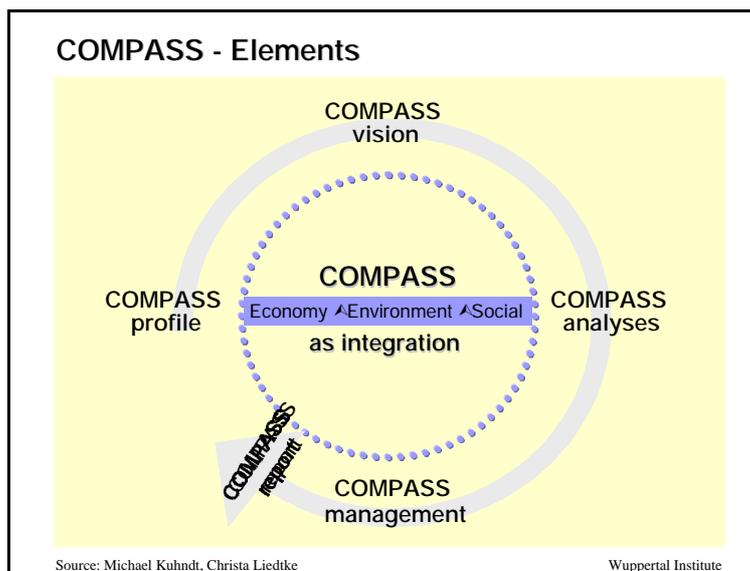
3.1 Identifying relevant categories and aspects

3.1.1 Introduction

The Wuppertal Institute has recognised the need of decision-makers in business to provide transparent information about their sustainability performance to external stakeholders and to obtain an internal information basis on economic, social and environmental aspects in order to evaluate and continuously improve the sustainability performance of their companies. As a response, in 1998 the Eco-Efficiency and Sustainable Enterprises Team developed a methodology named COMPASS (companies' and sectors' path to sustainability).¹⁶ COMPASS helps companies and sectors to manage their sustainability performance (see figure 3).

¹⁶ Kuhndt, Michael/Liedtke, Christa (1999). COMPASS – Companies' and Sectors' Path to Sustainability – The Methodology. Wuppertal Paper No. 97. Wuppertal. Germany.

Figure 3: Elements of COMPASS.



Source: Kuhndt, M. and Liedtke, C. (1999).

COMPASS combines five elements:

- COMPASS_{profile} aims at describing the state of knowledge about economic, social and environmental performance issues within the company/sector and the expectations of different stakeholders facing the company/sector.
- COMPASS_{vision} helps to develop a sustainability vision for the company/sector and to define goals and targets to be reached.
- COMPASS_{analysis} assists in the selection of a set of relevant indicators and explores the distance-to-target by performance measurement and benchmarking.
- COMPASS_{management} finally ensures the translation of the target set and indicators selected into decision-making processes by providing suitable management instruments.
- In COMPASS_{report} a communication plan is prepared that helps to report (according to international standards and guidelines, like those provided by ISO and GRI) to an internal or external audience on performance improvements and achievements.

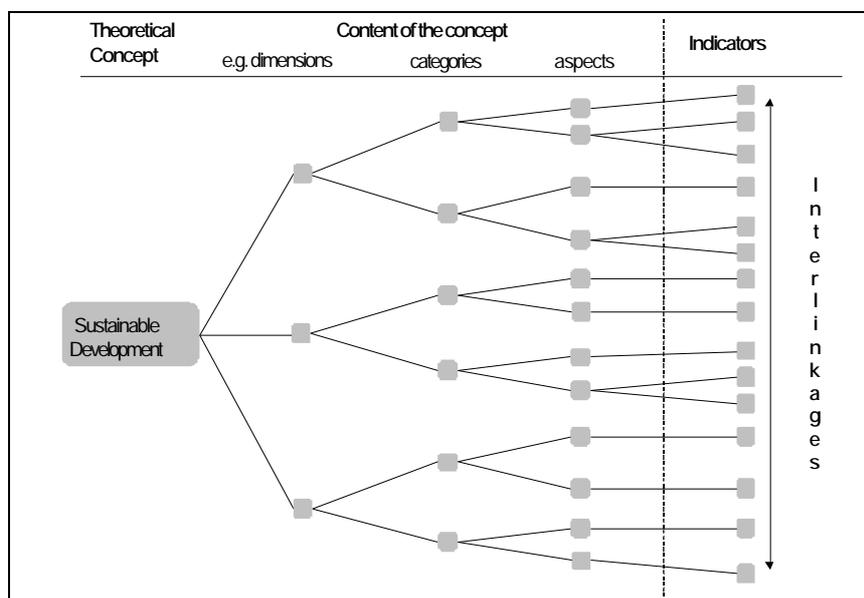
The COMPASS_{profile} is the essential basis for the entire management process. It provides methods to identify and prioritise the system-wide impacts of a sector's sustainability issues. Such information is a prerequisite for the selection of indicators to measure the sustainability performance of a sector.

Since theoretical concepts like sustainability are too abstract and broadly formulated to directly define indicators to measure them, it is necessary to first specify their content. For this purpose, COMPASS uses a method called concept-specification or dimensional analysis (see figure 4).¹⁷ This method has been developed by social sciences and is used here to

¹⁷ Diekmann (1998). Empirische Sozialforschung. Grundlagen, Methoden, Anwendungen [Empirical Social Sciences. Basics, Methods, Applications]. 4th edition. Hamburg. Germany. p. 181; Schnell, R./Hill, P.B./Esser, E. (1995). Methoden der empirischen Sozialforschung [Methods for empirical social sciences], 5th edition. München/Wien/Oldenburger. Germany, p. 118; Köhler, R. (1987). Informationen für die strategische Planung von Produktinnovationen [Information for strategic planning of product innovations]. in: Klein-Blenkers, F. (Ed.). Distributionspolitik [Distribution politics]. Cologne, p. 85; Hujer, R./Knepel, H. (1984). Inhaltliche und formale Kriterien der Analyse ökonomischer Systeme [Content-related and formal criteria for the analysis of economic systems]. in: Roth, E. (Ed.). Sozialwissenschaftliche Methoden [Methods for social sciences]. München. Germany, p. 619.

break down the concept of sustainable development into dimensions, categories and aspects.

Figure 4: Concept-specification – splitting the concept “sustainable development” into dimensions, categories and aspects.



Source: adopted from Köhler (1987).

The concept-specification follows a step-by-step approach. In a first step, the sustainability concept is split into dimensions that roughly characterise it.¹⁸ In the current debate, sustainability is broken down into an economic, a social and an environmental dimension. This approach can be used as a first, very broad specification. Further, a much more detailed splitting into categories and aspects is undertaken¹⁹. Categories and aspects are defined as follows:

- **Categories:** The broad areas, or groupings, of economic, environmental, or social issues of concern to stakeholders (e.g. air, energy, labour practices, local economic impacts).
- **Aspects:** The general types of information that are related to a specific category (e.g. greenhouse gas emissions, energy consumed by source, child labour practices, donations to host communities). A given category may

¹⁸ Fürtjes, H.-J. (1982). Das Gestaltungspotential von Instrumenten der empirischen Wirtschafts- und Sozialforschung [The potential of instruments used in empirical economic and social research work]. Cologne. Germany. p. 36.

¹⁹ This approach is for example used by the Global Reporting Initiative, ISO in its 14000 series and by the World Business Council for Sustainable Development (WBCSD) in his eco-efficiency approach. The underlying structure of the Theme/Sub-Theme approach followed by the United Nations Commission for Sustainable Development (UNCSD) is structurally identical, but uses different terms. Instead of categories and aspects they use the terms theme and sub-theme. See UNCSD (Ed.) (2001). Indicators of Sustainable Development: Framework and Methodologies. Background Paper No. 3, New York 2001 DESA/DSD/2001/3. p. 12.; Global Reporting Initiative (2000). Sustainability Reporting Guidelines on Economic, Environmental and Social Performance, Boston. USA. p. 18; ISO 14031 (1999). Environmental management -- Environmental performance evaluation -- Guidelines; WBCSD Working Group on Eco-Efficiency Metrics & Reporting (Ed.) (1999). ECO-Efficiency Indicators & Reporting. Report on the Status of the Project's Work in Progress and Guideline for Pilot Application, Geneva. p. 3.

have several aspects.”²⁰

The identification of relevant dimensions, categories and aspects helps to understand a sector’s main sustainability issues by “drawing a picture” of the sector-specific sustainability context. This “picture” serves as a basis for the selection of appropriate indicators in a next step.

Both the identification of categories and aspects as well as the selection of indicators are – as a matter of principle – based on individual and therefore subjective viewpoints. They involve the risk that relevant issues are not included, which might lead to a loss of information or irrelevant issues being taken into account without any information gain.²¹ To minimise those risks and to assure the selection of appropriate indicators, a systematic approach has been developed, presented in the following.

COMPASS uses three core tools for the identification of relevant categories and aspects of sustainable development in a sector:

- a sustainability agendas review (see 3.1.2)
- a sectoral focus area analysis (see 3.1.3)
- a consideration of stakeholder expectations (see 3.1.4).

Whereas the review of current sustainability agendas provides an overview of the broader sustainability debate, a focus area analysis helps to track sector-specific key issues. The results from the agenda review and the focus area analysis serve as essential input for the consideration of expectations by internal and external stakeholders. These core elements are described in more detail in the following sections.

3.1.2 Review of current sustainability agendas

Different sustainability agendas have been set up by various stakeholders (political institutions, consumer associations, NGOs, business, etc.). A variety of regional, national and international efforts relevant to industry are already underway. A review of those agendas is an useful input for sector-specific stakeholder consultations as it provides information to the following questions.

- What are current trends in the international sustainability debate? Which of them are relevant to the sector?
- What are the stakeholders’ demands on companies and whole business sectors towards sustainable development?
- Where do governments, non-governmental organisations (e.g. research institutes, universities, trade unions), actors representing consumer needs (e.g. consumer organisations) and business (individual enterprises and business associations) address sustainability targets and indicators relevant to the specific industry?
- What sustainability issues are considered in other indicator approaches?
- Which qualitative and quantitative sustainability indicators are already classified?

Some of the principal trends in policy and business agendas now being pursued include: expanded application of economic instruments to environmental management; measures to encourage eco-efficient production patterns and corporate social responsibility; supply and

²⁰ Global Reporting Initiative (2000). Sustainability Reporting Guidelines on Economic, Environmental and Social Performance. Boston. USA p. 18.

²¹ Rennings, Klaus (1994). Indikatoren für eine dauerhaft-umweltgerechte Entwicklung [Indicators for a sustainable-environmentally adequate development]. Münster. Germany. p. 144; Fürtjes, H.-J. (1982). Das Gestaltungspotential von Instrumenten der empirischen Wirtschafts- und Sozialforschung [The potential of instruments used in empirical economic and social research work]. Cologne. Germany. p. 38.

demand-side management strategies; increasing public participation in business and policy development; information and public awareness programmes; product performance targets and policies and guidelines for reporting. The following table provides an overview of some international initiatives relevant to sustainable business development.

Table 2: Selected initiatives / documents for sustainable business development and their core mission.

Leading Organisation	Initiative / Document	Core Mission
United Nations (UN)	Agenda 21	<ul style="list-style-type: none"> provide a comprehensive plan of action to be taken globally, nationally and locally by organisations of the United Nations System, Governments, and Major Groups in every area in which there are human impacts on the environment.
Commission on Sustainable Development (CSD)	Indicators for Sustainable Development: Framework and Methodologies	<ul style="list-style-type: none"> provide a framework for the development and selection of sustainability indicators to monitor progress towards sustainable development at the national level ensure a high level of practicability and acceptance through intensive pilot testing
International Labour Organisation (ILO)	ILO standards	<ul style="list-style-type: none"> establish norms covering all aspects of working conditions and industrial relations ensure that member countries respect, promote and realise these norms, especially the principles concerning the fundamental rights at work
Organisation for Economic Co-operation and Development (OECD)	The OECD Guidelines for Multinational Enterprises (MNEs)	<ul style="list-style-type: none"> encourage responsible business practices enhance MNE's contribution to sustainable development strengthen government-business relationships
EU Commission	European Commission's Green Paper on Corporate Social Responsibility (CSR)	<ul style="list-style-type: none"> initiate a wide debate on CSR at all levels development of a CSR framework (in the long run)
United Nations (Secretary General)	UN Global Compact	<ul style="list-style-type: none"> build the social and environmental pillars required to sustain the new global economy make globalisation work for all the world's people, based on commitment to universal principles
Global Reporting Initiative (GRI)	Sustainability Reporting Guidelines on economic, environmental and social performance	<ul style="list-style-type: none"> forge the link between environmental and economic performance elevate sustainability reporting to a level equivalent to financial reporting through a standardised reporting framework
International Organization for Standardization (ISO)	ISO 14031	<ul style="list-style-type: none"> offer an internal management tool designed to provide management with reliable and verifiable information on an ongoing basis to determine whether an organisation's environmental performance is meeting the criteria set by management
Social Accountability International (SAI)	SA 8000	<ul style="list-style-type: none"> improve labour conditions through a human workplace standard, a verification system and public reporting
Accountability. Institute of Social and Ethical Accountability	AA 2000. Consultation briefing 1	<ul style="list-style-type: none"> improve the accountability and overall performance of organisations by increasing quality of social and ethical accounting, auditing and reporting
United Nations Environment Programme (UNEP)	UNEP's Financial Institutions Initiative	<ul style="list-style-type: none"> engage a broad range of financial institutions in a constructive dialogue about sustainable development issues identify, promote, and realise the adoption of best sustainability practice at all levels of financial institution operations.
Dow Jones Sustainability Group Indexes (partnership of Dow Jones & Company with Sustainable Asset Management (SAM))	SAM Questionnaire	<ul style="list-style-type: none"> ranking of sustainability leader companies for investment purposes according to their management of sustainability opportunities and risks
International Chamber of Commerce (ICC)	ICC Business Charter for Sustainable	<ul style="list-style-type: none"> encourage continuous improvement in environmental management and practice

Leading Organisation	Initiative / Document	Core Mission
	Development	<ul style="list-style-type: none"> • commitment of the widest range of enterprises to the charter's principles • assist enterprises in fulfilling their commitment
World Business Council for Sustainable Development (WBCSD)	Measuring Eco-Efficiency	<ul style="list-style-type: none"> • reduce business impact on the environment while continuing to grow and develop
	Corporate social responsibility: making good business sense	<ul style="list-style-type: none"> • increase the understanding of CSR in the business community, including the following aspects: interdependent nature of the business-society relationship, contribution of CSR to long-term prosperity, the role of stakeholder dialogue • offer a navigator to guide companies in the implementation of CSR in daily business practice
Corporate Social Responsibility Europe (CSR Europe)	Communicating Corporate Social Responsibility	<ul style="list-style-type: none"> • encourage companies to voluntary external reporting on social and environmental performance across all company operations • encourage companies to use a variety of communication methods • provide a CSR reporting approach
Amnesty International (AI) and Prince of Wales Business Leaders Forum (PWBLF)	Human rights – is it any of your business?	<ul style="list-style-type: none"> • inform companies on business relevant human rights aspects • assist companies in developing adequate human rights policies

Source: Kuhndt, M., Geibler, J.v. and Liedtke, C. (2002).

The presented sustainability initiatives are relevant on the international level. It might be useful to consider additionally further agendas, depending on the specific sector in focus. These might be relevant national or regional agendas, e.g. the sustainability indicator set by the Department of the Environment, Transport and the Regions (UK)²² or local agenda 21 activities.

3.1.3 Focus-area analysis of the sector

A focus area analysis is a useful tool to complete the more general information from the agenda review. A focus area analysis of a sector helps to identify key, sector-specific areas for a sector's path towards sustainability. The origin of specific focus areas might be based on the common process technologies and related impacts, common framework conditions and past, current or planned sustainability activities within this sector.

For the focus area analysis, relevant information sources should be taken into account. These could be, for example, sustainability reports by the sustainability pioneers within the sector, risk evaluations for the main product groups or scientific sector-specific information. In response to today's trends like supply chain responsibility and product stewardship,²³ it is beneficial to apply a life-cycle-wide approach.

The outcome of the analysis is specific categories and aspects related to the economic, environmental or social dimension of sustainability. Hereby, it might turn out that some aspects might be relevant to two or even three dimensions.

3.1.4 Consideration of stakeholder expectations

Considering stakeholders expectations can be an effective way of integrating a wider range of relevant aspects, actors and expertise into management decisions in order to settle or at

²² Department of the Environment, Transport and Regions, UK (1999): Quality of life counts, London.

²³ see for example: Global Reporting Initiative (2000): Sustainability Reporting Guidelines on Economic, Environmental and Social Performance, Boston June 2000 (considers performance of suppliers and products and services) or WBCSD (1999): Meeting Changing Expectations: Corporate Social Responsibility.

least clarify controversial questions before intensive planning steps. Hereby, stakeholders can point out the different viewpoints which might be future potential opportunities or risks. By identifying these stakeholder expectations and relevant pluralistic interests, multi-stakeholder processes (MSPs) enable a new approach to expertise and governance. Experience shows that as a result the quality of decisions and their implementation can be significantly improved.²⁴ Consequently the core objectives and benefits of a MSP can be summarised as

- bringing together all major stakeholders,
- promoting better decisions by means of wider input,
- integrating diverse viewpoints,
- creating mutual trust and benefits,
- creating commitment through participants identifying with the outcome and thus
- increasing the likelihood of successful implementation

Recent developments in the debate on sustainable development highlight the importance of such stakeholder consultation processes, like for example in GRI,²⁵ the European Commission's Green Paper on Corporate Social Responsibility,²⁶ or the Integrated Product Policy approach from the European Commission.²⁷

In practice there are different forms of stakeholder processes. They cover a wide spectrum of levels of involvement and can range from informing processes to monitoring processes and mechanisms, implementation processes, and processes which include dialogues but also consensus-building, decision-making and implementation.²⁸ Different types of communication appropriate for different forms of stakeholder processes are presented according to Hund in figure 5.

²⁴ Spangenberg, J. H./Valentin, A. (1999). Indicators for Sustainable Communities. Draft, Wuppertal 1999, p. 9.

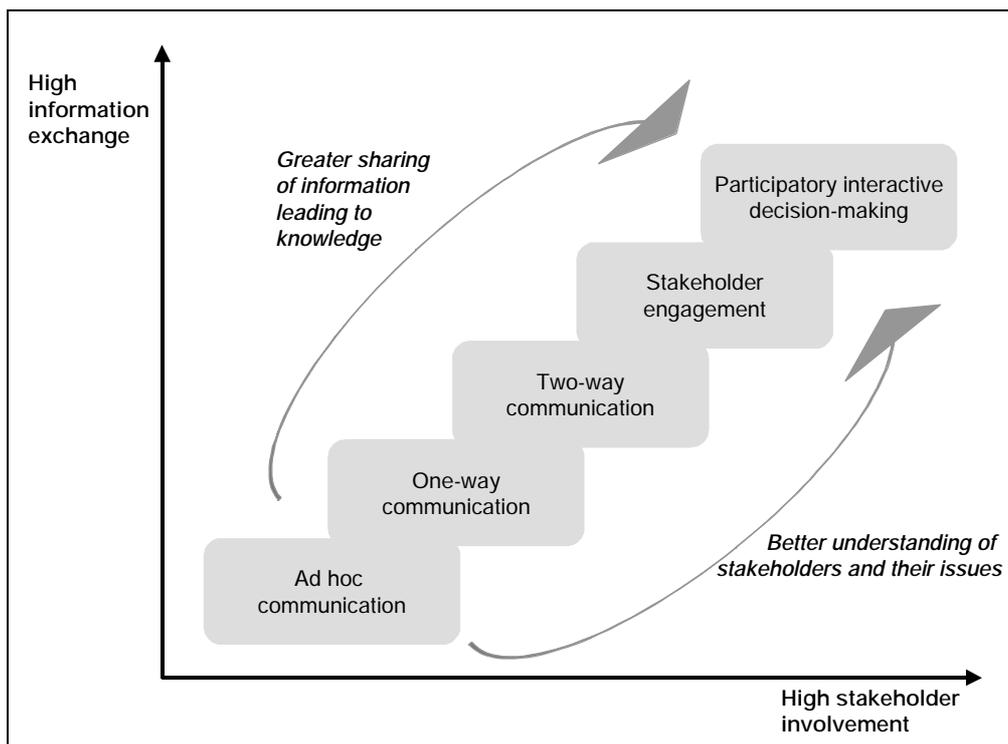
²⁵ Global Reporting Initiative (2000). Sustainability Reporting Guidelines on economic, environmental and social performance. Boston. USA.

²⁶ European Commission (2001). Promoting a European framework for Corporate Social Responsibility, Brussels. Belgium.

²⁷ European Commission (2001). Green paper for the integrated product policy. Brussels. Belgium

²⁸ Hemmati, M. (2001). A Methodological Framework for Multi-Stakeholder Processes. A UNED Forum (Draft) Report. UNED Forum. London. UK. p. 30

Figure 5: Types of communication.



Source: Hund et al. (2001).

Here, a stakeholder survey has been used as a **starting point** for stakeholder involvement. The overall objective of the stakeholder survey is to gather data on opinions and expectations from internal and external stakeholders regarding sustainable development in the sector. The structure of the survey reflects this objective and is made up of three main blocks:

- importance of sustainability aspects derived from the agenda review,
- importance of sector specific sustainability aspects derived from the focus area analysis, and
- importance of different stakeholders for the sector.

Any multi-stakeholder approach is characterised by actively involving a wide range of stakeholders in decision-finding and possibly decision-making and implementation. The selection of survey participants depends on who is considered a stakeholder. There are different approaches to this question. According to Freeman a stakeholder is any group or individual who can affect or is affected by the achievement of an organisational purpose.²⁹ This definition is rather broad as it includes interested parties as well as affected parties. Therefore, some argue for restricting the term "stakeholder" to those who have a "stake" or vested interest in the firm.³⁰ In management practice, for instance in sustainability reporting and social auditing, stakeholders are defined as primary or secondary, depending on an assessment of whether they are immediately affected by, or can immediately affect, a firm's operations.³¹ Since one of the core objectives of multi-stakeholder processes (MSPs) is to promote better decisions in terms of wider acceptance and a more successful

²⁹ Freeman, R. E. (1984). Strategic Management: A Stakeholder Approach, Marsfield Massachusetts. USA. p. 25.

³⁰ Carroll, A.B. (1993). Business and Society: Ethics and Stakeholder Management, South-Western: Cincinnati, USA.

³¹ Bendell, J. (2000). Talking for Change? Reflections on Effective Stakeholder Dialogue. A paper for New Academy of Business Innovation Network.

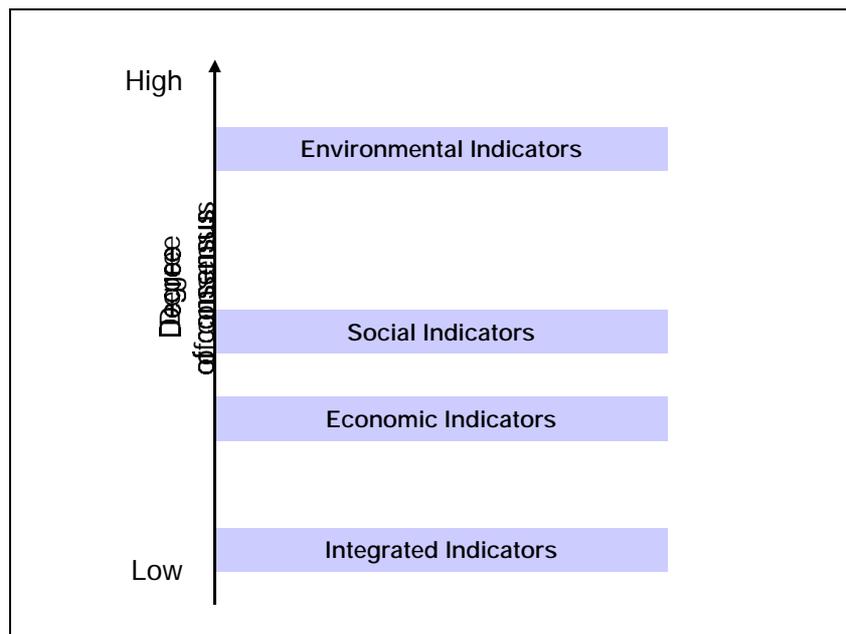
implementation, it is crucial to bring together all major stakeholders. This helps to reflect the stakeholders' different basic values and hierarchies of values. Whereas for many NGOs, for example, transparency and equity are high priorities, some businesses and governments can place more importance on quickening processes and producing outcome in a short time period. In order to obtain a balanced view from a broad range of stakeholders, it seems appropriate to choose a wide stakeholder definition.

In order to get a balanced view from a wide range of stakeholder expectations, the survey should be addressed to and answered by both internal stakeholders (representatives from companies and associations) and external stakeholders (representatives from, for example, research institutions, governmental organisations, financial institutions, consumer organisations, environmental and social NGOs, media or competitors). Representatives from the institutions should be selected according to their expertise with respect to the specific sector.

The selected survey participants are asked to evaluate sustainability categories and aspects identified in the agenda review and the focus area analysis according to their perceived importance. In all sections space for additional aspects/stakeholders and further comments is given. It is important to identify additional categories and aspects which are relevant from a stakeholder's perspective but which have not been included according to the agenda review and the focus area analysis. A following comparative analysis allows the stakeholder views to be highlighted.

With respect to which type of information internal and external stakeholders expect from the industry, current surveys observed that there is most consensus on environmental information, whereas there is less consensus on information regarding social and economic issues. This finding can be explained by the fact that environmental information and indicators have been in public discussions and scientific reviews for a long time (over 20 years). In contrast, the setting up of economic and social information/indicators has been less in the stakeholder discussion. This is changing in the current debate. This situation has also been described in the Global Reporting Initiative reporting guidelines, as the following figure illustrates.

Figure 6: Degree of international consensus on sustainability indicators.



Source: GRI (2000).

Whereas the agenda review and the focus area analysis serve to identify a wide range of possibly relevant sustainability issues, the consideration of stakeholder expectations is used to set priorities and to finally conclude a list of relevant categories and aspects for the sector's path to sustainability. This list has the character of an initial portrait of opinions. It can be taken as a starting point for further integration of information sharing and improved understanding of stakeholders.

3.2 Selecting sectoral sustainability indicators

One of the key challenges aiming at the selection of sustainability indicators for business is the variety of different business characteristics. While it is tempting to presume that there could be one "universal" set of indicators that would apply to all sectors, in practice it has to be distinguished between core and specific sustainability indicators. **Core indicators** are generally internationally agreed indicators. They relate to a global sustainability concern or value and they are relevant and meaningful to virtually all businesses. These indicators provide data that can be aggregated from micro- to meso- or macro-level. In contrast, **specific indicators** depend upon the specific nature of a business. Therefore, such indicators provide information at micro- or meso-level. Aggregation to the macro-level is often not possible.

Before selecting appropriate indicators to build up an indicator set, a **framework** for modelling the underlying concept of sustainability has to be agreed upon.³² Such a framework is the result of a functional analysis of the sustainability concept and contains an understanding of "what sustainable development means in practice". Core questions a framework should answer are: "Which are the basic elements of sustainability and which relationship exists between those elements?" Different types of frameworks are used to model sustainability, e.g. causal frameworks like the Driving Force-Pressure-Response approach, formerly used by the OECD and the UNCSO, or domain-based frameworks like the category-aspect approach used by GRI, ISO and the WBCSD. Up to now there is no framework which adequately considers the interlinkages within and between the dimensions of sustainable development. Prevailing in practice is currently the category-aspect framework, which is also used in this paper.

In order to build a meaningful indicator set, a **systematic procedure** is needed. Recognising the importance of such a procedure, the International Organisation for Standardisation ISO drew up an international standard, ISO 14031, giving guidance for developing environmental indicators. Based on this standard, further literature³³ and expertise of the Wuppertal Institute, several aspects are suggested to be considered within the process of indicator selection.

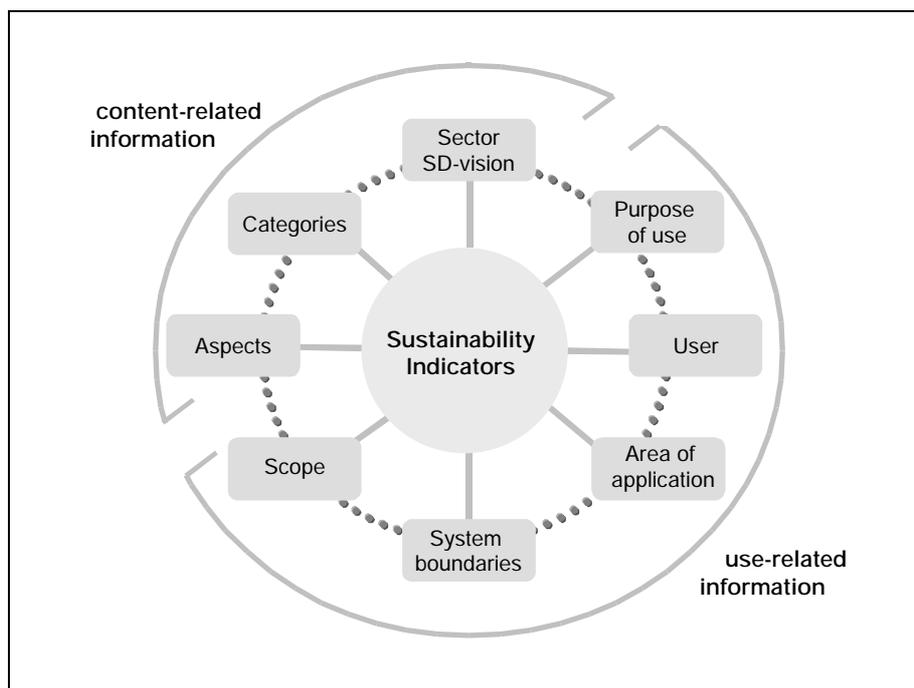
Due to the context-related nature of indicators, core elements of the indicator selection process can be derived from the context in which sustainability indicators obtain their relevance. This context, we call it the "**framework of sustainability indicators**", consists of

³² Rennings, Klaus (1994). Indikatoren für eine dauerhafte-umweltgerechte Entwicklung [Indicators for a sustainable-environmentally adequate development]. Münster. Germany. p. 130; Birkmann, Jörg et al. (Ed.) (1999). Indikatoren für eine nachhaltige Raumplanung. Methoden und Konzepte der Indikatorenforschung [Indicators for a sustainable planning. Methods and concepts of indicator research work]. Dortmund. Germany. p. 21; Szerenyi, Timea (1999). Zur Operationalisierung von Nachhaltigkeit und nachhaltiger Entwicklung [Operationalising of sustainability and sustainable development]. Cologne. p. 43.

³³ European Commission (1999): Towards a European Set of Environmental Headline Indicators – draft jointly prepared by EEA & Eurostat, European Commission, Directorate General XI, Environment, Nuclear Safety and Civil Protection, Brussels. EUROSTAT (1999a): Towards environmental pressure indicators for the EU, Luxemburg. UNCSO (2001): Indicators of Sustainable Development. Framework and Methodologies. Background Paper No. 3. University of Sussex. Science and Technology Policy Research (2000): Indicators for monitoring integration of environment and sustainable development in enterprise policy, first interim report, 14 May 2000.

two components, a content-related one and a use-related one. As shown in figure 7, both components consist of several elements.

Figure 7: Framework of sustainability indicators



Source: adopted from Eckermann (2001).

The **content-related component** of the framework describes current – rather traditional economic – targets and goals formulated by the sector (e.g. by its associations) and – if existing – also the sustainability vision of the sector. Furthermore, it lists the categories and aspects derived from using the approaches described in the previous section. In contrast, the **use-related component** provides information concerning on the one hand the application of the indicators (purpose of use, user, area of application) and on the other hand the scope of the object inspected including a definition of its system boundaries. A brief explanation of these elements is given below.

- **Scope definition**³⁴: Definition and description of the object for which the indicators are selected. A definition of the underlying sector should be given, including a statement for which geographical area the indicators are developed.
- **Setting system boundaries**³⁵: Decision on whether the indicators should only relate to the enterprises belonging to a sector or whether a system-wide approach should be followed considering the whole value chain. Generally, the trend can be observed to consider the whole value chain.³⁶
- **Knowing the area of application, user and purpose of use**³⁷: The design of indicators varies according to different areas of their application (e.g. internal and/or external

³⁴ Kuhndt, Michael/Liedtke, Christa (1999). COMPASS – Companies' and Sectors' Path to Sustainability – The Methodology. Wuppertal Paper No. 97. Wuppertal. Germany. p. 27.

³⁵ Kuhndt, Michael/Liedtke, Christa (1999). COMPASS – Companies' and Sectors' Path to Sustainability – The Methodology. Wuppertal Paper No. 97. Wuppertal. Germany. p. 27.

³⁶ see: Global Reporting Initiative (2000). Sustainability Reporting Guidelines on Economic, Environmental and Social Performance. Boston. USA (considers performance of suppliers and products and services) or WBCSD (1999). Meeting Changing Expectations: Corporate Social Responsibility. Geneva.

³⁷ Birkmann, Jörg et al. (Ed.) (1999). Indikatoren für eine nachhaltige Raumplanung. Methoden und Konzepte der Indikatorenforschung [Indicators for a sustainable planning. Methods and concepts of indicator research

reporting, controlling, benchmarking), different users (management representatives, government, financial market analysts, NGOs, etc.), and different purposes (e.g. external reporting for marketing purposes, to satisfy information demands from governments or from other stakeholders).

This use-related information should be specified in the process as early as possible to allow optimal adjustment of the indicators to the respective context. Preferably, these issues should be agreed upon prior to the identification of relevant categories and aspects, since their identification depends to a certain extent on the information provided in the use-related part of the indicator framework.

Indicator selection finally takes place based on the content and use-related information. To facilitate this step **indicator selection criteria** should be defined. Such criteria help to evaluate indicators and assure the selection of adequate indicators. Selection criteria are, for example, reliability, validity, relevance, comprehensibility, data availability, and reasonable cost.³⁸ In addition to these generally used and accepted criteria, we suggest – concerning our approach to indicator development – to also consider the relevance of the underlying aspects to the stakeholders according to the survey, the relevance according to the agenda review, the internal relevance for the sector and the possible level of aggregation (e.g. on process level / on product level / on site level / on company level / on sector level).

The selection criteria applied and the indicator selection should be discussed and agreed upon in a dialogue process involving the potential users of the indicator set. This dialogue should preferably be accompanied by external experts on sustainability indicators. A neutral partner helps to build trust between sector representatives and external stakeholders. Especially the selection of sustainability indicators should be supported by experts to assure the selection of appropriate indicators and a high level of compatibility with other approaches on an international level. The experts may first draw up a draft which should be discussed with and evaluated by sector representatives against the criteria set up. A second draft of the indicator set – reworked according to the workshop results – may then be subject for discussion with a wider range of internal and external stakeholders. In order to achieve real stakeholder involvement and a gradually increasing level of information sharing and a better understanding of the stakeholders and their issues (see figure 5), those stakeholders who took part in the stakeholder survey should be given the opportunity to participate in the dialogue. Additional stakeholders may be invited. The feed-back given in this dialogue serves as input for an ultimate revision and leads to a final indicator set, which should be applied as foreseen in the use-related framework in a next step.

Such a “final” indicator set is of temporary nature. It needs to be revised from time to time to adapt the indicators to changing stakeholder demands, significant modifications in the underlying sector, e.g. technological innovation, and progress made in research on

work]. Dortmund. Germany. p. 58; Szerenyi, Tímea (1999). Zur Operationalisierung von Nachhaltigkeit und nachhaltiger Entwicklung [Operationalising of sustainability and sustainable development]. Cologne. p. 34; Günther, Edeltraud/Schuh, Heiko (2000). Definitionen, Konzepte, Kriterien und Indikatoren einer nachhaltigen Entwicklung. Eine Literaturstudie im Auftrag der Degussa-Hüls AG [Definitions, concepts, criteria and indicators of sustainable development. A literature review on behalf of Degussa-Hüls AG]. in: Dresdner Beiträge zur Betriebswirtschaftslehre. Nr. 39/00. Dresden. Germany. p. 15.

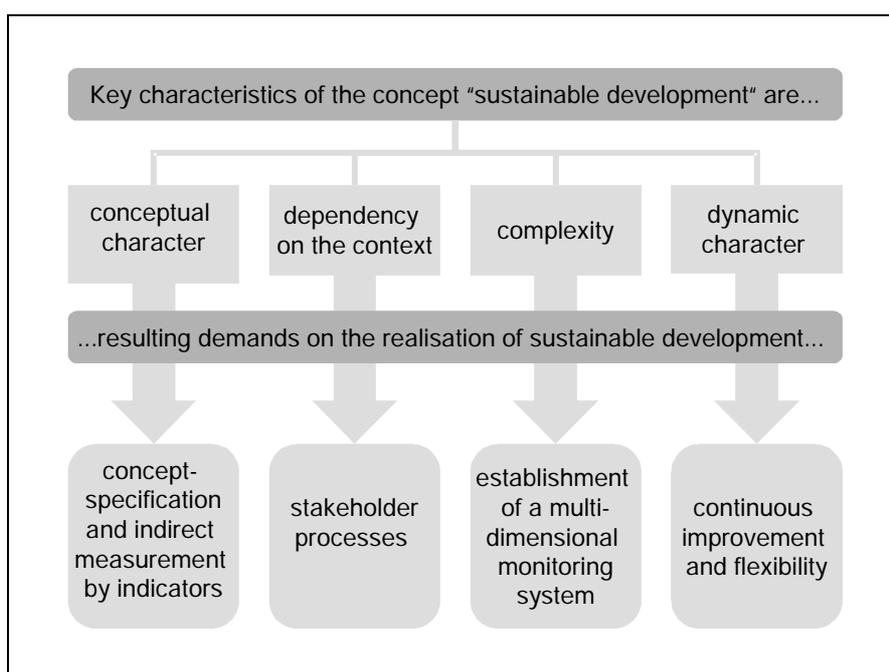
³⁸ WBCSD (2000). Measuring Eco-Efficiency. A Guide to Reporting Company Performance. p. 11; Günther, Edeltraud/Schuh, Heiko (2000). Definitionen, Konzepte, Kriterien und Indikatoren einer nachhaltigen Entwicklung. Eine Literaturstudie im Auftrag der Degussa-Hüls AG [Definitions, concepts, criteria and indicators of sustainable development. A literature review on behalf of Degussa-Hüls AG]. in: Dresdner Beiträge zur Betriebswirtschaftslehre. Nr. 39/00. Dresden. Germany. p. 46; Rennings, Klaus (1994). Indikatoren für eine dauerhafte-umweltgerechte Entwicklung [Indicators for a sustainable-environmentally adequate development]. Münster. Germany. p. 144; Birkmann, Jörg et al. (Ed.) (1999). Indikatoren für eine nachhaltige Raumplanung. Methoden und Konzepte der Indikatorenforschung [Indicators for a sustainable planning. Methods and concepts of indicator research work]. Dortmund. Germany. p. 58.

sustainability indicators. A revision on a regular basis is common management practice aiming at continuous improvement.

4. Conclusions – Lessons learned from practice

The experiences from developing an sectoral sustainability indicator set in practice (as within a project with the European aluminium industry and with the German chemical industry) showed that the presented approach addresses major characteristics of sustainable development as highlighted in the following figure.

Figure 8: Key elements of the concept of sustainable development and resulting demands on its realisation.



Source: adopted from Eckermann (2001).

Taking a stakeholder approach considers the specific context of the organisation in focus. Thus, the involvement of stakeholders is an important element when a sustainability indicator set is developed. Once stakeholders are involved effectively, the development of an indicator set is more transparent and the stakeholders build up trust for a long-term relationship. Hereby, stakeholder involvement follows the trend of recent public initiatives promoting sustainable development which have drawn on the stakeholder approach as a means of getting a broad consensus among different societal groups.

For the actors involved in the indicator development it is crucial to get a more tangible view of the conceptual character of sustainable development. This can be achieved by reviewing and understanding the current sustainability debate, identifying relevant focus areas and considering stakeholder expectations. Instead of developing integrated indicators directly for sustainability, indicators are developed for identified aspects which are considered to be relevant. One of the main challenges to the realisation of sustainable development is the interrelation between numerous categories and aspects. This complex diversity can as a first step be addressed by developing a set of indicators. Within the set, the interlinkages between the different aspects can be highlighted and should be considered when using it.

Sustainable development relates to an unlimited time horizon and is an on-going dynamic process. The dynamic character of sustainability has been considered in the development of the indicator set considering two issues: Firstly, the COMPASS methodology outlines a dynamic discussion process by the sequence of workshops. Secondly, the flexible timeframe, as suggested for the implementation of the indicator set, allows adaptations for a specific organisational context. Over time single aspects might be added if the stakeholders demand information on additional issues. Experience from the historical developments in environmental reporting shows that more aspects tend to be added than are dropped.

As highlighted above, the development of an indicator set for a sector depends on the context. Here, the regional context might be very influential. The importance of some aspects, such as drinking water consumption or the importance of economic profit, is likely to be different in different geographical regions. The regional differences might be taken into account through the consideration of specific national or regional agendas and/or stakeholders. However, once the sustainability indicator set has been established, it is suggested to integrate it into the management accounting system and to collect information that could then be presented in a sectoral sustainability report, which can be seen as an important tool for a continuous improvement process toward a more sustainable development.

Business actors need suitable indicator sets in order to accurately grasp the scope of the impacts they are generating, to access the outcome of the measures they are taking and to effectively communicate their activities towards sustainable development. The presented approach aimed at methodological novelty due to its sectoral approach. Methodologically, the objective has been to demonstrate the practical consideration of current sustainability agendas and expectations of relevant stakeholders, e.g. governmental bodies, financial institutions, NGOs, academic researchers, standards organisations and industry associations. Relevant categories and aspects of sustainability have been identified and considered for an indicator set that forms a basis for a reliable, complete and transparent measure of a sectors' sustainability performance.

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