

Sustainable Value of European Industry

A Value-Based Analysis of the Environmental Performance of
European Manufacturing Companies

FULL VERSION

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1 Executive Summary

The ADVANCE Survey

The ADVANCE survey assesses the value created by 65 European companies from the manufacturing sector through their environmental performance. ADVANCE uses the Sustainable Value approach which enables sustainable performance to be measured in monetary terms. ADVANCE is funded by the EU and the participating organisations.

The assessment approaches used to date do not allow the expression of corporate environmental performance in monetary terms. In addition, it has been notoriously difficult to express corporate environmental performance in a way that is inline with financial market and business decision makers. For the first time, ADVANCE applies a methodology on a large scale that takes a fresh look at measuring environmental performance.

Sustainable Value measures the use of environmental resources in a new way. Rather than comparing how costly, painful or burdensome the use of an environmental resource is, Sustainable Value compares the value that can be created with a resource by different economic actors. From this point of view, companies create value whenever they use a resource more efficiently than other companies. This approach is new – and builds on a long tradition. What Sustainable Value now applies to environmental resources has been practised in the financial markets for many decades. As a result, Sustainable Value expresses corporate environmental performance in monetary terms and inline with managerial thinking.

This short version of the ADVANCE survey provides a brief but comprehensive overview of the methodology, results and major findings of the environmental assessment of 65 European companies. The full version of the ADVANCE survey is available at www.advance-project.org.

What is ADVANCE all about?

ADVANCE assesses the environmental performance of 65 European companies from the manufacturing sector with the Sustainable Value approach. ADVANCE represents the first large-scale application of the Sustainable Value approach, whilst at the same time, it demonstrates the real world applicability of the approach. By using the environmental data that is available in the market today, ADVANCE provides a transparent and meaningful assessment of the environmental performance of 65 European companies in monetary terms.

What is the Sustainable Value approach?

Conventionally, investors and analysts concentrate on the return on capital. However, companies do not only use economic capital but also environmental and social resources to create a return. In order to assess corporate sustainable performance we need to assess the use of the entire bundle of resources. Sustainable Value expresses the use of a bundle of resources in monetary terms. It is based on a fundamental insight of financial economics: To create value, a company must use resources more efficiently than other

companies. Sustainable Value therefore compares the resource use of a company to a benchmark. A company that emits 10 tons of CO₂ to create 100 € Gross Value Added has a CO₂-efficiency of 10 € per ton of CO₂. If companies in the EU15 created only 6 € Gross Value Added per ton of CO₂ on average, then 10 tons of CO₂ create 60 € of Gross Value Added on the EU15 benchmark level. This is the return that would have been created if the 10 tons of CO₂ had been used by the benchmark instead of the company (opportunity costs). The company therefore creates 40 € more return with 10 tons of CO₂ compared to the benchmark. In other words, the company covers its opportunity costs and creates a value of 40 €. Sustainable Value applies this line of thinking to all kinds of resources that companies use. It can express the use of economic, environmental and social resources in monetary terms. Sustainable Value shows the value that a company creates or destroys by the use of a set of resources. Sustainable Value extends the logic of financial markets to cover more than economic capital. And it translates corporate sustainable performance into a language that is inline with managers' and investors' thinking.

What does ADVANCE look at?

ADVANCE applies the Sustainable Value approach to assess the use of 7 environmental resources by 65 European companies from 16 countries and 18 different sectors. The 7 environmental resources that we take into account are:

- Carbon dioxide (CO₂)-emissions,
- Nitrogen oxide (NO_x)-emissions,
- Sulphur oxide (SO_x)-emissions,
- Emissions of volatile organic compounds (VOC),
- Methane (CH₄)-emissions,
- Waste generation and
- Water use.

As pointed out above, a company creates value when it generates more return with its resources than the benchmark. ADVANCE uses the EU15 as the benchmark.

How do we calculate Sustainable Value?

We determine for each company, where the resources of the company create more return: In the company or in the EU15 on average. For this purpose, we determine how much Gross Value Added a company creates with the different resources it uses. For instance, the Italian autoparts company Pirelli, emitted 1.37 million tons of CO₂ in 2003. At the same time, it created a Gross Value Added of 2.03 billion € and thus 1,478 € per ton of CO₂. In 2003, the EU15 created 2,701 € GDP per ton of CO₂ emitted. Used by Pirelli, 1.37 million tons of CO₂ create 2.03 billion €. If the same amount of CO₂ emissions was to be used by the EU15 instead of Pirelli, a return of 3.7 billion € would have resulted. This represents the opportunity cost of Pirelli's CO₂-emissions. We now compare the return that the company *has* created with the return the benchmark *would have* created with the company's resources (opportunity costs). In this case, the benchmark would have created a higher return than Pirelli. In 2003, Pirelli thus did not use CO₂ in

a value-creating way. The value contribution of Pirelli's CO₂-emissions in 2003 is –1.67 billion €. Figure A illustrates the analysis.

	Amount used by the company		Efficiency [€ per unit of resource]		Return created with the resources		Value contribution
CO ₂ - emissions	1,370,613 t	Company	1,478	→	2,026,000,000 €	}	-1,676,623,890 €
		Benchmark EU15	2,701	→	3,702,623,890 €		

Figure A. Calculating Sustainable Value – The example of Pirelli and CO₂-emissions in 2003.

We apply this logic to all seven environmental resources listed above to obtain the value contribution of every resource. In 2003, Pirelli used five out of the seven environmental resources in a value-creating way. In the last step, we determine how much value is created by the entire bundle of resources. Overall, with the set of seven different environmental resources considered in the ADVANCE survey, Pirelli has created a Sustainable Value of about 485 million € in 2003. Put differently, with its resources Pirelli has created 485 million € more return than the EU15 on average would have created by using the same bundle of resources. Annex II offers in-depth profiles of all 65 companies analysed in the ADVANCE project.

How do we take company size into account?

When comparing companies, a size effect gets in the way. Usually, large companies are expected to have larger profit, sales or cash flow figures. The same applies to Sustainable Value figures. We therefore take company size into account when comparing different companies. For this purpose, we use the so-called Return to Cost Ratio (RCR). The Return to Cost Ratio compares the Gross Value Added of a company to the return the benchmark would have created with the resources of the company (opportunity costs). Thus, it is a typical benefit-to-cost-ratio. A Return to Cost Ratio larger (smaller) than 1 indicates that the company yields more (less) return per unit of resource, i.e. the company uses its bundle of resources more (less) efficiently than the EU15 on average. For instance, Pirelli had a Return to Cost Ratio of 1.3 : 1 in 2003, i.e. overall it used its resources 1.3 times more efficiently than the EU15 on average. This means that Pirelli achieved a return of 1.30 € Gross Value Added where the EU15 on average created only 1 € with the same set of resources. Holmen, a Swedish forestry & paper company, with its Return to Cost Ratio of 1 : 2.1 uses its resources only about half as efficiently than the benchmark. In other words, Holmen creates only 1 € of Gross Value Added out of a set of resources that would yield 2.10 € if the benchmark used these resources.

How does ADVANCE look into the future?

The ADVANCE survey assesses the environmental performance of 65 European companies under two different scenarios. The past performance scenario assesses the environmental performance of the companies over a time period of three years from 2001 to 2003. Here, we use the EU15 performance in the respective years as the benchmark.

The results show which companies have created Sustainable Value in the past. In the future performance scenario, we compare the company performance to the EU15 policy targets for 2010. The EU15 strives for both, a higher GDP as well as lower environmental impacts. As a result of the quantified targets for 2010, we know how efficiently the EU15 wants to use environmental resources by 2010. With these target efficiencies we calculate how much Gross Value Added companies must create with their environmental resources to create Sustainable Value in the future.

What are the results?

In the past performance scenario, we analyse which companies created a positive Sustainable Value in the past. In the years 2001 to 2003, 29 of the 65 companies created a positive Sustainable Value. These companies used their bundle of environmental resources more efficiently than the EU15 benchmark. The spread of Sustainable Value between the leaders and the laggards is considerable: While DaimlerChrysler created a positive Sustainable Value of 29.9 billion € in 2003, Shell had a negative Sustainable Value of –180.9 billion €. To rank the 65 companies, we compared their respective Return to Cost Ratios, i.e. we took company size into account. Table A shows the ranking of the 65 companies according to their performance in 2003. Airbus holds the top position while MVM is last in the ranking. DaimlerChrysler, the company that produces the highest absolute Sustainable Value in the survey, comes in eighth. This indicates the effect of company size: If we take into account company size, DaimlerChrysler does not hold the top position any more. Accordingly, at the bottom of the ranking, Shell's highly negative Sustainable Value is partly due to its size. Shell comes in on rank 49 in the Return to Cost Ratio ranking. The top ranking companies have a Return to Cost Ratio of more than 4 : 1. This means that they use their environmental resources over four times more efficiently than the EU15 on average. In contrast, the lowest ranking companies are 30 times or more inefficient compared to the EU15 benchmark (for a more detailed description of the results see section 5.1.1).

Rank 2003	Company	RCR 2003	Sustainable Value 2003
1	Airbus	4.5 : 1	4,979,414,025 €
2	Novonordisk	4.4 : 1	1,803,753,359 €
3	Gorenje	4.3 : 1	173,345,874 €
4	BMW	3.9 : 1	9,510,633,231 €
5	Schering	3.8 : 1	1,856,454,221 €
6	Philips	3.6 : 1	7,598,054,795 €
7	DaimlerChrysler	3.6 : 1	29,876,257,351 €
8	Heidelberger Druckmaschinen	3.4 : 1	1,045,327,850 €
9	Agfa-Gevaert	3.1 : 1	1,414,583,745 €
10	PSA	3 : 1	6,768,651,026 €
11	NedCar	2.9 : 1	332,640,428 €
12	ABB	2.8 : 1	4,864,578,563 €
13	Robert Bosch	2.7 : 1	9,831,338,053 €
14	MAN	2.5 : 1	2,911,193,152 €
15	Volvo	2.5 : 1	3,396,583,146 €
16	Henkel	2.5 : 1	1,727,305,657 €

Rank 2003	Company	RCR 2003	Sustainable Value 2003
17	STMicroelectronics	2.2 : 1	1,864,722,805 €
18	AstraZeneca	2.1 : 1	4,751,779,963 €
19	Scania	2 : 1	918,892,898 €
20	Renault	1.9 : 1	4,033,665,898 €
21	Novozymes	1.7 : 1	188,204,358 €
22	Electrolux	1.6 : 1	1,344,258,783 €
23	Atlas Copco	1.6 : 1	764,760,925 €
24	Richter	1.5 : 1	65,527,374 €
25	Volkswagen	1.5 : 1	8,059,197,491 €
26	Unilever	1.4 : 1	3,936,173,454 €
27	Heineken	1.3 : 1	945,376,403 €
28	Pirelli	1.3 : 1	484,840,349 €
29	SKF	1.3 : 1	462,421,338 €
30	Acea	1 : 1.2	-92,371,263 €
31	Imperial Chemical Industries	1 : 1.4	-1,179,280,321 €
32	SCA	1 : 1.6	-2,053,526,721 €
33	FIAT Group	1 : 1.8	-5,167,821,763 €
34	Holmen	1 : 2.1	-686,700,910 €
35	BASF	1 : 2.2	-13,872,669,586 €
36	Royal DSM	1 : 2.2	-2,362,906,433 €
37	Centrica	1 : 2.6	-6,484,312,051 €
38	Degussa	1 : 2.7	-8,294,523,146 €
39	BG Group	1 : 2.7	-4,664,900,505 €
40	UPM-Kymmene	1 : 2.7	-5,896,828,632 €
41	AEM Torino	1 : 3.2	-454,372,273 €
42	M-Real Corporation	1 : 3.2	-3,484,338,448 €
43	Pilkington	1 : 3.9	-4,271,035,368 €
44	Stora Enso	1 : 4.6	-14,082,317,266 €
45	ENEL	1 : 5	-53,148,520,028 €
46	Crown van Gelder	1 : 5	-155,668,471 €
47	BP	1 : 5.4	-134,132,952,397 €
48	OMV	1 : 5.8	-7,462,535,912 €
49	Shell	1 : 5.9	-180,917,018,746 €
50	ASM	1 : 6	-1,627,498,489 €
51	ENI	1 : 7.1	-76,763,875,489 €
52	Celanese	1 : 7.8	-7,553,743,315 €
53	Repsol YPF	1 : 8.7	-55,854,211,710 €
54	Suez	1 : 8.9	-110,625,047,824 €
55	Scottish & Southern Energy	1 : 9	-12,309,698,069 €
56	Kemira	1 : 9.2	-6,383,372,500 €
57	AEM	1 : 14.2	-7,142,337,483 €
58	Fortum	1 : 16.3	-40,000,506,604 €
59	Edison	1 : 18.8	-22,242,425,384 €
60	Energias de Portugal	1 : 21	-47,855,870,740 €
61	Slovnaft	1 : 26.1	-5,612,746,855 €
62	ERG	1 : 27.9	-13,934,166,613 €
63	Union Fenosa	1 : 29.7	-56,413,585,743 €
64	Unipetrol	1 : 40	-9,494,288,327 €
65	MVM	1 : 188.3	-49,084,322,299 €

Table A. Company ranking for the year 2003.

The results of the future performance scenario show which companies use their environmental resources in a value-creating way, in the light of the 2010 performance targets already today. In this scenario, 25 of the 65 companies have a positive Sustainable Value. Looking at the Return to Cost Ratio ranking of the companies in the future performance scenario, we find that the top position has changed. It is now held by Novonordisk. Airbus, the leader in the 2003 past performance scenario, ranks fourth (for detailed results of the future performance scenario see section 5.1.2). The changes in the ranking are due to the different exposure of the companies vis-à-vis the different reduction targets. For instance, the EU has set a particularly ambitious target for VOC emissions. Companies with a poor VOC-efficiency will be hit particularly hard by this target.

Assessing corporate environmental performance with the Sustainable Value approach offers a wide variety of in-depth analyses. The results of the in-depth analyses provide more detailed insight into the environmental performance of the 65 companies.

- ***The Sustainable Value of companies depends on their sector affiliation.***

ADVANCE takes an in-depth look at the following seven sectors: automobile, chemicals, engineering & machinery, forestry & paper, oil & gas, pharmaceuticals, and utilities. It is not surprising that sector affiliation is an important determinant of a company's performance. There is a clear distinction between more resource intensive sectors on the one hand, and more R&D and knowledge driven sectors on the other hand. Consequently, most of the companies from the automobile, engineering & machinery and pharmaceuticals sectors have a positive Sustainable Value. By contrast, companies from the forestry & paper industry, the oil & gas sector, and utilities use their environmental resources less efficiently than the EU15 on average.

- ***The performance of companies within sectors varies considerably.***

Comparing the companies of the same sector (best in class) shows that performance within sectors sometimes varies considerably. This allows us to distinguish between leaders and laggards of the different sectors. For instance in 2003, BMW, the most eco-efficient European automobile company, uses its environmental resources about seven times more efficiently than FIAT, the laggard within this sector. Such differences between the performances of companies of the same sector indicate that there may be a considerable impact of different management practices and technologies applied (for more details see section 5.2.2).

- ***The sectors are characterised by specific strengths and weaknesses.***

The in-depth analysis shows the specific strengths and weaknesses for each sector. For this purpose, we compare the efficiency of resource use in a sector to the EU15 benchmark. As a result, we can distinguish between those resources that are used in the most value-creating way in a sector, and those that are most detrimental for the sector's performance. For instance, it turns out that from a value-oriented perspective, SO_x-emissions represent a specific weakness in the oil & gas sector as they have been used more than 13 times less efficiently than the EU15 average in 2003. In the engineering & machinery sector, by contrast, SO_x-emis-

sions constitute a value driver as they have been used more than 30 times more efficiently than by the benchmark. An interesting case arises in the automobile sector: In 2003, all resources have been used more efficiently compared to the EU15 benchmark. However, assessed against the 2010 reduction targets, the VOC-emissions in the automobile sector are not used in a value-creating way (for more details see 5.2.2).

- ***Not all companies succeeded to improve their environmental performance between 2001 and 2003.***

The past performance scenario assesses the environmental performance of the 65 companies between 2001 and 2003. We show which of the companies achieved the strongest improvements of their environmental performance and which companies' environmental performance deteriorated most between 2001 and 2003. The results show quite a large performance spread. ENEL succeeded to improve its overall resource efficiency by about 80% from 2001 to 2003. By contrast, in 2003 OMV used its bundle of environmental resources only half as efficiently as in 2001. We are thus able to distinguish between companies, which follow a positive performance trend from those that are on a downward trend (for more details see section 5.2.1).

- ***The 2010 EU performance targets affect the companies to different degrees.***

The future performance scenario assesses the resource use of companies in the light of the performance targets for 2010. These targets hit some companies harder than others. The in-depth analysis of the results of the future performance scenario shows which companies are most vulnerable to the 2010 emission reduction targets and potential future regulation. It turns out that PSA is affected most by the performance targets, followed by Richter, a Hungarian pharmaceuticals company. The results identify the most challenging environmental areas for the different companies in the future (for more details see section 5.2.1).

What are the main conclusions?

The ADVANCE survey represents the first large scale application of the Sustainable Value approach to European companies from the manufacturing sector. At the same time, it demonstrates that the Sustainable Value approach can be successfully applied under real world conditions. The results of ADVANCE lead to a number of interesting implications.

- ***Corporate environmental reporting needs to improve dramatically.***

The ADVANCE survey is based on information and data that companies are already publishing today. Through ADVANCE, we thus demonstrate that a monetary assessment of corporate environmental performance can be done with the information that is already available today. At the same time, the experience of the ADVANCE project shows that there is an urgent need to improve the quality of corporate environmental reporting considerably, and on a large scale. More standardised and higher quality environmental data and reports are an important

prerequisite for applying the Sustainable Value approach to a larger number of companies.

- ***The Sustainable Value approach allows the translation of corporate environmental performance into the language of investors and managers.***

Methodologically, the Sustainable Value approach is based on the notion of opportunity costs. Today, opportunity cost thinking is only applied to the use of economic capital in companies. Sustainable Value extends opportunity cost thinking to environmental resources for the first time. The Sustainable Value approach thus combines the managers' and investors' way of thinking with corporate environmental performance assessment.

- ***The results of the ADVANCE survey and the Sustainable Value approach are highly useful for different stakeholders.***

For instance, managers can use the Sustainable Value approach to measure, monitor, and communicate their environmental performance. Moreover, they can use the results of the future performance scenario as early warning signals for particularly relevant environmental areas in the future. Socially responsible investors and analysts can use the Sustainable Value methodology to identify out- and under-performers. The future performance scenario is particularly interesting in the context of risk analyses: SRI-investors can determine which companies are most vulnerable to tightened regulation in different environmental areas. Socially responsible investors and analysts will benefit widely from the value-based logic of the analysis because it makes the results compatible with standard financial analyses.

Overall, the ADVANCE survey provides a transparent and meaningful monetary assessment of 65 European companies' environmental performance. We are confident, that the ADVANCE survey represents one of the most in-depth quantitative analyses of corporate environmental performance of European companies so far. We believe that the results of the ADVANCE survey are highly encouraging and hope that many readers share our enthusiasm to further spread the Sustainable Value methodology to advance corporate sustainability.

2 General Introduction

What defines the success of companies? For many years this question has been debated by business researchers and practitioners alike. The papers are full of rankings of successful companies. The typical answer of investors and business researchers is that companies must provide a sufficient return on capital to be successful. The higher the return on capital - the higher the value of the company. This response is consistent with the underlying belief that economic capital is the primary scarcity that must be overcome for our economies to be successful. In that reasoning the most successful companies are those that create the most shareholder value. By maximising shareholder value they make sure that this scarce resource is optimally allocated which is socially desirable. The simple message is, maximising shareholder value benefits our society.

Sustainability researchers have criticised this narrow focus on economic capital for a long time. To create value we need not only economic capital but also environmental and social resources. These resources are also scarce. A company that uses a lot of environmental resources to create shareholder value must surely be less sustainable than a company that uses less environmental resources to create the same amount of shareholder value. Consequently, environmental resources must also be included when we decide if companies are sustainably successful. What sounds easy in theory has turned out to be difficult or even impossible in practice. Economic, environmental and social resources are measured in different units. Monetary units like the € are used to measure economic capital and corporate value creation. Physical units like tons are used to measure environmental impacts like carbon dioxide emissions. To compare how many resources companies use overall, the resources need to be expressed in the same unit. They can then be added and trade-offs can be resolved. Ideally, they will be expressed in a monetary unit. This will allow us to compare the use of environmental and social resources with the use of economic capital and value creation. The question has therefore been: How can we express environmental and social resources in monetary units?

Existing research has approached this question in a seemingly logical way. Using environmental and social resources inflicts a burden on society and is thus considered to be a bad. If we know how much worse using one resource is than using another resource, then we know their relative costs. Once we know the monetary cost of one of these environmental resources, we can also price all other resources. Once all resources have been priced, we will be able to weigh up the costs and benefits of the use of economic, environmental and social resources.

What sounds at first like a straightforward idea has turned out to be difficult in practice. Expressing the use of a single environmental resource in monetary terms is difficult. Defining the relative harmfulness of all other environmental resources relative to this one environmental resource is impossible in practice. As a result, we are today unable to express the use of environmental and social resources in monetary terms. Consequently, measuring corporate sustainable performance in monetary terms is not feasible

in practice today. It is thus not easy to discriminate between companies that support and companies that are a burden to sustainability.

ADVANCE applies for the first time a methodology on a large scale that takes a fresh look at measuring sustainable performance. Sustainable Value, the methodology applied in this project, measures the use of environmental resources in a new way. Rather than looking at how costly, painful or burdensome the use of an environmental resource is it compares the value that can be created with the resource by different economic actors. From this point of view, companies create value whenever they use a resource more efficiently than other companies. This approach is new – and builds on a long tradition. What Sustainable Value now applies to economic, environmental and social resources has been practised in the financial markets for many decades.

Investors face a problem similar to the sustainability problem outlined above. They need to use a resource – in this case: capital – and must define how much interest they expect in return. Interestingly and despite what one might be led to believe, economic capital is a resource without a price tag. Researchers and practitioners alike have spent considerable time thinking about what constitutes a fair interest [1-3]. It was only after opportunity cost thinking [4-7] was invented that investors could base their investment decision on a coherent assessment approach. Opportunity cost thinking has revolutionised the way investors think about economic capital and value creation. To create value the return on investment must exceed the return of other investments the investors decides to forego. Put simply, the return on investment must beat its benchmark. The foregone return of the investment the investor does not do becomes the price tag of the investment the investor undertakes.

Sustainable Value uses this line of thinking to price environmental and social resources. Using opportunity cost thinking Sustainable Value not only provides an innovative solution to the external cost puzzle – it also brings assessment of environmental and social resources in line with the way managers and investors think about economic investments today.

Sustainability constitutes a new challenge for our economies in general and our companies in particular. Our development depends on the wise and sustainable use of economic, environmental and social resources. In the past, a lack of economic capital was the main stumbling block for the successful development of our economies. This is changing rapidly. Environmental and social resources are increasingly the new bottleneck. The management tools that companies use and the way companies are assessed are more and more an impediment for the economic development of our society. Only focussing on economic scarcities does not live up to the sustainability challenges we face. However, it would be too short-sighted to completely dismiss the tools and techniques that have helped us to deal with and largely overcome economic scarcities. Rather, we should use these tools and learn how they can be used to manage the new scarcities we face. Sustainable Value is a first step in this direction. Sustainable Value will hopefully do for economic, environmental and social resources, what shareholder value thinking did for economic capital alone – help us overcome the new scarcities.

3 The Sustainable Value Approach

3.1 Sustainable Value in a Nutshell

Sustainable Value measures corporate sustainable performance in monetary terms. Conventionally, investors and analysts concentrate on the return on capital. Companies use not only economic capital but also environmental and social resources to create a return. In order to assess corporate sustainable performance we need to assess the use of the entire bundle of resources. Sustainable Value is based on a very fundamental insight of financial economics: To create value a company must use resources more efficiently than other companies. Sustainable Value therefore compares the resource use of a company to a benchmark. A company that emits 10 t of CO₂ to create 100 € Gross Value Added has a CO₂-efficiency of 10 € / t of CO₂. If companies in the EU15 create only 6 € Gross Value Added per ton of CO₂ on average, then the company outperforms the EU15 benchmark by 4 € Gross Value Added per ton of CO₂. If the company uses 10 tons of CO₂ altogether, it creates a total value of 40 €. Sustainable Value applies this line of thinking to all kinds of resources that companies use. It expresses the use of resources other than economic capital in monetary terms. As a result, Sustainable Value shows in monetary terms the value that a company creates or destroys by the use of a set of different resources. Sustainable Value extends the logic of financial markets to cover more than economic capital. And it translates corporate sustainable performance into a language that is inline with managers' and investors' thinking.

3.2 What is the logic behind Sustainable Value?

Companies need more than economic resources to create value. They also use different environmental and social resources. Economic capital represents an economic resource and CO₂ emissions are an example for an environmental resource. The notion of sustainability tells us that resources are scarce and thus need to be used wisely. A helpful rule in this context is that a resource should only be used, if its use at least cover its costs. The cost of resource use must therefore be determined.

Unfortunately, putting a price on resources is far from trivial. This applies to both economic as well as environmental resources. Neither of these resources have a price tag.

Financial economists have solved this problem by applying opportunity cost thinking [4, 7, 8]. Economic capital can only be used at a single place at a given time. Investors therefore must decide where to invest as they cannot take advantage of all investment opportunities. The expected return of their investment must at least cover the expected cost. Alternative investments, i.e. investments they are not doing, would have created a return that investors deliberately forego. This foregone return constitutes the so-called opportunity cost of the use of this economic resource. Put differently, opportunity cost represents the price tag of using economic capital.

In the financial markets it is commonly assumed that investments must be at least as profitable as investments in the market on average. The return of stock market indices is often used as proxy for the market average return. Put differently, value is created when the return of investment exceeds the return of a benchmark index. This is for example used to measure the performance of investment funds. An investment fund that does not beat the market, does not earn its cost of capital and will thus destroy value.

As mentioned earlier, companies do not only need economic resources but also environmental and social resources to create value. Therefore, Sustainable Value goes beyond the use of economic capital and integrates other resources in the analysis of corporate performance. Sustainable Value uses opportunity cost thinking to assess the corporate use of resources others than economic capital. It is all the more interesting to note that up to the arrival of the Sustainable Value concept [9-11] environmental and social resources were not assessed using opportunity cost thinking. This is despite the fact, that this idea has already been voiced over a hundred years ago [8].

3.3 How is Sustainable Value different?

In order to assess the sustainable performance of companies, the cost of economic, environmental and social resources must be subtracted from the return that the companies produce. This is not a new idea [12, 13]. Conventionally, the cost of environmental and social resources are measured using burden-based approaches [14]. Put simply, it is assumed that the cost of a resource depends on the burden that it inflicts. The higher the burden of using a resource the higher its cost. To be able to subtract costs from return this burden must be expressed in monetary terms. What sounds simple at first is difficult, if not impossible to implement in practice. It has been tried for a long time to monetarise environmental and social burdens [15-19]. However, only few environmental and social resources have been covered and there are many different and sometimes even contradicting estimates [20]. Although considerable efforts have been made, it is not possible to express the cost of using environmental and social resources in monetary terms by using burden-based approaches.

Sustainable Value is the first value-based approach for the assessment of environmental and social resources. From this perspective the cost of a resource is not determined by the burden that it causes. Rather, the cost of using a resource is given by the return that can be created by an alternative use of the resource. As the Sustainable Value concept shows, opportunity cost thinking can also be usefully applied to environmental and social resources. It suffices to follow the example of the financial markets. From such a value-based perspective it is much easier to determine the cost of different resources in monetary terms.

3.4 How is Sustainable Value calculated?

Sustainable Value shows the value that is created or lost through the use of a set of different resources by a company. In this section, we briefly explain how the Sustainable

Value of a company can be assessed. By calculating the Sustainable Value of a company, it becomes clear that opportunity cost thinking lends itself with surprising ease to the task of assessing corporate sustainable performance. Sustainable Value is calculated using a five step process. Each of the steps addresses a specific question in the process of the assessment of corporate sustainable performance with the Sustainable Value approach.

- (1) How much of a resource does the company use?
- (2) How much return does the company create with these resources?
- (3) How much return would the benchmark create with these resources?
- (4) Which resources are used in a value-creating way by the company and which are not?
- (5) How much Sustainable Value does the company create?

This process has also been used to compile value-based eco-ratings of the 65 European companies in the ADVANCE Project (see Chapter 4). In the following, we address each of the five assessment steps in more detail. This is illustrated by the real-world example of Pirelli's performance in 2003.

Step 1: How much of a resource does the company use?

The first step determines the amount of resources the company uses during a year. In principle, the Sustainable Value approach can cover economic, environmental and social resources. This has been demonstrated in several case studies [9, 10, 21, 22]. The ADVANCE Project is concerned with compiling value-based eco-ratings using the Sustainable Value approach. This project therefore focuses on environmental resources.¹ Emissions (e.g. CO₂-emissions) and resource uses like water are used to represent environmental resources (see 4.3 for a discussion of the environmental resources covered by ADVANCE survey). For instance, in 2003 Pirelli (see the Pirelli profile on page 128) has emitted about 1.37 million tons of CO₂. In this context, it is important that the data on resource use matches the scope of the economic activities. The physical data on the use of different resources represents the starting point of calculating the Sustainable Value of a company (see highlighted area in Figure 1).

Amount used by the company		Efficiency [€ per unit of resource]	Return created with the resources	Value contribution
CO ₂ -emissions	1,370,613 t	Company 1,478	→ 2,026,000,000 €	→ -1,676,623,890 €
		Benchmark EU15 2,701	→ 3,702,623,890 €	

Figure 1: First step of calculating Sustainable Value – The example of Pirelli and CO₂-emissions in 2003.

¹ To make clear that the ADVANCE survey concentrates on the use of environmental resources, we use the term Sustainable Value^{Env} in the company profiles in Annex II. However, for the sake of readability, we simply use the term Sustainable Value throughout the text.

Step 2: How much return does the company create with these resources?

In the second step, we determine how much return the company creates with the set of resources described in step 1. In this context we must define what is understood by return and what is understood by environmental resource. The ADVANCE survey looks at Gross Value Added of companies. This is the return that is created for shareholders and creditors, the government/state and the personnel. We do not take the wear and tear of economic capital into account, i.e. we look at Value Added before depreciation. Gross Value Added represents a company's contribution to the Gross Domestic Product (GDP) of an economy. Through the use of its resources Pirelli created a Gross Value Added of 2.026 billion € in 2003 (see highlighted area of Figure 2).

Amount used by the company		Efficiency [€ per unit of resource]	Return created with the resources	Value contribution
CO ₂ -emissions	1,370,613 t	Company 1,478	→ 2,026,000,000 €	-1,676,623,890 €
		Benchmark EU15 2,701	→ 3,702,623,890 €	

Figure 2: Second step of calculating Sustainable Value – The example of Pirelli and CO₂-emissions in 2003.

Step 3: How much return would the benchmark create with these resources?

This third step determines how much return would be created, if the resources were used not by the company but by the benchmark. Each environmental resource can only be used once. Therefore, we cannot benefit from both, the return the company creates and the return the benchmark would create. As the resources are used by the company, the return the benchmark would create is foregone. This forgone return is called an opportunity cost. In the case of the ADVANCE project the benchmark consists of the EU15 countries. This means that we compare the efficiency of resource use of each company with the average efficiency of resource use in Europe (for a more detailed discussion of the use and choice of benchmarks see section 6.5). To be able to compare the return created by the company to the return created by the EU15, we must determine for the return on the benchmark level that corresponds to the return figure on the company level. On the company level we look at Gross Value Added (see previous section). The Gross Value Added of all economic entities within the EU corresponds to the EU15's GDP. We therefore use GDP as a return figure for the benchmark. To calculate the return the benchmark would create, we determine how eco-efficiently the EU15 uses the environmental resources. For the ADVANCE project, the eco-efficiency of the benchmark is calculated by dividing the GDP of the EU15 by the total amount of each environmental resource used in the EU15, respectively (see 5.1.1). The eco-efficiency of the benchmark shows how much return is created by the benchmark per unit of an environmental resource. For instance in the year 2003, the EU15 generated 2,701 € per ton of CO₂-emissions. With this information, we can easily determine how much return the benchmark EU15 would have created with the resources used by a company: We simply multiply the amount of resources used by the company with the corresponding eco-

efficiency of the benchmark. As the result we obtain the opportunity cost of the resource used by the company. In the example of Pirelli, the EU15 would have created about 3.7 billion € with the CO₂-emissions of Pirelli in the year 2003 (see highlighted area in Figure 3).

Amount used by the company		Efficiency [€ per unit of resource]	Return created with the resources	Value contribution
CO ₂ -emissions	1,370,613 t	Company 1,478	→ 2,026,000,000 €	-1,676,623,890 €
		Benchmark EU15 2,701	→ 3,702,623,890 €	

Figure 3: Third step of calculating Sustainable Value – The example of Pirelli and CO₂-emissions in 2003.

The efficiency of the benchmark constitutes a hurdle that companies must pass. Forward-looking companies adjust this hurdle to reflect their future objectives. In a traditional management context this will typically be a hurdle that represents the return on capital companies want to achieve in the future. This forward-thinking approach can also be used for Sustainable Value. So far, the hurdle rate is defined by *today's* eco-efficiency of the benchmark. However, from the viewpoint of sustainability it is very interesting to see how much value companies must create *in the future* with the resources. Our society has expectations with regard to both, how much economic growth we would like to have in the future and how many resources we want to use. The former is for example subject of the Lisbon declaration [23] which aims at a 3% yearly growth rate of GDP in the EU15. Environmental targets are reflected in agreements like the EU burden sharing agreement which requires an overall reduction of greenhouse gases in the EU15 of 8% by 2008 (compared to 1990) [24]. Combined, both expectations define the eco-efficiency our society and thus also our companies will have to at least meet in the future. In the future performance scenario of the ADVANCE survey, we use these target eco-efficiencies of the EU15 as future hurdles for companies' resource use [9] (for more details see 5.1.2). To calculate the future opportunity costs we multiply the amount of resources used by the company with the target eco-efficiencies.

Step 4: Which resources are used in a value-creating way and which are not?

To answer the question which resources are used by the company in a value-creating way we compare the return the company creates with the return the benchmark would create with these resources (opportunity costs). The return that the company creates corresponds to its Gross Value Added (see step 2). The opportunity costs have been calculated in step 3. In step 4 we now subtract the opportunity costs of each resource from the Gross Value Added of the company. The result of this step is called value contribution. It shows how much more or less value a company creates with a resource compared to the benchmark. In the case of Pirelli in the year 2003 the value contribution of the CO₂-emissions is negative: Pirelli has created about 1.68 billion € less return than the benchmark would have created with this amount of CO₂-emissions (see

highlighted area in Figure 4). In other words, Pirelli has not covered the opportunity costs of the CO₂-emissions it has caused.

Amount used by the company		Efficiency [€ per unit of resource]	Return created with the resources	Value contribution
CO ₂ - emissions	1,370,613 t	Company	1,478 → 2,026,000,000 €	-1,676,623,890 €
		Benchmark EU15	2,701 → 3,702,623,890 €	

**Figure 4: Fourth step of calculating Sustainable Value –
The example of Pirelli and CO₂-emissions in 2003.**

We use the same logic with future opportunity costs. For this purpose, we subtract the return that should be created by the benchmark in the future from Gross Value Added. The result shows, how much more or less value a company creates when we consider future expectations.

Step 5: How much Sustainable Value does the company create?

In the preceding step we have calculated how much value each individual resource creates. However, companies use more than one resource. We now determine how much value is created by the entire bundle of resources. Up to this point, we have assumed that each individual resource creates the entire value by itself. Simply summing up all value contributions would thus result in double counting. Therefore, to calculate Sustainable Value we divide the sum of the value contributions by the number of resources considered. Through this aggregation the resources are weighted relative to their efficiency on the benchmark level. For instance, to create GDP in the EU15 each ton of SO_x-emissions is bundled with about 1.8 tons of NO_x-emissions. This means that SO_x-emissions have a weighting factor of 1.8 compared to NO_x-emissions. Figure 5 shows that in 2003 Pirelli has created a Sustainable Value of about 485 million € with a set of seven different environmental resources. As the figure shows all resources are assessed using the same methodology as introduced above for the example of CO₂-emissions (see chapter 5).

Sometimes a company does not use a resource at all. For example Pirelli does not emit any SO_x and CH₄. Pirelli creates its Gross Value Added without using these resources. In such a case, the opportunity costs are also zero as there are no resources that could have been used by the benchmark. As a result, the value contributions of these resources are equal to the Gross Value Added of the company. Consequently, not using a resource will free up resources that can then be used to create a return at a different place.

	Amount used by the company		Efficiency [€ per unit of resource]	Return created with the resources	Value contribution	Sustainable Value ^{Env}
CO ₂ - emissions	1,370,613 t	Company	1,478	→ 2,026,000,000 €	-1,676,623,890 €	484,840,349 €
		Benchmark EU15	2,701	→ 3,702,623,890 €		
NO _x - emissions	772 t	Company	2,625,784	→ 2,026,000,000 €	1,251,103,413 €	
		Benchmark EU15	1,004,300	→ 774,896,587 €		
SO _x - emissions	0 t	Company	-	→ 2,026,000,000 €	2,026,000,000 €	
		Benchmark EU15	1,779,304	→ 0 €		
Waste generated	171,867 t	Company	11,788	→ 2,026,000,000 €	948,416,203 €	
		Benchmark EU15	6,270	→ 1,077,583,797 €		
Water used	29,960,663 m ³	Company	68	→ 2,026,000,000 €	783,437,170 €	
		Benchmark EU15	41	→ 1,242,562,830 €		
VOC- emissions	4,111 t	Company	492,824	→ 2,026,000,000 €	-1,964,450,456 €	
		Benchmark EU15	970,676	→ 3,990,450,456 €		
CH ₄ - emissions	0 t	Company	-	→ 2,026,000,000 €	2,026,000,000 €	
		Benchmark EU15	586,083	→ 0 €		

Figure 5: Fifth step of calculating Sustainable Value – The full picture of Pirelli's Sustainable Value in 2003.

In summary, Sustainable Value reflects how much more (positive Sustainable Value) or less (negative Sustainable Value) return has been created due to the fact that resources were given to the company rather than to the benchmark. Companies create Sustainable Value when they use their set of resources more efficiently than a benchmark. By adopting such an opportunity cost thinking, the Sustainable Value approach provides a monetary indicator for corporate sustainable performance.

3.5 How can company size be taken into account?

Sustainable Value shows how much more value is created because companies are using resources more efficiently than other companies – today or in the future. In the financial markets, large companies are expected to have larger profit, sales or cash flow figures. This is purely a function of their size. When companies are compared, this size effect gets in the way. To compare companies financial figures like e.g. profit or cash flow are therefore related to other figures, which account for the size of the company. Profit is for example related to economic capital (Return on Capital) or sales (Return on Sales). The former describes how profitable it is to invest in the company. The latter shows how much profit for every € of sales the company makes. These relative figures allow making comparisons between companies irrespective of their different sizes.

Sustainable Value faces a similar problem. Large companies use more resources and are likely to produce a larger (positive or negative) Sustainable Value. By relating Sustainable Value to an indicator that represents the different sizes of the companies this effect can be accounted for. We are using the indicators to account for size:

- (1) Sustainable Value Margin and
- (2) Return to Cost Ratio

The Sustainable Value Margin is constructed in analogy to the Sales Margin, which is a popular indicator in financial management. The Sustainable Value Margin is calculated by dividing Sustainable Value by Sales. The Sustainable Value Margin thus reflects how much Sustainable Value is created per 100 € of Sales that the company makes. Pirelli for example has created 7.30 € Sustainable Value per 100 € of sales in 2003. The Sustainable Value margin of Pirelli in 2003 was thus 7.3%. This relative figure can now be used to compare the Sustainable Value creation of different companies irrespective of their size.

The Return to Cost Ratio (RCR) relates the Gross Value Added created by a company to the opportunity costs it causes. It is thus a typical benefit-cost-ratio. The opportunity costs reflect how much Gross Value Added could have been created, if the resources had been used in a different place. To calculate the Return to Cost Ratio we compare the Gross Value Added of the company to the opportunity costs, i.e. to the return the EU15 would have created with the resources of the company. More precisely, we determine by which factor the Gross Value Added of the company exceeds the opportunity costs and vice versa. The Return to Cost Ratio thus shows the factor by which a company uses its resources more or less efficiently than the benchmark. Consequently, a Return to Cost Ratio larger than unity reflects that the company uses its bundle of resources more efficiently than the benchmark – the company creates Sustainable Value.

	Amount of resources used in 2003	Return of Pirelli	Return of the EU15 = Opportunity cost	Value Contribution
CO ₂ -emissions [t]	1,370,613	2,026,000,000 €	- 3,702,623,890 €	= -1,676,623,890 €
NO _x -emissions [t]	772	2,026,000,000 €	- 774,896,587 €	= 1,251,103,413 €
SO _x -emissions [t]	0	2,026,000,000 €	- 0 €	= 2,026,000,000 €
Waste generated [t]	171,867	2,026,000,000 €	- 1,077,583,797 €	= 948,416,203 €
Water used [m ³]	29,960,663	2,026,000,000 €	- 1,242,562,830 €	= 783,437,170 €
VOC-emissions [t]	4,111	2,026,000,000 €	- 3,990,450,456 €	= -1,964,450,456 €
CH ₄ -emissions [t]	0	2,026,000,000 €	- 0 €	= 2,026,000,000 €
Sustainable Value of Pirelli in 2003		2,026,000,000 €	- 1,541,159,651 €	= 484,840,349 €
1.3 ↓ Return to Cost Ratio 1.3 : 1 ↓ 1				

Figure 6: Return to Cost Ratio of Pirelli in 2003.

Figure 6 illustrates this reasoning. It can be seen that in the case of Pirelli in 2003, the Gross Value Added was 1.3 times higher than the opportunity costs. This means that Pirelli used its resources 1.3 times more efficiently than the EU15 on average. If the Return to Cost Ratio is smaller than unity the company uses its set of resources less efficiently than the benchmark – the company destroys Sustainable Value. A company with a Return to Cost Ratio of e.g. 1 : 2 uses its resources only half as efficiently as the benchmark. By comparing the Return to Cost Ratios we can thus find out how much more (or less) efficiently a company uses resources compared to another company. (Table 7 ranks all 65 companies according to their RCR).

3.6 How sustainable is Sustainable Value?

Sustainable Value reflects how well companies have reconciled economic output and environmental and social stewardship. Sustainable Value shows how much more return was created by giving a set of resources to the company rather than to the benchmark. Sustainable Value does not claim that the benchmark is sustainable. Instead Sustainable Value expresses in monetary terms the degree of sustainability relative to this benchmark. If the benchmark consists of a future target efficiency, Sustainable Value shows how well companies perform today relative to this desired state. In the financial markets it is often argued that opportunity cost thinking in a market economy will drive up the efficiency of resource use, which is socially desirable. Sustainable Value provides the tool to repeat this beneficial effect for environmental and social resources. Sustainable Value does not take into account qualitative aspects of sustainability which cannot be quantified in a meaningful way. Consequently, Sustainable Value is not meant to replace all other approaches to corporate sustainability assessment. Qualitative aspects such as community engagement and many social aspects should be dealt with and reported in a qualitative way.

If a company creates Sustainable Value does not only depend on the efficiency of the company but also on the benchmark that is chosen. The ADVANCE survey looks at both the current and future performance of the EU15 countries. The underlying idea is to show in monetary terms, to which degree companies contribute to using resources in the EU15 in a more sustainable way. Where corporate performance is compared to future eco-efficiencies the ADVANCE survey shows in how far companies are already meeting the targets the EU15 countries have set themselves.

As already pointed out above, Sustainable Value can consider every resource that can be quantified. This corresponds nicely with the fact that companies use a wide range of different resources and goes beyond the single focus on economic capital found in current management thinking. Sustainable Value shows which resources are used in a value-creating way and which are not. Sustainable Value does not cover the performance up or down the value chain. This means that neither the performance of suppliers nor product-related aspects are covered by the analysis. This is mainly due to a lack of reliable data. The ADVANCE project compiles value-based eco-ratings and thus concentrates on environmental resources. Sustainable Development encompasses, if we

follow a triple bottom line logic [25], economic, environmental and social aspects. By focussing on environmental resources, we are looking at an important yet incomplete part of Sustainable Development. A company with an exceptional environmental performance might nevertheless be unsustainable, if the economic and social performance does not live up to the same standards. An advantage of the Sustainable Value approach is that it allows an integrated, yet modular assessment of economic, environmental and social performance. Thus, the environmental assessment of the ADVANCE survey can easily be complemented by an economic and social assessment at a subsequent stage. By focussing on the environmental performance of European industry, ADVANCE establishes a new way of assessing environmental performance, which can then be compared to the traditional assessment of economic performance.

The Sustainable Value approach compares the efficiency of corporate resource use to the efficiency of a benchmark. In the ADVANCE survey, the EU15 performance has been chosen as the benchmark. Efficiency considerations have often been criticised because of the so-called rebound effect [26-28]. It is argued, that a higher efficiency can be over-compensated by growth so that as a result more environmental resources are used. However, the Sustainable Value approach does not only address efficiency concerns. Rather, it shows how a *limited and scarce amount* of resources should be best used in order to generate highest returns. Sustainable Value leaves the amount of resources on the benchmark level constant (past performance scenario) or even reduces the overall amount of resources (future performance scenario). The Sustainable Value analysis shows how the efficient use of resources on the company level contributes to achieve a constant or even reduced overall use of environmental resources on the benchmark level. The Sustainable Value approach thus links corporate efficiency goals to overarching goals for an overall reduction of environmental impacts.

4 Scope of the Survey

The scope of the survey comprises 65 companies of 18 sectors and 16 countries, up to 7 environmental indicators during a time span of 3 years. In this chapter we describe in more detail the scope of the ADVANCE-survey. We also explain our data sources and how we have conducted the assessment.

4.1 Companies considered

ADVANCE has assessed a total of 65 European manufacturing companies. The 65 companies were selected out a “rating universe” of about 100 potential companies expected to have published sufficient environmental and economic data for the ADVANCE survey. The rationale behind the final selection of companies from the rating universe was two-fold: we (a) aimed to cover a broad scope of European companies, taking into account businesses from a large number of European member states, as well as a multitude of different industries within the manufacturing sector. Furthermore, in our sample we (b) focused on one European industry of prime environmental concern that was to be covered to more than 50% of market capitalisation. For this in-depth analysis of one specific sector, we selected the automobile industry.

While the latter can to a certain extent be expected to give some representative insight regarding the European automobile industry, it should be kept in mind that the former can by no means be a representative sample of the European manufacturing sector. Despite the current enthusiasm regarding the Global Reporting Initiative (GRI), our initial screening of European businesses revealed that there might currently be no more than 100-120 European manufacturing companies which actually provide sufficient environmental data for a thorough quantitative analysis of corporate sustainable performance on the indicators used in the ADVANCE project. Thus, this limited data availability strongly shaped our random sample of European manufacturing companies.

4.2 Countries and sectors covered

Overall, 65 companies have been included in the ADVANCE survey. Regarding the geographical scope as well as the number of industries covered, the selected companies represent a very diverse picture of the European manufacturing sector. Table 1 provides an overview of the 65 companies that have been analysed in the ADVANCE survey.

No.	Company name	Country	Industry
1	Airbus	FR	Aircraft Construction
2	BMW	DE	Automobile
3	DaimlerChrysler	DE	Automobile
4	FIAT Group	IT	Automobile
5	NedCar	NL	Automobile
6	PSA	FR	Automobile
7	Renault	FR	Automobile
8	Scania	SE	Automobile
9	Volkswagen	DE	Automobile
10	Volvo	SE	Automobile
11	Pirelli	IT	Autoparts
12	Heineken	NL	Beverages
13	Novozymes	DK	Biotech
14	BASF	DE	Chemicals
15	Celanese	DE	Chemicals
16	Degussa	DE	Chemicals
17	Imperial Chemical Industries	UK	Chemicals
18	Kemira	FI	Chemicals
19	Royal DSM	NL	Chemicals
20	Pilkington	UK	Construction and Building Materials
21	Philips	NL	Electronic & Electrical Equipment
22	ABB	SE	Engineering & Machinery
23	Atlas Copco	SE	Engineering & Machinery
24	Heidelberger Druckmaschinen	DE	Engineering & Machinery
25	MAN	DE	Engineering & Machinery
26	Robert Bosch	DE	Engineering & Machinery
27	SKF	SE	Engineering & Machinery
28	Unilever	NL	Food
29	Crown van Gelder	NL	Forestry & Paper
30	Holmen	SE	Forestry & Paper
31	M-Real Corporation	FI	Forestry & Paper
32	SCA	SE	Forestry & Paper
33	Stora Enso	FI	Forestry & Paper
34	UPM-Kymmene	FI	Forestry & Paper
35	Electrolux	SE	Household Goods
36	Gorenje	SL	Household Goods
37	Agfa-Gevaert	BE	Media & Photography
38	BG Group	UK	Oil & Gas
39	BP	UK	Oil & Gas
40	ENI	IT	Oil & Gas
41	ERG	IT	Oil & Gas
42	OMV	AT	Oil & Gas
43	Repsol YPF	ES	Oil & Gas
44	Shell	NL	Oil & Gas
45	Slovnaft	SK	Oil & Gas
46	Unipetrol	CZ	Oil & Gas
47	Henkel	DE	Personal Care & Household Products
48	AstraZeneca	UK	Pharmaceuticals
49	Novonordisk	DK	Pharmaceuticals
50	Richter	HU	Pharmaceuticals
51	Schering	DE	Pharmaceuticals
52	ST Microelectronics	NL	Semiconductors
53	Acea	IT	Utilities
54	AEM	IT	Utilities

No.	Company name	Country	Industry
55	AEM Torino	IT	Utilities
56	ASM	IT	Utilities
57	Centrica	UK	Utilities
58	Edison	IT	Utilities
59	ENEL	IT	Utilities
60	Energias de Portugal	PT	Utilities
61	Fortum	FI	Utilities
62	MVM	HU	Utilities
63	Scottish & Southern Energy	UK	Utilities
64	Suez	FR	Utilities
65	Union Fenosa	ES	Utilities

Table 1. Companies analysed for the ADVANCE survey.

Table 2 gives an overview of the sector spread of the ADVANCE companies. Looking at the number of industries covered, we see that the 65 manufacturing companies operate in 18 different sectors. The most important sectors in terms of coverage are utilities, automobile and oil & gas. The automobile sector is at the same time the sector that we cover to more than 50% of its market capitalisation. With the exception of the German Robert Bosch GmbH (engineering & machinery) and the Hungarian MVM (utilities), all of the 65 companies are listed companies.

Sector	No. of companies	Sector	No. of companies
Utilities	13	Semiconductors	1
Automobile	9	Autoparts	1
Oil & Gas	9	Construction and Building Materials	1
Engineering & Machinery	6	Beverages	1
Forestry & Paper	6	Biotech	1
Chemicals	6	Electronic & Electrical Equipment	1
Pharmaceuticals	4	Media & Photography	1
Household Goods	2	Aircraft Construction	1
Food	1	Personal Care & Household Products	1

Table 2: Industry coverage of ADVANCE survey.

Regarding the geographical scope of the ADVANCE survey, companies from 16 different EU member states have been analysed. Figure 7 gives a brief overview of the geographical scope of the ADVANCE assessment. The number of companies surveyed per country is stated in brackets.

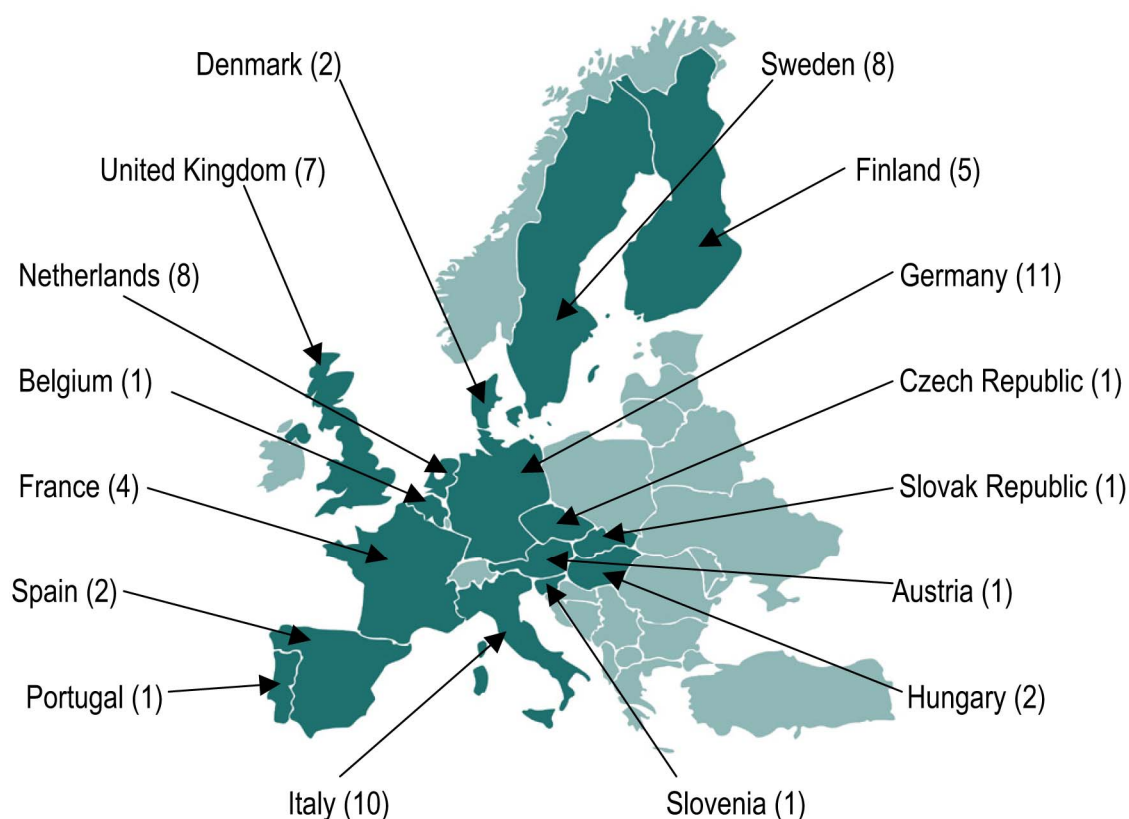


Figure 7: Geographical scope of ADVANCE survey.

As explained above, the selection of companies in the ADVANCE survey cannot be viewed as representative of the European manufacturing sector. Nevertheless, looking at the geographical scope, we can clearly identify a considerable West-East divide in our sample. Despite intensive efforts to include Eastern European companies, only five of the 65 companies surveyed are from new EU member states. One reason for this might be the longer tradition of environmental reporting in the EU15 member states. Other explanations could be the technological, economic and political-institutional framework conditions in the Eastern European countries, the smaller company size of Eastern European businesses and the lower number of companies listed at the stock exchange compared to their Western counterparts.

4.3 Environmental indicators considered

The seven environmental indicators used in the ADVANCE project reflect different environmental impact areas. These environmental impact areas were chosen according to their environmental relevance and the availability of data on the company level as well as on the level of EU policy objectives. Included in the analytical scope of the ADVANCE assessment are the indicators

- CO₂-emissions
- CH₄-emissions
- NO_x-emissions
- SO_x-emissions

- VOC-emissions
- Water use
- Waste generated.

Carbon dioxide (CO₂)

The Carbon dioxide-emissions of the European manufacturing sector are centre-stage in the current efforts of the European Union to combat the risk of global warming. All member and accession states as well as the EU itself are signatories of the 1997 Kyoto Protocol. On an EU-15 level, the member states have agreed on a burden sharing-agreement which assigns different reduction quota to the respective member states. The overall reduction target of the EU-15 is to reduce carbon dioxide emissions by 8% by 2010 compared to the base year 1990 [24]. In the ADVANCE survey, the companies' direct and indirect CO₂-emissions² have been taken into account. Excluded are carbon dioxide emissions of bio fuels as well as transport-related CO₂-emissions. While the former can be argued to be CO₂-neutral³, the exclusion of the latter is caused by the lack of data availability.

Methane (CH₄)

Methane is one of the six greenhouse gases covered by the Kyoto Protocol. Although its emissions in absolute terms are dwarfed by the amount of carbon dioxide emissions, methane is a major contributor to Global Warming due to its high Global Warming Potential (GWP) of 23 relative to CO₂ [29]⁴. CH₄ is also included in the burden-sharing agreement between EU governments, assigning different reduction targets to the EU15 member states (see above). Consequently, in the ADVANCE project we also applied the EU overall reduction commitment of 8% compared to the base year 1990 by 2010 [30] as the target for our future performance scenario.

Nitrogen oxides (NO_x)

NO_x is commonly used as a generic term for various nitrogen oxides, most importantly NO and NO₂. Just like sulphur oxide, nitrogen oxides are mainly produced during combustion processes and are major contributors to acidification. In the presence of various other chemicals, nitrogen oxides also contribute to the formation of ground level ozone [e.g. 31]. NO_x is covered by Annex II of the NEC Directive [32] in which the EU15 aims to reduce NO_x-emissions to approximately 5.9 million tons in 2010. In the ADVANCE analysis, NO_x-emissions from stationary sources were taken into account on the compa-

² Emissions from combustion processes (e.g. fossil fuels) are referred to as direct emissions, whereas the use of electricity is accounted for as indirect emissions. Those emissions are indirect as the emissions take place at the supplier of electricity rather than the company that is being assessed.

³ This applies mainly to the Scandinavian forestry & paper companies which have been included in the ADVANCE survey.

⁴ This figure is based on a time span of 100 years. On the basis of a 20-year-time span, methane has a GWP of 63, see e.g. [29].

ny level. Transport-related emissions were excluded from our scope of analysis because of limited data availability.

Sulphur oxide (SO_x)

SO_x is mainly produced during combustion processes and is one of the major contributors to acidification. The targets for the reduction of SO_x on a EU15 level are also set out in Annex II of the NEC Directive [32] in which the EU15 aims at reducing SO_x-emissions to approximately 3.6 million tons in 2010. In the ADVANCE analysis, SO_x-emissions from stationary sources were taken into account on a corporate level. Transport-related emissions were excluded from our scope of analysis because of limited data availability.

Volatile organic compounds (VOC)

Volatile organic compounds are mainly produced during combustion processes and through the use of solvents. Their environmental impact is two-fold: first, they contribute to the formation of smog. Second, in the presence of nitrogen oxides they also lead to the formation of ground level ozone [31]. In the ADVANCE survey, the EU15 reduction target of 5.6 million tons of VOC-emissions in 2010 is applied. This target has also been set by Annex II of the NEC Directive [32]. On the corporate level, all stationary sources are taken into account.

Water use

In a European context, water scarcity is mainly perceived to be an environmental problem in the Southern European member states. However, both the impact on river ecosystems in particular, and the general costs incurred through the subsequent treatment of water, aggravate the environmental impact of industrial water use. There are no official European targets for water consumption. Therefore, in order to create an adequate future benchmark scenario, we extrapolated the current downward trend in water usage within the EU15.⁵ On a company level, the scope of analysis in the ADVANCE survey includes any type of water use including cooling water with the exception of closed-loop circles.

In the course of data collection it turned out that companies' approaches to report on the use of cooling water differ considerably. This means that not all companies provide data on the use of cooling water in their operations. As we consider the use of water for cooling purposes as environmentally relevant (due to changes of water temperature) and as for most of the companies cooling water is at least included in the aggregate data on water use, we decided to include cooling water in the calculation of Sustainable Value. Where possible, we calculated the effect of cooling water on the assessment results (for details see Annex I). In our assessment, the following cases concerning the availability of cooling water appeared among the 65 companies:

⁵ The extrapolation is based on the data of the European Environment Information and Observation Network [33].

- ***Cooling water relevant and data on cooling water available***

The companies provided a breakdown of their overall water use for different purposes including cooling. In these cases we could calculate the impact of cooling water on the assessment results (see Annex I). This was possible for 16 companies.

- ***Cooling water relevant and data on cooling water included in aggregate figure on water use***

Companies of this group provided an aggregate figure on the amount of water they use. It becomes clear from their reports that cooling water is included in these aggregate figures. However, there is no information available on the amount of water used for cooling purposes so that the effect of cooling water on the assessment results could not be determined. This group consists of 26 companies.

- ***Cooling water relevant but unclear if cooling water use is included in aggregate figure on water use***

In this case we know that the companies are using water for cooling but it does not become clear from the companies' reporting if the amount of cooling water is included in the reported data on water use. Consequently, for these companies we could not determine the impact of cooling water on the assessment results. This is relevant for 10 companies.

- ***Cooling water relevant but water data excludes cooling water and no further data available***

These companies provided no data on the use of cooling water while at the same time they use cooling water. This is the case for five companies. For two of these companies cooling water data is available for 2003 so that we could calculate the effect of cooling water on the results at least for 2003 (see Annex I).

- ***Relevance of cooling water unclear***

For three companies it remained unclear whether they use cooling water at all.

- ***No data on water use available at all***

For five companies no data on the water use was available at all.

Waste generated

In the course of the preparation of the Sixth EU Environment Action Programme the European Commission has proposed a reduction of disposed and hazardous waste by 20% by 2010 compared to 2000 [34].⁶ In the ADVANCE survey, this reduction target has been applied to overall waste on a company level. Included into the scope of ana-

⁶ In the final Decision of the European Parliament (Decision No 1600/2002/EC of 22 July 2002) laying down the Sixth Community Environment Action Programme [35] the concrete waste reduction targets have been replaced by the non-quantified goal to achieve a "a significant reduction in the quantity of waste going to disposal and the volumes of hazardous waste produced" (Art 8, 1).

lysis are landfill waste, incineration, and recycling of materials; not included are by-products.⁷ The plethora of definitions concerning waste caused considerable difficulties during the data mining-process. In various cases, corporate reporting of waste and its various fractions was based on unique, in-house definitions and thus the figures had to be recalculated in order to be in accordance with common practice of waste reporting. A number of cases remained in which it was not possible to differentiate clearly between the generation of waste, recycling and by-products.

Table 3 and Figure 8 give an overview of the extent of data coverage regarding the seven environmental indicators used in the ADVANCE survey.

Environmental Indicator	No. of companies assessed	Coverage (%)
Carbon dioxide (CO ₂) emissions	65	100%
Nitrogen oxides (NO _x) emissions	57	88%
Sulphur oxides (SO _x) emissions	59	91%
Waste generation	63	97%
Water use	60	92%
Volatile organic compounds	41	63%
Methane (CH ₄) emissions	15	23%

Table 3: Number of companies assessed against environmental indicators.

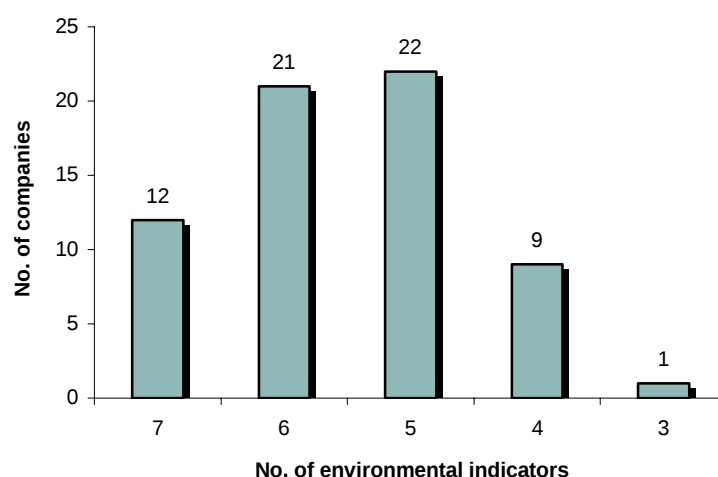


Figure 8: Coverage of environmental indicators in the ADVANCE survey.

⁷ Waste indicators are notoriously difficult to compare due to existing differences in underlying waste definitions. In 2000, the European Environment Agency has concluded in a report that the data on household and municipal waste are not comparable between all European countries [36]. Due to these difficulties we initially intended not to take into account waste as an indicator in the ADVANCE survey. However, the EC, which is co-funding this survey, has explicitly asked us to include waste as an indicator.

As can be seen from Table 3 and Figure 8, it is not possible to fully cover all seven indicators across all 65 companies. This is due to the poor state of corporate environmental reporting. ADVANCE therefore needed to address the issue of data gaps. ADVANCE has taken the following steps.

- Sometimes data was not available for all three years but only for one or two years during the three-year time span. In these cases ADVANCE used the performance of the years covered by corporate reporting to estimate the performance for the years not covered based on the performance trends of the benchmark.
- Where data covered only part of the operations and where it was possible to quantify the percentage not covered by the environmental data, adjustments to the environmental data were made to expand coverage to the entire company.
- Where there was no data available and where the gaps could not be filled with estimates it was assumed that the use of this particular resource does not contribute to value creation, i.e. it was assumed that value contributions are zero.

In some cases companies did not report on an emission (as it is for example the case with SO_x and Pirelli) because the company does not emit the substance at all. This should not be confused with a data gap. Where a company does not need a resource to create value we do not need to subtract any opportunity costs from Gross Value Added. The value contribution therefore corresponds to Gross Value Added in these cases.

4.4 Value figures considered

The Sustainable Value approach can be based on different definitions of value creation. Due to well-established financial accounting standards the determination of scope and availability of corporate economic data was less problematic than in the case of the corresponding environmental indicators. The following economic indicators on a company level and for the EU15 benchmark were used in the ADVANCE survey to calculate the Sustainable Value:

Economic indicators on the company level:

- Gross value added (GVA)
- Earnings before interests and taxes (EBIT)
- Personnel expenses
- Depreciation and amortisation
- Company turnover

Economic indicators on the benchmark level:

- Gross domestic product (GDP) (EU15)

Both, economic indicators and the benchmark must be chosen with deliberation. The Gross Domestic Product reflects the economic activity within the EU15 before depreciation of the capital stock. As the corresponding economic indicator on the corporate level

we used Gross Value Added, because Gross Value Added represents a company's contribution to the Gross Domestic Product (GDP) of an economy. It could be argued that these figures should be corrected by the depreciation of the capital stock (Net Domestic Product or Net Value Added, respectively). It was decided to use the Gross Domestic Product and Gross Value Added for the following reasons:

- At this stage there are no official statistical figures available on the Net Domestic Product of the EU15 countries.
- On a corporate level depreciation and amortisation is often used to account for non-operational aspects. As a result depreciation and amortisation can fluctuate considerably and depreciation and valuation is not necessarily in line with economic reality. Put in a more provocative way, depreciation and amortisation is sometimes used to manage corporate value creation [37, 38]. By using a value figure before depreciation we hope to better reflect corporate value creation.

Currently, most EU companies do not report Gross Value Added. It is for this reason that Gross Value Added was in most cases estimated. Gross Value Added was approximated by using the sum of EBIT, personnel expenses and depreciation and amortisation [39]. Where possible financial figures were taken before extraordinary issues.

4.5 Time span considered

The ADVANCE survey results are based on the companies' performance data of the years 2001-2003. In cases where a company's fiscal year spanned from April to March, we used the corresponding data for the calendar year that overlapped most with the company's fiscal year.⁸ The selection of the time span was mainly determined by factors of data availability. Prior to 2001 the inadequate level of environmental and social reporting did not enable us to conduct a comprehensive survey such as the ADVANCE project. The years following the calendar year 2003 are not included because there is a considerable time lag in reporting. At the time of the analysis⁹ neither the company data nor the respective EU benchmark data were yet published.

There are several advantages in analysing a time-series of three years in contrast to a one-year analysis. First of all, the analysis of three consecutive years enables us to identify mavericks, i.e. performance data that are incorrect or rooted in extraordinary company activities, which do not reflect the usual company performance.¹⁰ Second, if there was a larger time span providing accurate and reliable data, it would be possible to identify trends in the variation of sustainability performance of different companies and

⁸ One example of a company's financial year spanning from April to March would be Pilkington plc (see profile on page 127). In such a case the first part of the financial year is taken to represent the calendar year.

⁹ November/December 2005.

¹⁰ An example of an extraordinary activity would be major restructuring operations or building activities that can for example impact waste data.

industries. However, given the relatively short time span of three years in the ADVANCE project, one should be cautious in deriving trends from this analysis. A third advantage concerns changes in a company's structure. In cases where changes in the company structure (e.g. mergers and acquisitions or outsourcing) have taken place within the time span of analysis, the Sustainable Value method allows us to assess their impact on the company's sustainability performance. Thus, the often-claimed accusation of "dirty outsourcing" of Western multinational companies shifting resource-intensive parts of their production into developing countries could be easily quantitatively assessed with the Sustainable Value approach. Finally, our aim was to collect as much company-specific data as possible in order to draw a fair and accurate picture of the companies included in the survey.

4.6 Data sources

In the data mining process, the large majority of company performance information was obtained through the analysis of publicly available company reports. Again, one of the key strengths of the Sustainable Value method is that it can be applied to readily available company information. In the initial stages of the data mining process, the companies' economic data was obtained through the study of their annual reports and financial statements. In some cases, publicly available databases such as Hemscott were used to gather complementary information.

The corporate environmental performance data also stemmed from various data sources. The main sources for the companies' environmental data were their environmental or sustainability reports and the respective company websites. In cases where there remained gaps in data availability (or where we perceived to be data quality problems), we contacted the respective companies directly. Furthermore, before finalizing the results of the ADVANCE project, we contacted all companies included in the analysis in order to receive feedback on our calculations and to double-check our findings.

The EU15-level benchmark performance data was collected from two main sources. On the one hand we have used the data provided by the European Environment Information and Observation Network (EIONET) Topic Centres of the European Environmental Agency (EEA) for the water and waste data [33, 40]. On the other hand, we have fallen back on the National Inventory Submissions to the Greenhouse Gas Inventories under the United Nations Framework Convention on Climate Change (UNFCCC) for the collection of data on air emissions [41]. As a further source, we have used the data provided by EUROSTAT on European economic performance [42].

In order to calculate the target efficiencies or future "environmental hurdle rates" as described in chapter 5.1.2 (see Table 9 on page 46), we gathered and processed information on the politically agreed upon European performance objectives. The relevant sources for the environmental impact areas as well as for European GDP in the target

year 2010¹¹ were the official publications of the EU-commission and information published by their associated authorities and agencies.

4.7 Procedure followed

The ADVANCE project has been carried out by researchers of the following institutions.

Academic partners:

- University of St Andrews and Sustainable Development Research Centre (SDRC), Forres, United Kingdom
- Institute for Future Studies and Technology Assessment (IZT), Berlin, Germany

Eco-rating partners:

- Scoris, Hanover, Germany
- Avanzi SRI Research, Milan, Italy
- GES Investment Services, Stockholm, Sweden
- Stratégiakutató Intézet, Budapest, Hungary

The eco-rating partners were mainly responsible for data mining. The academic partners organised the data mining activities, added to the data mining, performed quality checks and carried through the Sustainable Value calculations. Companies were contacted by all partners. All activities were carried through in close cooperation.

A first scan of corporate environmental reporting of European companies from the manufacturing sector allowed us to identify a rating universe of about 100 companies. About 70 companies were allocated to project partners for in-depth data mining. This survey now covers 65 companies. The other five companies were excluded because of poor data quality.

All companies covered in this survey were contacted after data mining. They were introduced to the Sustainable Value approach in general and to the result of their assessment in particular. In this context, companies had the opportunity to amend and improve their reported figures. This helped us to increase the data quality of the ADVANCE survey. Quite a few companies entered in a lively discussion about the approach and their particular performance. Sustainable Value calculations were performed both during data mining, allowing us plausibility checks, and after data mining was finished.

Overall the survey has taken about 14 months. We are confident that the ADVANCE database is the most comprehensive database on quantitative corporate environmental performance to date.

¹¹ Here, we refer to the growth targets that have been set on the Lisbon European Council on 23 and 24 March 2000 and the subsequently defined so-called Lisbon strategy [23].

5 Sustainable Value of European Industry

In this chapter we present and discuss the results of the ADVANCE survey. The first part of the chapter gives an overview of the Sustainable Value creation of the 65 companies that have been analysed. The subsequent section discusses the main implications of these results.

5.1 Results

ADVANCE analyses the use of environmental resources of 65 companies. In this context, we have compiled two scenarios, a past and a future performance scenario. The past performance scenario assesses the performance of the companies in the years 2001 to 2003. For this purpose, corporate performance is compared to the EU15 performance in the years 2001 to 2003, respectively. It answers the question which companies have created Sustainable Value between 2001 and 2003. In the future scenario, we assess corporate performance with respect to the 2010 performance targets in the EU15. This scenario thus gives an indication, which companies are using their resources efficiently enough to create Sustainable Value in the future.

Table 4 provides an overview of the results of the study. It shows the rank of each company over the years 2001 to 2003 in the past performance scenario as well as in the future performance scenario (2003 → 2010). Furthermore, Table 4 shows the rank of the companies with respect to the creation of absolute Sustainable Value and regarding the Return to Cost Ratio (RCR). In addition, the table points to the respective company profiles in Annex II of this report.

As can be seen, **DaimlerChrysler** (profile on page 102) has held the top position in terms of absolute Sustainable Value creation between 2001 and 2003. However, in terms of Return to Cost Ratio it is **Airbus** (profile on page 91) that has been heading the table during the same time. This is due to the different sizes of the companies. Bigger companies use more resources and are thus expected to produce higher (positive or negative) Sustainable Value figures. As a prime example, DaimlerChrysler holds the top position in terms of absolute Sustainable Value creation due to its size. The Return to Cost Ratio accounts for this size effect. As Table 4 shows, Airbus has used its resources more efficiently overall. The same effect can be observed with **Shell** (profile on page 139) who is last in the ranking in terms of absolute Sustainable Value creation but climbs ranks to position 48 in the ranking of Return to Cost Ratios.

The table shows also that in the future performance scenario DaimlerChrysler still ranks first in terms of absolute Sustainable Value and eighth with regard to Return to Cost Ratio. However, in the ranking of Return to Cost Ratios the top position changes in the future performance scenario. Airbus ranks only third and **Novonordisk** (profile on page 123) takes over the lead.

No.	Company	Rank Sustainable Value				Rank RCR				Profile on page
		2001	2002	2003	2003 → 2010	2001	2002	2003	2003 → 2010	
1	ABB	7	9	8	6	12	13	12	9	86
2	Acea	30	31	30	30	30	33	30	30	87
3	AEM	49	45	46	40	60	58	57	57	88
4	AEM Torino	31	33	32	32	44	41	41	42	89
5	Agfa-Gevaert	19	19	18	17	14	12	9	13	90
6	Airbus	9	8	7	7	1	1	1	3	91
7	ASM	35	36	35	34	47	49	50	49	92
8	AstraZeneca	8	7	9	5	17	18	18	14	93
9	Atlas Copco	21	22	23	22	21	24	23	20	94
10	BASF	52	54	52	54	35	35	35	35	95
11	BG Group	42	46	40	42	41	43	39	40	96
12	BMW	3	4	3	3	3	5	4	5	97
13	BP	63	64	64	64	46	48	47	48	98
14	Celanese	50	49	48	47	52	51	52	52	99
15	Centrica	45	53	45	44	38	45	37	36	100
16	Crown van Gelder	29	30	31	29	45	46	46	45	101
17	DaimlerChrysler	1	1	1	1	7	6	7	8	102
18	Degussa	47	48	49	50	36	38	38	39	103
19	Edison	54	55	55	55	57	59	59	59	104
20	Energias de Portugal	56	57	57	58	61	60	60	60	105
21	Electrolux	18	18	19	19	23	22	22	21	106
22	ENEL	61	62	59	59	54	54	45	47	107
23	ENI	60	61	62	62	50	52	51	51	108
24	ERG	44	43	53	52	58	63	62	61	109
25	FIAT Group	41	47	41	48	32	39	33	34	110
26	Fortum	55	56	56	56	56	57	58	58	111
27	Gorenje	27	28	28	24	6	4	3	2	112
28	Heidelberger Druckmaschinen	16	20	20	20	5	7	8	10	113
29	Heineken Group	20	21	21	27	24	25	27	27	114
30	Henkel	14	16	17	16	13	14	16	17	115
31	Holmen	32	34	33	33	33	32	34	33	116
32	Imperial Chemical Industries	33	32	34	35	29	30	31	32	117
33	Kemira	46	44	44	43	55	56	56	54	118
34	MAN	N/A	13	13	11	N/A	15	14	12	119
35	M-Real Corporation	37	38	38	38	37	37	42	41	120
36	MVM	57	58	58	57	64	65	65	65	121
37	NedCar	25	26	26	23	9	10	11	7	122
38	Novonordisk	17	17	16	14	4	2	2	1	123
39	Novozymes	26	27	27	25	22	21	21	22	124
40	OMV	36	39	47	46	40	40	48	46	125
41	Philips	5	5	5	4	8	8	6	6	126
42	Pilkington	40	40	39	39	43	44	43	43	127
43	Pirelli	23	24	24	31	26	28	28	29	128
44	PSA	6	6	6	9	10	9	10	19	129
45	Renault	11	11	10	18	18	20	20	25	130
46	Repsol YPF	58	59	60	61	49	55	53	56	131
47	Richter	28	29	29	28	25	26	24	28	132
48	Robert Bosch	4	2	2	2	11	11	13	11	133
49	Royal DSM	38	37	37	37	39	34	36	37	134
50	SCA	34	35	36	36	31	31	32	31	135
51	Scania	22	23	22	21	19	19	19	18	136
52	Schering	15	15	15	13	2	3	5	4	137

No.	Company	Rank Sustainable Value				Rank RCR				Profile on page
		2001	2002	2003	2003 → 2010	2001	2002	2003	2003 → 2010	
53	Scottish & Southern Energy	51	51	51	51	51	53	55	55	138
54	Shell	64	65	65	65	48	47	49	50	139
55	SKF	24	25	25	26	28	29	29	26	140
56	Slovnaft	43	41	42	41	59	61	61	62	141
57	STMicroelectronics	13	14	14	15	16	17	17	16	142
58	Stora Enso	53	52	54	53	42	42	44	44	143
59	Suez	62	63	63	63	53	50	54	53	144
60	Unilever	10	10	11	12	27	27	26	23	145
61	Union Fenosa	59	60	61	60	62	62	63	63	146
62	Unipetrol	48	50	50	49	63	64	64	64	147
63	UPM-Kymmene	39	42	43	45	34	36	40	38	148
64	Volkswagen	2	3	4	8	20	23	25	24	149
65	Volvo	12	12	12	10	15	16	15	15	150

Table 4. Company ranks with regard to Sustainable Value and Return to Cost Ratio.

In the following, we present the results of the two assessment scenarios in more detail. In addition, in Annex II there is a company profile for every company that shows the in-depth results for every company.

5.1.1 Which companies have created Sustainable Value between 2001 and 2003?

The Sustainable Value approach assesses how efficiently companies use their resources. In the ADVANCE survey, the use of seven different environmental resources has been analysed in 65 companies (for details see Chapter 4). Companies use environmental resources to create a return. To calculate Sustainable Value, we compare this return to the opportunity costs of the environmental resources. The opportunity costs of the environmental resources reflect how much value the EU15 would have created with these resources (for methodological details see 3.4). Table 5 shows the efficiency with which the environmental resources have been used in the EU15 in the years 2001 to 2003. The resource efficiencies of the EU15 show how much GDP per resource – e.g. per ton of CO₂ – is created in the EU15. These efficiencies determine the opportunity costs of the resources. A company only creates Sustainable Value if it creates more Gross Value Added with its resources than the EU15 benchmark.

	Efficiency of Benchmark EU15		
	2001	2002	2003
CO ₂ -emissions	2,613 €/t	2,710 €/t	2,701 €/t
NO _x -emissions	915,708 €/t	974,581 €/t	1,004,300 €/t
SO _x -emissions	1,509,681 €/t	1,619,617 €/t	1,779,304 €/t
Waste generated	6,130 €/t	6,256 €/t	6,270 €/t
Water used	39 €/m ³	41 €/m ³	41 €/m ³
VOC-emissions	865,814 €/t	938,532 €/t	970,676 €/t
CH ₄ -emissions	531,164 €/t	563,905 €/t	586,083 €/t

Table 5. Resource efficiencies of the EU15 in 2001 to 2003 (own calculations based on [33, 40-42]).

In this section, we present the results of the past performance scenario. The results show, which companies have created Sustainable Value between 2001 and 2003. The detailed results for every company are presented in Annex II. In Annex II you find a

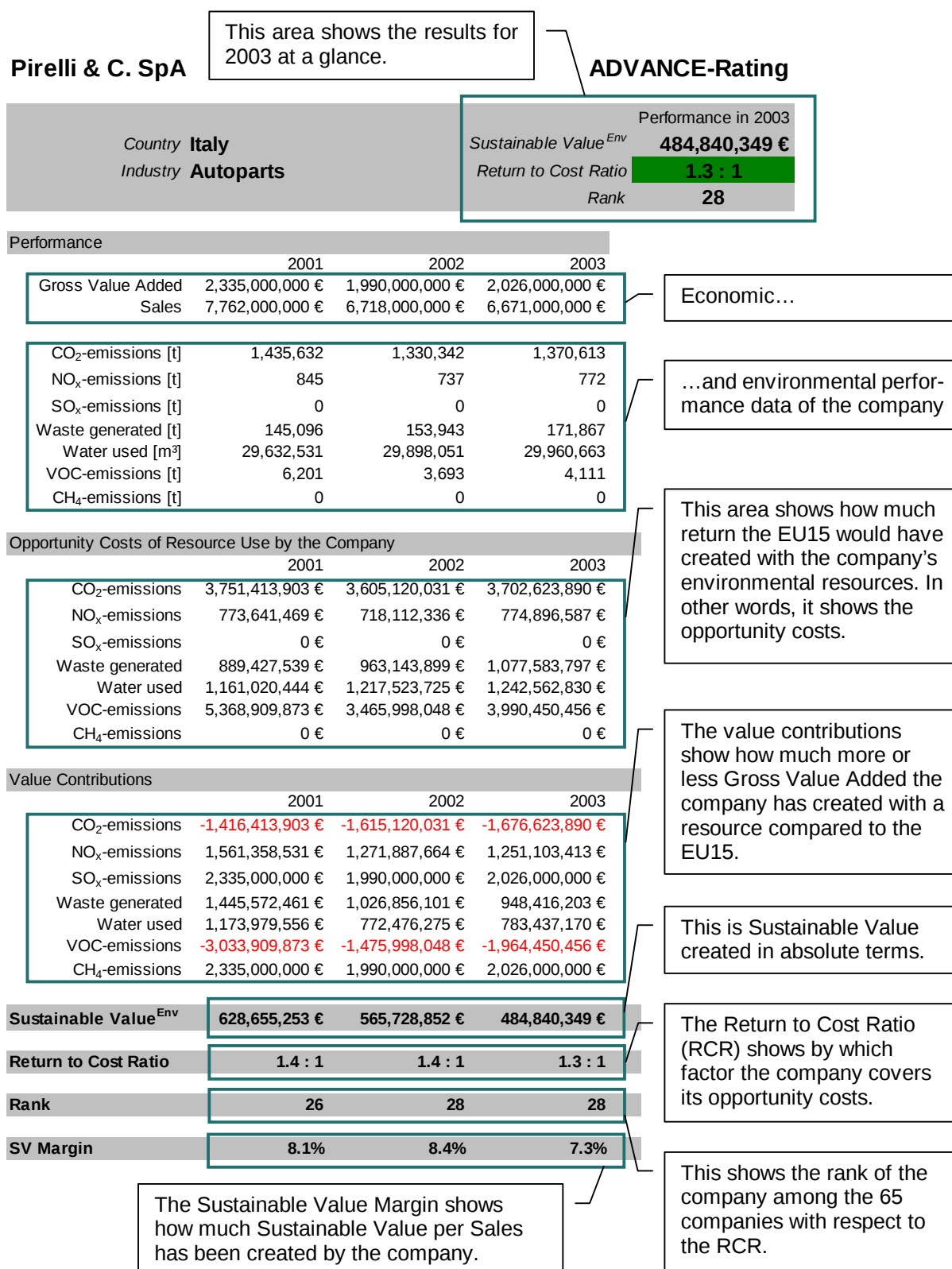


Figure 9: Presentation of results in Annex II.

profile for each company that presents the results of both the past performance and the future scenario. Using the example of Pirelli, we now present the structure and logic of the performance sheets in Annex II (Figure 8 above). In Annex II, the detailed results for all 65 companies are presented in alphabetical order. In the following, we provide an overview of the results of the past performance scenario.

Table 6 shows the absolute Sustainable Value in 2001-2003 in the ranking order of Sustainable Value in 2003. **DaimlerChrysler** (profile on page 102), as mentioned, proves to be the top performing company in terms of absolute Sustainable Value. According to our calculations, the fact that the resource bundle has been used by DaimlerChrysler rather than the EU15 average has created a value of almost 30 billion € in 2003. On the negative side Shell has a negative Sustainable Value of more than 180 billion € in 2003. We estimate that more than 180 billion € additional Gross Domestic Product could have been created if the resources had been used by the EU15 average rather than by **Shell** (profile on page 139).

Company	Sustainable Value 2003	Sustainable Value 2002	Sustainable Value 2001
1 DaimlerChrysler	29,876,257,351 €	31,896,158,886 €	30,077,701,600 €
2 Robert Bosch GmbH	9,831,338,053 €	9,848,159,729 €	8,781,223,889 €
3 BMW	9,510,633,231 €	9,229,109,374 €	8,936,911,302 €
4 Volkswagen	8,059,197,491 €	9,524,622,621 €	9,476,251,319 €
5 Philips	7,598,054,795 €	7,819,713,882 €	7,062,910,654 €
6 PSA	6,768,651,026 €	7,354,519,022 €	6,369,181,491 €
7 Airbus	4,979,414,025 €	4,946,677,601 €	4,919,428,944 €
8 ABB	4,864,578,563 €	4,629,687,169 €	5,351,681,013 €
9 AstraZeneca	4,751,779,963 €	5,234,319,758 €	5,157,364,953 €
10 Renault	4,033,665,898 €	3,994,028,068 €	3,342,565,031 €
11 Unilever	3,936,173,454 €	4,099,071,601 €	3,741,605,198 €
12 Volvo	3,396,583,146 €	3,341,355,994 €	3,163,639,310 €
13 MAN	2,911,193,152 €	2,999,267,056 €	N/A
14 STMicroelectronics	1,864,722,805 €	2,151,281,043 €	1,983,089,745 €
15 Schering	1,856,454,221 €	2,000,508,333 €	1,932,729,530 €
16 Novonordisk	1,803,753,359 €	1,662,704,380 €	1,454,469,452 €
17 Henkel	1,727,305,657 €	1,808,526,836 €	1,979,307,081 €
18 Agfa-Gevaert	1,414,583,745 €	1,375,236,353 €	979,533,009 €
19 Electrolux	1,344,258,783 €	1,602,891,149 €	1,299,950,346 €
20 Heidelberger Druck	1,045,327,850 €	1,269,945,673 €	1,602,529,592 €
21 Heineken	945,376,403 €	1,075,800,503 €	904,335,303 €
22 Scania	918,892,898 €	814,196,290 €	659,556,811 €
23 Atlas Copco	764,760,925 €	833,335,269 €	886,664,786 €
24 Pirelli	484,840,349 €	565,728,852 €	628,655,253 €
25 SKF	462,421,338 €	444,516,507 €	486,362,570 €
26 NedCar	332,640,428 €	373,256,227 €	377,900,637 €
27 Novozymes	188,204,358 €	181,084,299 €	141,987,196 €
28 Gorenje	173,345,874 €	153,711,847 €	130,261,422 €
29 Richter	65,527,374 €	59,266,260 €	44,893,450 €
30 Acea	-92,371,263 €	-369,997,290 €	-173,807,935 €
31 Crown van Gelder	-155,668,471 €	-168,012,961 €	-156,963,500 €
32 AEM Torino	-454,372,273 €	-575,779,231 €	-450,622,442 €
33 Holmen	-686,700,910 €	-616,926,138 €	-485,243,089 €
34 ICI	-1,179,280,321 €	-387,434,350 €	-541,029,421 €

Company	Sustainable Value 2003	Sustainable Value 2002	Sustainable Value 2001
35 ASM	-1,627,498,489 €	-1,649,438,188 €	-1,629,457,399 €
36 SCA	-2,053,526,721 €	-1,473,676,237 €	-1,180,348,962 €
37 Royal DSM	-2,362,906,433 €	-2,217,345,664 €	-3,776,538,401 €
38 M-Real	-3,484,338,448 €	-3,095,686,977 €	-3,116,670,554 €
39 Pilkington	-4,271,035,368 €	-4,708,240,192 €	-4,814,993,723 €
40 BG Group	-4,664,900,505 €	-6,694,706,346 €	-5,349,553,626 €
41 FIAT	-5,167,821,763 €	-8,213,636,833 €	-5,142,150,044 €
42 Slovnaft	-5,612,746,855 €	-5,211,931,865 €	-5,382,274,790 €
43 UPM-Kymmene	-5,896,828,632 €	-5,604,587,018 €	-4,062,897,272 €
44 Kemira	-6,383,372,500 €	-6,167,231,721 €	-6,221,841,861 €
45 Centrica	-6,484,312,051 €	-12,834,638,423 €	-5,430,386,355 €
46 AEM	-7,142,337,483 €	-6,510,858,118 €	-8,614,154,252 €
47 OMV	-7,462,535,912 €	-3,553,659,898 €	-3,069,629,435 €
48 Celanese	-7,553,743,315 €	-8,793,888,967 €	-8,614,673,206 €
49 Degussa	-8,294,523,146 €	-8,360,879,211 €	-7,326,879,643 €
50 Unipetrol	-9,494,288,327 €	-9,440,175,071 €	-7,623,798,440 €
51 Scottish & Southern Energy	-12,309,698,069 €	-11,081,817,768 €	-10,309,334,324 €
52 BASF	-13,872,669,586 €	-13,800,774,004 €	-11,914,484,411 €
53 ERG	-13,934,166,613 €	-5,645,405,911 €	-5,403,881,658 €
54 Stora Enso	-14,082,317,266 €	-12,631,904,344 €	-12,041,859,643 €
55 Edison	-22,242,425,384 €	-21,589,281,668 €	-17,387,026,298 €
56 Fortum	-40,000,506,604 €	-33,187,790,518 €	-28,988,448,020 €
57 Energias de Portugal	-47,855,870,740 €	-42,134,764,406 €	-44,333,288,178 €
58 MVM	-49,084,322,299 €	-47,474,419,831 €	-45,101,727,657 €
59 ENEL	-53,148,520,028 €	-83,332,940,631 €	-98,816,528,577 €
60 Repsol YPF	-55,854,211,710 €	-54,537,662,628 €	-50,291,816,234 €
61 Union Fenosa	-56,413,585,743 €	-57,593,090,048 €	-51,017,351,104 €
62 ENI	-76,763,875,489 €	-79,336,466,007 €	-71,445,300,635 €
63 Suez	-110,625,047,824 €	-103,839,466,449 €	-115,264,987,660 €
64 BP	-134,132,952,397 €	-146,524,592,820 €	-154,568,271,662 €
65 Shell	-180,917,018,746 €	-176,538,205,610 €	-169,296,409,283 €

Table 6. Sustainable Value creation of European companies 2001-2003.

As mentioned earlier, large companies can be expected to create a higher (positive or negative) Sustainable Value than small companies. We must correct for this size effect if we want to compare the environmental performance of companies irrespective of their size. Here, we use the Return to Cost Ratio (RCR) for this purpose. The Return to Cost Ratio shows how many times a company earns its opportunity cost. A Return to Cost Ratio of 1 : 1 signifies that the Gross Value Added that the company creates corresponds exactly to its opportunity costs with regards to its usage of environmental resources. The company is thus as efficient as the market. Consequently, the corresponding Sustainable Value is zero. **Airbus** (profile on page 91), the leader in the return to cost ranking in 2003, has a Return to Cost Ratio of 4.5 : 1. Airbus therefore generates 4.5 times more Gross Value Added than the benchmark. Put differently, Airbus uses its environmental resources 4.5 times more efficiently compared to the EU15 benchmark. **Daimler-Chrysler** only has a Return to Cost Ratio of 3.6:1. It therefore uses resources less efficiently than Airbus. However, more Sustainable Value is created, as DaimlerChrysler is

bigger than Airbus. **MVM** (profile on page 121), the laggard in this ranking, has created 188 times less Gross Value Added than if the resources had been given to the benchmark.

Rank 2003	Company	RCR 2003	RCR 2002	Rank 2002	RCR 2001	Rank 2001
1	Airbus	4.5 : 1	4.7 : 1	1	4.6 : 1	1
2	Novonordisk	4.4 : 1	4.4 : 1	2	4.3 : 1	4
3	Gorenje	4.3 : 1	4.1 : 1	4	3.8 : 1	6
4	BMW	3.9 : 1	4.1 : 1	5	4.3 : 1	3
5	Schering	3.8 : 1	4.2 : 1	3	4.4 : 1	2
6	Philips	3.6 : 1	3.2 : 1	8	3.2 : 1	8
7	DaimlerChrysler	3.6 : 1	3.7 : 1	6	3.6 : 1	7
8	Heidelberger Druckmaschinen	3.4 : 1	3.7 : 1	7	3.9 : 1	5
9	Agfa-Gevaert	3.1 : 1	2.8 : 1	12	2.5 : 1	14
10	PSA	3 : 1	3.2 : 1	9	2.9 : 1	10
11	NedCar	2.9 : 1	3 : 1	10	3 : 1	9
12	ABB	2.8 : 1	2.6 : 1	13	2.8 : 1	12
13	Robert Bosch GmbH	2.7 : 1	2.9 : 1	11	2.8 : 1	11
14	MAN	2.5 : 1	2.5 : 1	15	N/A	N/A
15	Volvo	2.5 : 1	2.5 : 1	16	2.5 : 1	15
16	Henkel	2.5 : 1	2.6 : 1	14	2.8 : 1	13
17	STMicroelectronics	2.2 : 1	2.3 : 1	17	2.3 : 1	16
18	AstraZeneca	2.1 : 1	2.1 : 1	18	2.1 : 1	17
19	Scania	2 : 1	1.9 : 1	19	1.8 : 1	19
20	Renault	1.9 : 1	1.9 : 1	20	1.9 : 1	18
21	Novozymes	1.7 : 1	1.7 : 1	21	1.6 : 1	22
22	Electrolux	1.6 : 1	1.6 : 1	22	1.5 : 1	23
23	Atlas Copco	1.6 : 1	1.6 : 1	24	1.6 : 1	21
24	Richter	1.5 : 1	1.4 : 1	26	1.4 : 1	25
25	Volkswagen	1.5 : 1	1.6 : 1	23	1.6 : 1	20
26	Unilever	1.4 : 1	1.4 : 1	27	1.4 : 1	27
27	Heineken	1.3 : 1	1.5 : 1	25	1.4 : 1	24
28	Pirelli	1.3 : 1	1.4 : 1	28	1.4 : 1	26
29	SKF	1.3 : 1	1.3 : 1	29	1.3 : 1	28
30	Acea	1 : 1.2	1 : 2.1	33	1 : 1.3	30
31	Imperial Chemical Industries	1 : 1.4	1 : 1.1	30	1 : 1.2	29
32	SCA	1 : 1.6	1 : 1.4	31	1 : 1.3	31
33	FIAT Group	1 : 1.8	1 : 3.3	39	1 : 1.6	32
34	Holmen	1 : 2.1	1 : 1.9	32	1 : 1.8	33
35	BASF	1 : 2.2	1 : 2.2	35	1 : 2.1	35
36	Royal DSM	1 : 2.2	1 : 2.1	34	1 : 2.9	39
37	Centrica	1 : 2.6	1 : 4.4	45	1 : 2.9	38
38	Degussa	1 : 2.7	1 : 2.7	38	1 : 2.4	36
39	BG Group	1 : 2.7	1 : 3.9	43	1 : 3.3	41
40	UPM-Kymmene	1 : 2.7	1 : 2.5	36	1 : 2	34
41	AEM Torino	1 : 3.2	1 : 3.8	41	1 : 4.2	44
42	M-Real Corporation	1 : 3.2	1 : 2.7	37	1 : 2.6	37
43	Pilkington	1 : 3.9	1 : 4	44	1 : 3.9	43
44	Stora Enso	1 : 4.6	1 : 3.9	42	1 : 3.4	42
45	ENEL	1 : 5	1 : 8.3	54	1 : 9.1	54
46	Crown van Gelder	1 : 5	1 : 5	46	1 : 5.3	45
47	BP	1 : 5.4	1 : 6.1	48	1 : 5.5	46
48	OMV	1 : 5.8	1 : 3.7	40	1 : 3.1	40
49	Shell	1 : 5.9	1 : 6	47	1 : 6.1	48

Rank 2003	Company	RCR 2003	RCR 2002	Rank 2002	RCR 2001	Rank 2001
50	ASM	1 : 6	1 : 7.2	49	1 : 6	47
51	ENI	1 : 7.1	1 : 7.8	52	1 : 6.4	50
52	Celanese	1 : 7.8	1 : 7.7	51	1 : 7.2	52
53	Repsol YPF	1 : 8.7	1 : 8.7	55	1 : 6.2	49
54	Suez	1 : 8.9	1 : 7.5	50	1 : 8.4	53
55	Scottish & Southern Energy	1 : 9	1 : 8	53	1 : 7.2	51
56	Kemira	1 : 9.2	1 : 8.9	56	1 : 9.4	55
57	AEM	1 : 14.2	1 : 17	58	1 : 23.5	60
58	Fortum	1 : 16.3	1 : 13.1	57	1 : 14.1	56
59	Edison	1 : 18.8	1 : 19.5	59	1 : 15.6	57
60	Energias de Portugal	1 : 21	1 : 21.9	60	1 : 24	61
61	Slovnaft	1 : 26.1	1 : 25.6	61	1 : 19.6	59
62	ERG	1 : 27.9	1 : 32.8	63	1 : 19.1	58
63	Union Fenosa	1 : 29.7	1 : 28.9	62	1 : 26.7	62
64	Unipetrol	1 : 40	1 : 42.3	64	1 : 27.6	63
65	MVM	1 : 188.3	1 : 341.5	65	1 : 150.4	64

Table 7. Return to Cost Ratios of European companies 2001-2003 (RCR = Return to Cost Ratio).

5.1.2 Which companies are creating future Sustainable Value?

It is commonly agreed that in the EU15 environmental resources are not yet used in a sustainable way presently. Therefore, the EU has implemented policy goals to reduce the use of environmental resources and to alleviate environmental burdens. On the other hand, the EU strives to be the most competitive region of the world by 2010. In the Lisbon declaration, the EU has set itself as a performance target to achieve a GDP growth of 3% each year until 2010. In the ADVANCE survey, we use the EU environmental and economic policy goals to assess the 65 companies in the future performance scenario. The future performance scenario shows which companies will continue to create Sustainable Value under the more stringent future performance targets. We have chosen the year 2010 as the target year. Table 8 shows the different economic and environmental performance targets that have been used in the future performance scenario.

	2010 Target relative	absolute	Policy background	Sources
<i>Economic goals</i>				
GDP growth	3% p.a.	11,454 billion €	Lisbon declaration	[23]
<i>Environmental goals</i>				
CO ₂ -emissions	8% reduction compared to 1990	3,067,902,427 t	EU burden sharing agreement	[24]
NO _x -emissions	-	5,923,000 t	NEC Directive, Annex II	[32]
SO _x -emissions	-	3,634,000 t	NEC Directive, Annex II	[32]
Waste generation	20% reduction compared to 2000	1,168,475,530 t	No EU targets available for overall waste reduction. In a preliminary version of Decision 1600/2002/EC there is a 20% reduction target for municipal waste that is applied to overall waste here.	based on [34]
Water use	extrapolation of downward trend	218,074,000,000 m ³	No EU targets for water use available. Therefore, the existing downward trend of water use has been extrapolated to the year 2010.	based on [33]
VOC-emissions	-	5,581,000 t	NEC Directive, Annex II	[32]
CH ₄ -emissions	8% reduction compared to 1990	19,757,629 t	EU burden sharing agreement	[24, 30]

Table 8. EU15 policy targets for 2010.

For the future performance scenario we use these targets to calculate how efficiently resources have to be used in 2010 for the performance targets to be met. Table 9 shows the EU15 target efficiencies for 2010. These efficiencies are calculated by dividing the target GDP for 2010 by the targeted amount of resource use. At the same time, these efficiencies determine the opportunity costs in the future performance scenario. In the future performance scenario companies only create a positive Sustainable Value if they are using their resources more efficiently as is required by the EU15 performance targets.

	Target efficiency of the EU15 for 2010
CO ₂ -emissions	3,733 €/t
NO _x -emissions	1,933,747 €/t
SO _x -emissions	3,151,784 €/t
Waste generated	9,802 €/t
Water used	53 €/m ³
VOC-emissions	2,052,246 €/t
CH ₄ -emissions	579,704 €/t

Table 9. Target efficiencies of the EU15 for 2010.

Below, we present an overview of the results of the future performance scenario for the 65 companies. As with the past performance scenario above, the detailed results can be found in Annex II on the company specific result sheets. Figure 10 below illustrates the presentation of the results of the future performance scenario in Annex II by using the

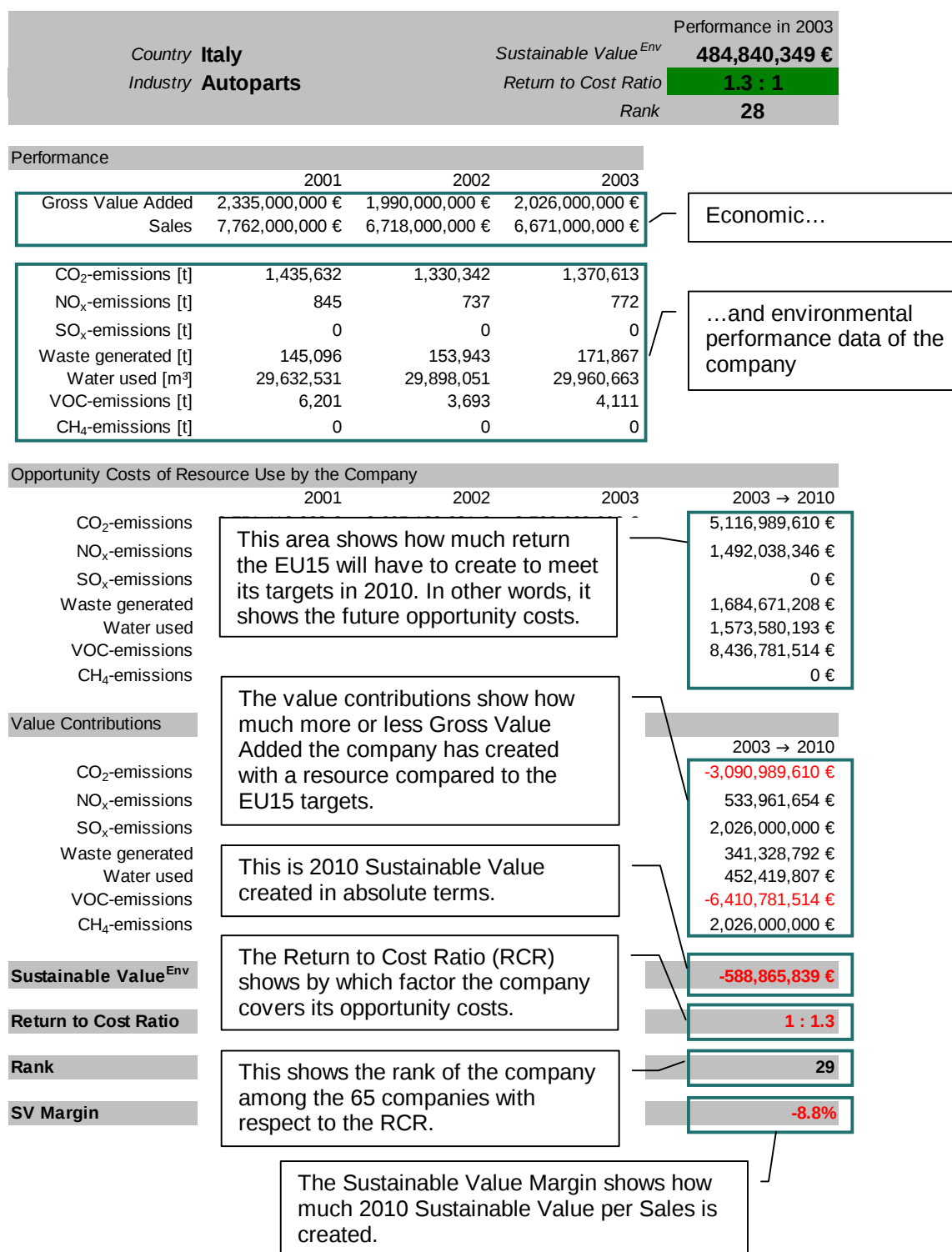
Pirelli & C. SpA**ADVANCE-Rating**

Figure 10. Presentation of results in Annex II.

example of Pirelli. In Annex II, the results for all 65 companies are presented in alphabetical order. In the following, we provide an overview of the results of the future performance scenario.

Table 10 and Table 11 display the ranking of companies in the future scenario. Table 10 shows the ranking according to absolute Sustainable Value and Table 11 according to the Return to Cost Ratio. In this scenario the benchmark reflects the targets as set out above. As a higher Gross Domestic Product and lower environmental impacts are targeted, the benchmark becomes more demanding over time. Consequently, as we compare today's corporate environmental performance with a future more demanding benchmark, Sustainable Value in the future scenario is lower overall. However, it is interesting to note that not only the absolute level of Sustainable Value creation is affected. The order of the ranking also changes compared to the past performance scenario. This is due to the fact that some environmental impacts are expected to be reduced more than others. As a result, the efficiency of the former environmental impact must be more improved (for example VOC) than the efficiency of the latter (for example SO_x) in the future. Companies that use a lot of impacts that need to be reduced dramatically in the future will therefore see a strong reduction of their Sustainable Value in the future performance scenario.

	Company	Sustainable Value 2003 > 2010
1	DaimlerChrysler	26,133,559,478 €
2	Robert Bosch GmbH	9,127,352,912 €
3	BMW	8,514,813,453 €
4	Philips	6,660,947,431 €
5	AstraZeneca	4,570,525,310 €
6	ABB	4,564,400,666 €
7	Airbus	4,523,246,485 €
8	Volkswagen	3,835,194,441 €
9	PSA	3,665,294,761 €
10	Volvo	2,882,359,807 €
11	MAN	2,630,188,140 €
12	Unilever	2,137,996,677 €
13	Schering	1,677,996,126 €
14	Novonordisk	1,675,499,967 €
15	STMicroelectronics	1,612,847,924 €
16	Henkel	1,280,626,186 €
17	Agfa-Gevaert	1,126,670,350 €
18	Renault	1,096,734,063 €
19	Electrolux	897,659,394 €
20	Heidelberger Druckmaschinen	896,414,327 €
21	Scania	818,437,840 €
22	Atlas Copco	697,900,393 €
23	NedCar	318,600,391 €
24	Gorenje	162,107,899 €
25	Novozymes	95,472,678 €
26	SKF	-12,676,249 €
27	Heineken	-29,103,752 €
28	Richter	-37,840,922 €
29	Crown van Gelder	-233,083,253 €

	Company	Sustainable Value 2003 > 2010
30	Acea	-284,786,780 €
31	Pirelli	-588,865,839 €
32	AEM Torino	-837,862,760 €
33	Holmen	-1,301,709,206 €
34	ASM	-2,823,001,775 €
35	Imperial Chemical Industries	-3,752,980,703 €
36	SCA	-4,419,480,496 €
37	Royal DSM	-5,237,019,185 €
38	M-Real	-6,205,293,160 €
39	Pilkington	-8,011,149,068 €
40	AEM	-9,297,562,895 €
41	Slovnaft	-9,852,893,473 €
42	BG Group	-9,871,972,624 €
43	Kemira	-9,979,144,884 €
44	Centrica	-10,033,448,250 €
45	UPM-Kymmene	-10,538,354,099 €
46	OMV	-10,660,067,507 €
47	Celanese	-13,559,572,503 €
48	FIAT Group	-13,638,217,098 €
49	Unipetrol	-15,800,783,469 €
50	Degussa	-16,727,048,238 €
51	Scottish & Southern Energy	-20,507,824,481 €
52	ERG	-22,544,233,829 €
53	Stora Enso	-23,344,584,815 €
54	BASF	-25,673,341,228 €
55	Edison	-31,542,932,659 €
56	Fortum	-61,912,703,062 €
57	MVM	-79,145,245,744 €
58	Energias de Portugal	-83,343,912,554 €
59	ENEL	-92,696,195,508 €
60	Union Fenosa	-99,263,349,894 €
61	Repsol YPF	-102,177,853,981 €
62	ENI	-130,652,388,317 €
63	Suez	-175,345,711,302 €
64	BP	-248,473,202,187 €
65	Shell	-331,423,483,150 €

Table 10. Sustainable Value of European companies in the future performance scenario.

Table 10 shows that **DaimlerChrysler** (profile on page 102) still holds the top position with respect to the creation of absolute Sustainable Value in the future performance scenario. **Volkswagen** (profile on page 149) provides a good example to illustrate the effect of a high exposure to tight performance targets. Compared to the 2003 performance Volkswagen's performance declines considerably in the future performance scenario: The company's absolute Sustainable Value more than halves and Volkswagen's position in the ranking drops from 4 to 8.

	Company	RCR 2003 > 2010
1	Novonordisk	3.6 : 1
2	Gorenje	3.5 : 1
3	Airbus	3.4 : 1
4	Schering	3 : 1
5	BMW	3 : 1
6	Philips	2.7 : 1
7	NedCar	2.7 : 1
8	DaimlerChrysler	2.7 : 1
9	ABB	2.5 : 1
10	Heidelberger Druckmaschinen	2.5 : 1
11	Robert Bosch GmbH	2.4 : 1
12	MAN	2.2 : 1
13	Agfa-Gevaert	2.2 : 1
14	AstraZeneca	2 : 1
15	Volvo	2 : 1
16	STMicroelectronics	1.9 : 1
17	Henkel	1.8 : 1
18	Scania	1.8 : 1
19	PSA	1.6 : 1
20	Atlas Copco	1.5 : 1
21	Electrolux	1.3 : 1
22	Novozymes	1.3 : 1
23	Unilever	1.2 : 1
24	Volkswagen	1.2 : 1
25	Renault	1.1 : 1
26	SKF	1 : 1
27	Heineken	1 : 1
28	Richter	1 : 1.2
29	Pirelli	1 : 1.3
30	Acea	1 : 1.6
31	SCA	1 : 2.2
32	Imperial Chemical Industries	1 : 2.3
33	Holmen	1 : 3
34	FIAT Group	1 : 3.1
35	BASF	1 : 3.2
36	Centrica	1 : 3.5
37	Royal DSM	1 : 3.7
38	UPM-Kymmene	1 : 4.1
39	Degussa	1 : 4.4
40	BG Group	1 : 4.6
41	M-Real	1 : 4.9
42	AEM Torino	1 : 5
43	Pilkington	1 : 6.5
44	Stora Enso	1 : 6.9
45	Crown van Gelder	1 : 7
46	OMV	1 : 7.9
47	ENEL	1 : 8
48	BP	1 : 9.1
49	ASM	1 : 9.7
50	Shell	1 : 9.9
51	ENI	1 : 11.3
52	Celanese	1 : 13.1
53	Suez	1 : 13.6
54	Kemira	1 : 13.8

	Company	RCR 2003 > 2010
55	Scottish & Southern Energy	1 : 14.3
56	Repsol YPF	1 : 15.2
57	AEM	1 : 18.1
58	Fortum	1 : 24.7
59	Edison	1 : 26.2
60	Energias de Portugal	1 : 35.8
61	ERG	1 : 44.5
62	Slovnaft	1 : 45.1
63	Union Fenosa	1 : 51.5
64	Unipetrol	1 : 65.8
65	MVM	1 : 303

Table 11. Return to Cost Ratio of European companies in the future performance scenario.

Table 11 shows the ranking with regard to the Return to Cost Ratio in the future performance scenario. As mentioned earlier, the Return to Cost Ratio takes into account firm size and thus corrects for the fact that bigger companies are expected to produce a higher (positive or negative) absolute Sustainable Value. In the future performance scenario **Airbus** (profile on page 91) loses its top position and ranks only third while **Novonordisk** (profile on page 123) takes over the lead. **DaimlerChrysler** (profile on page 102), the company leading the ranking of absolute Sustainable Value creation, comes in on position 8, which again reflects the effect of DaimlerChrysler being a large company.

In the following section we will discuss these results in more detail.

5.2 Discussion of the Results

In this section we discuss the results of our survey. For this purpose, we first take a closer look at the rankings and results presented above (5.2.1). In section 5.2.2 we evaluate those sectors, which are covered by at least four companies in the ADVANCE survey. Finally, in section 5.2.3 we discuss some further implications and potential fields of application of our results and the Sustainable Value approach.

5.2.1 Discussion and In-Depth Analysis of the Results

The top 5 performers in each ranking

The preceding section has introduced a number of different rankings. We can distinguish between

- a past performance and a future scenario, and
- a ranking according to (absolute) Sustainable Value and to (relative) Return to Cost Ratio.

The past performance scenario uses the performance of the EU15 in the respective years (2001-2003) as a benchmark. The future scenario is based on a benchmark that takes emission reduction and economic growth targets into account.

	Ranking according to	
	Sustainable Value	Return to Cost Ratio
Past Performance Scenario (here: 2003)	(1) DaimlerChrysler	(1) Airbus
	(2) Robert Bosch	(2) Novonordisk
	(3) BMW	(3) Gorenje
	(4) Volkswagen	(4) BMW
	(5) Philips	(5) Schering
Future Performance Scenario	(1) DaimlerChrysler	(1) Novonordisk
	(2) Robert Bosch	(2) Gorenje
	(3) BMW	(3) Airbus
	(4) Philips	(4) Schering
	(5) AstraZeneca	(5) BMW

Table 12. Top 5 positions in different rankings.

Rankings based on (absolute) Sustainable Value rank companies irrespective of their size. A less efficient company that uses more resources might outrank a more efficient company. A ranking according to the Return to Cost Ratio takes this into account. The Return to Cost Ratio shows how many times a company has earned its opportunity costs, i.e. it is a relative measure that assesses resource use irrespective of the different sizes of companies. The preceding table summarises the top five performers in each category.

As can be seen in Table 12, the results in the different rankings differ considerably. If we compare the Sustainable Value ranking of the past performance scenario with the future performance scenario we find that the first three positions are identical but that the ranking changes on positions four and five. **Volkswagen** (profile on page 149) slips from fourth rank in the 2003 Sustainable Value ranking to eighth rank in the future performance scenario. This is largely due to Volkswagen's VOC-emissions. While Volkswagen's VOC-emissions still provide a positive value contribution in 2003, it slips into negative territory in the 2010 scenario. It's German competitors **DaimlerChrysler** (profile on page 102) and **BMW** (profile on page 97) continue to have positive VOC value contributions even in our 2010 scenario. **AstraZeneca** (profile on page 93) is a good example for a drastic move in the opposite direction climbing from rank 9 in the 2003 ranking to 4 in the future performance scenario.

When we compare the (absolute) Sustainable Value ranking with the (relative) Return to Cost Ratio ranking it becomes clear that the different rankings yield very different results. None of the companies that feature in the top ranks of the Sustainable Value ranking appear in the ranking according to companies' Return to Cost Ratios.

In-depth analysis of the past performance scenario

The past performance scenario covers a time series of three years. In this context, it is interesting to see which companies' performance changed most from 2001 to 2003. Overall, in 2003 26 of the 65 companies used their bundle of environmental resources more efficiently than in 2001. **ENEL** (profile on page 107) is the company that improved the efficiency of the use of its environmental resources most: ENEL's Return to Cost Ratio rose from 1 : 9.1 in 2001 to 1 : 5 in 2003, representing an improvement by a factor

of 1.8 or 82%. Consequently, ENEL also makes the biggest jump ahead in the ranking of the Return to Cost Ratios, coming from rank 54 in 2001 and ending on rank 45 in 2003. This positive performance trend is mainly due to the strong improvement of ENEL's SO_x-performance. The second best performance improvement between 2001 and 2003 is achieved by **AEM** (profile on page 88). In 2003, AEM used its environmental resources almost 1.7 times more efficiently compared to 2001. Accordingly, AEM's Return to Cost Ratio improved from 1 : 23.5 in 2001 to 1: 14.2 in 2003.¹² Like in the case of ENEL, the reason for this positive trend is a reduction of the SO_x-emissions of AEM, which were completely eliminated in 2003.

At the other end of the spectrum, **OMV** (profile on page 125) shows the strongest negative performance trend of the 65 companies between 2001 and 2003. Overall, in 2003 OMV used its environmental resources almost only half as efficiently as in 2001. This is mainly due to a huge increase of OMV's methane emissions caused by two newly established joint ventures in Pakistan in 2003. Consequently, in the Return to Cost Ratio ranking OMV lost eight ranks and dropped from position 40 in 2001 to 48 in 2003. Five more companies lost 25% or more in efficiency from 2001 to 2003 (ERG, Repsol YPF, Slovnaft, Unipetrol, and UPM-Kymmene). The downward trend of **ERG** (profile on page 109) can be attributed mainly to a higher water use and more SO_x-emissions.¹³ **Repsol YPF** (profile on page 131) is an interesting case: The negative performance trend cannot be explained by a prominent change in the amount of environmental resources used. However, in 2003 Repsol YPF created less Gross Value Added using roughly the same amount of environmental resources, which also leads to a lower overall efficiency. **Unipetrol's** (profile on page 147) performance trend can mainly be explained by a higher water use and more SO_x-emissions together with lower a Gross Value Added. The negative performance trend of **UPM-Kymmene** (profile on page 148) results mainly from higher CO₂- and NO_x-emissions and a decline of Gross Value Added between 2001 and 2003. **Slovnaft's** (profile on page 141) performance suffers mainly from a sharp increase in waste generation and a decline of Gross Value Added between 2001 and 2003.

In-depth analysis of the future performance scenario

A similar analysis can be done to compare the past performance scenario with the 2010 future performance scenario. In this context, it is interesting to note that the most significant rank changes between the 2003 results and the 2010 future performance scenario are all done by automobile manufacturers. Here, **PSA** (profile on page 129) drops nine ranks in the Sustainable Value ranking and **Renault** (profile on page 130) eight ranks in the Return to Cost Ratio ranking. This is once again, as already illustrated by the case of **Volkswagen** (profile on page 149), due to significant changes of the VOC value contri-

¹² If cooling water is not considered, AEM's RCR would have improved from 1:3.2 (2001) to 1:1.6 (2003).

¹³ If cooling water is not considered, ERG's performance would only drop by about 20% between 2001 and 2003.

butions. VOC-emissions are also the primary reason why **Airbus** (profile on page 91) loses its top rank in the Return to Cost Ratio ranking between the 2003 results and the future performance scenario. With their rather poor VOC-performance, these companies are particularly vulnerable to the tight VOC performance targets for 2010 that require the VOC-efficiency in the EU15 to more than double.

Altogether, 29 of the 65 companies create a positive Sustainable Value in the past performance scenario. This means, that in the years from 2001 to 2003, 29 of the 65 companies use their set of environmental resources in a value-creating way compared to the EU15 average. In the future performance scenario, the hurdle to create a positive Sustainable Value is higher as we used the target efficiencies of the EU15 in 2010 as the benchmark. The target efficiencies of the future performance scenario reflect that the EU15 aims to produce more GDP (economic growth target) with less environmental impacts and resources (emission reduction targets). 25 of the 65 companies still create a positive Sustainable Value under the tighter conditions of the future performance scenario. The four companies that fall from a positive result in the past performance scenario to a negative performance in the future performance scenario are Heineken, SKF, Richter and Pirelli. While **Heineken** (profile on page 114) and **SKF** (profile on page 140) only drop slightly below the benchmark in the future performance scenario (both still coming in with a Return to Cost Ratio of 1 : 1), Richter and Pirelli are hit harder by the tighter benchmark. **Richter's** (profile on page 132) Return to Cost Ratio falls from 1.5 : 1 in 2003 to 1 : 1.2 in the 2010 future performance scenario. This means, that Richter has to improve its efficiency by about 80% until 2010 in order to maintain its positive 2003 performance. Critical resources that are responsible for the negative assessment in the future performance scenario are Richter's VOC-emissions and – to a lower degree – waste generation and water use. **Pirelli's** (profile on page 128) Sustainable Value in the 2010 future performance scenario falls to about –590 million € compared to a positive Sustainable Value of more than 480 million € in 2003. At the same time the Return to Cost Ratio falls from 1.3 : 1 in 2003 to 1 : 1.3 in the future performance scenario which means that Pirelli has to improve its resource efficiency by about 70% to keep the performance level of 2003. The negative performance of Pirelli in the future performance scenario is mainly due its low CO₂- and VOC-performance.

A comparison of the Return to Cost Ratios of 2003 to the Return to Ratios in the future performance scenario shows which companies are most affected by the efficiency targets for 2010. The results show that **PSA** (profile on page 129) is most vulnerable to the efficiency targets as it needs to improve its efficiency by 92% in order to keep the performance level of 2003. Beside Richter and Pirelli (see above), there are a number of companies, which are also quite strongly affected: **Repsol**, **FIAT**, **Union Fenosa**, **Slovnaft**, **Energias de Portugal**, **BG Group**, **BP**, **Celanese**, **Shell**, and **Royal DSM** need to improve their overall environmental efficiency by about 70% in order to keep pace with the performance targets for 2010. On the other side, **ABB**, **Scania**, **AstraZeneca**, **Robert Bosch GmbH** and **NedCar** are among those companies that appear best prepared for meeting the 2010 performance targets as they only have to improve their performance by about

5 to 10% in order to maintain their 2003 performance level with regard to the 2010 performance targets.

5.2.2 Efficiency of Resource Use in Different Sectors

If we now look at the efficiency of resource use of all companies under investigation we observe that the efficiency of resource use varies widely. The Return to Cost Ratio can be used to compare the efficiency of resource use between companies. While the most efficient companies of the ADVANCE survey use resources at a level four times more efficiently than the EU15 average, the least efficient companies use resources 30 times more inefficiently than the benchmark. These numbers can be interpreted in different ways. On the one hand, by reallocating resources to more efficient companies we can expect to see a considerable increase of Gross Value Added at constant or even decreasing resource use. On the other hand, it can be argued that some inefficient companies provide an essential service to our economy and reallocating resources is thus not an option. This might for example be the case with some energy companies or utilities. A low Sustainable Value indicates that the price that customers pay for these products or services does not reflect the value they create and, therefore, prices are too low.

The efficiency of resource use is determined to a large degree by the sector affiliation. We distinguish between seven sectors in this survey.¹⁴ Figure 11 depicts the Return to Cost Ratios of the companies of these seven different sectors. The companies of three sectors (automobile, engineering & machinery, pharmaceuticals) have a positive Return to Cost Ratio and thus a positive Sustainable Value.¹⁵ This means, that companies of these sectors use their bundle of environmental resources more efficiently than the EU15 benchmark. The companies of the remaining four sectors all have negative Return to Cost Ratios (chemicals, forestry & paper, oil & gas, utilities) and Sustainable Values. This indicates a less efficient use of environmental resources in these sectors compared to the EU15 average.

¹⁴ There is an additional 12 companies that are part of further 11 sectors (see Table 2, page 28 above). These companies are not considered here, since there are not enough companies per sector to choose from.

¹⁵ There is strictly speaking one exception. FIAT Group has a negative Return to Cost Ratio while all other automobile manufacturers have positive Return to Cost Ratios.

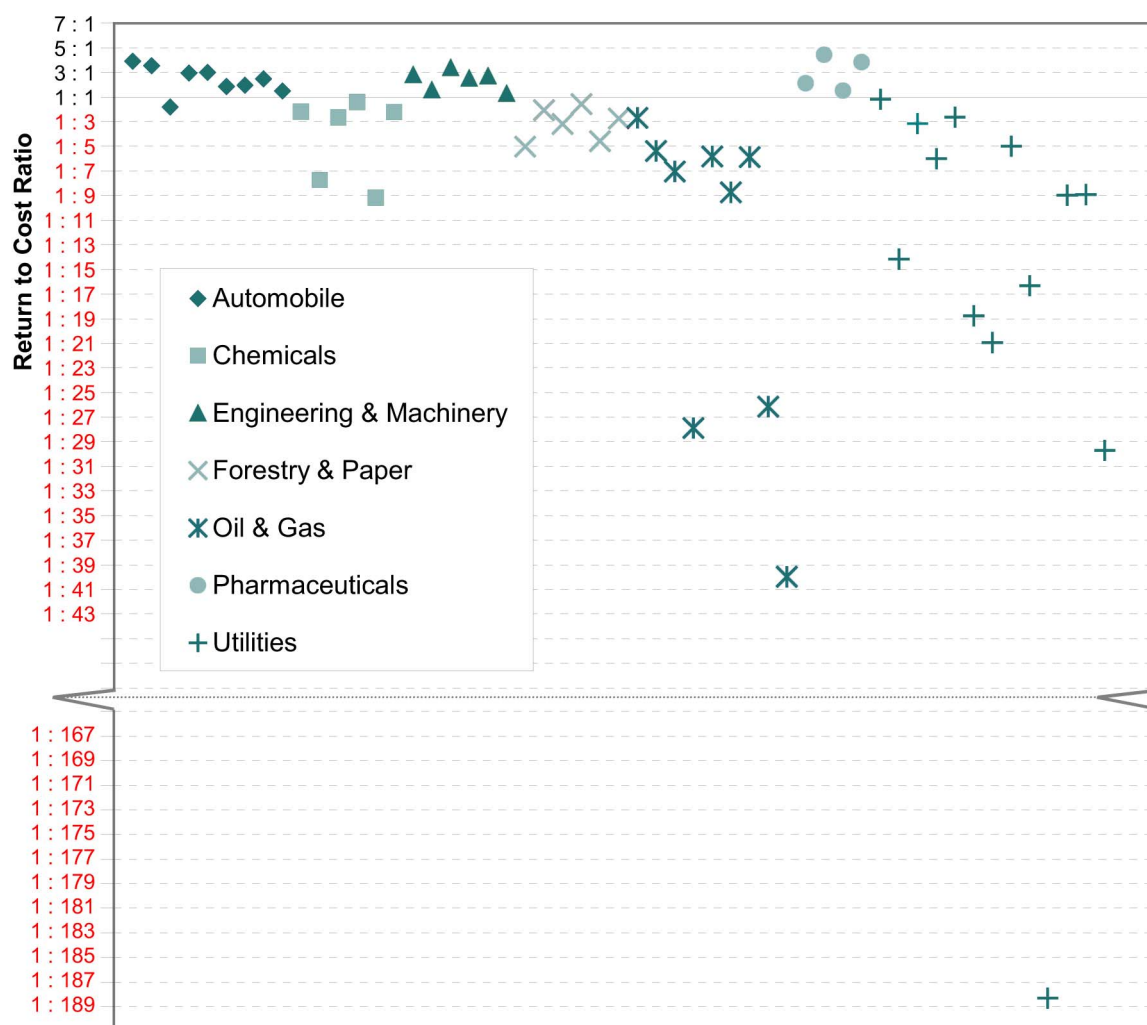


Figure 11. Return to Cost Ratio of companies of seven different sectors in 2003.

The commonality of the four negative sectors is that they are all rather resource intensive, while the three positive sectors are far more R&D and knowledge intensive. In the following we will discuss all seven sectors in detail.

Automobile sector

There are a total of 9 companies in this sector. All but one company (FIAT Group) create a positive Sustainable Value. **BMW** (see profile on page 97) and **DaimlerChrysler** (profile on page 102) hold the top two positions. Volkswagen and FIAT Group hold the two lowest ranks. The results show that BMW as the most eco-efficient European car manufacturer uses its environmental resources seven times more efficiently than FIAT. It is interesting to note that **FIAT's** poor performance (see profile on page 110) covers all environmental impacts but one (water) so that the results give a rather comprehensive picture of FIAT's performance. In contrast, the assessment of **Volkswagen** (see profile on page 149) covers only four of the seven resources considered (NO_x, SO_x and CH₄-emissions missing) due to poor reporting. As explained above (see 4.3, page 34), resources for which we have no information are valued with a value contribution of 0 €. This conservative estimation may lead to a lower assessment of Volkswagen's Sustainable Value performance.

Company	RCR 2003	Rank RCR 2003
BMW	3.9 : 1	4
DaimlerChrysler	3.6 : 1	7
PSA	3 : 1	10
NedCar	2.9 : 1	11
Volvo	2.5 : 1	15
Scania	2 : 1	19
Renault	1.9 : 1	20
Volkswagen	1.5 : 1	25
FIAT Group	1 : 1.8	33

Table 13. Automobile sector ranking (RCR = Return to Cost Ratio).

Another way to characterize this sector is by looking at the different environmental impacts and their effect on value creation of this sector. Table 14 shows the Return to Cost Ratios of every impact across the automobile sector.¹⁶ The Return to Cost Ratio shows in this case how much Gross Value Added the sector has created using a resource compared to if the resource had been used by the benchmark.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	1.9 : 1	1.4 : 1
NO _x -emissions	6.8 : 1	3.5 : 1
SO _x -emissions	4.6 : 1	2.6 : 1
Waste generated	3.4 : 1	2.2 : 1
Water used	14.5 : 1	11.5 : 1
VOC-emissions	1.2 : 1	1 : 1.7

Table 14. Return to Cost Ratios of the automobile sector.

Water and NO_x-emissions are the environmental impacts that are used most efficiently and VOC-emissions are the environmental impact that is used the least efficiently in the automobile sector. Moreover, VOC is even used less efficiently than by the benchmark under the future performance scenario. These results reflect the fact that the automobile sector is VOC-intensive. The VOC-efficiency of the EU15 more than doubles between 2003 and 2010. It can therefore be expected that the Sustainable Value of the automobile manufacturers will be under considerable strain in the future due to their lower VOC-emissions. It comes therefore at no surprise that the most important drops in the rankings are, as mentioned before, automobile manufacturers.¹⁷ A good VOC-performance is therefore the best way for a company to prevent such a drop in the future. **BMW** (profile on page 97) is a good example in this context. BMW creates positive VOC value contributions even under the strict 2010 benchmark.

¹⁶ Methane (CH₄) emissions have been excluded in this and the succeeding tables. This is due to the poor coverage of methane in the corporate environmental reporting of the 65 companies.

¹⁷ The same argument also applies to the aircraft manufacturer Airbus.

Chemicals

All six companies of this sector have a negative performance. However, performances vary widely. This might be due to the wide variation of activities in this sector. While **ICI** (profile on page 117) can even be considered to be a borderline case, **Kemira** (profile on page 118) is one of the worst performers in this survey (rank 56 out of 65). The rather high spread in the results of the companies from the chemicals sector may be due to differences in the products and processes of the six companies. While the results reflect that the chemicals industry is rather resource and pollution intensive, they also show that it is possible for a chemicals company to get close to a positive Sustainable Value as it is the case for ICI. The spread between the best and the worst performing chemical company in our survey is quite considerable as ICI's overall eco-efficiency exceeds Kemira's eco-efficiency by a factor of about 6.5.

Chemicals	RCR 2003	Rank RCR 2003
Imperial Chemical Industries	1 : 1.4	31
BASF	1 : 2.2	35
Royal DSM	1 : 2.2	36
Degussa	1 : 2.7	38
Celanese	1 : 7.8	52
Kemira	1 : 9.2	56

Table 15. Chemicals sector ranking.

A look at the different environmental impacts shows that in this industry, all six environmental impacts are used less efficiently than on EU15 average. SO_x-emissions, water use and CO₂-emissions can be expected to be the most prominent problems in the future within this sector.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	1 : 4.6	1 : 6.4
NO _x -emissions	1 : 2	1 : 3.9
SO _x -emissions	1 : 4	1 : 7.1
Waste generated	1 : 1.5	1 : 2.4
Water used	1 : 5.3	1 : 6.7
VOC-emissions	1 : 1.5	1 : 3.1

Table 16. Return to Cost Ratios of the chemicals sector.

Engineering & machinery

Table 17 summarizes the performances of the six companies of the engineering & machinery sector. All companies of this sector create a positive Sustainable Value. The R&D intensity of this sector can probably be credited for some of this positive performance. **Heidelberger Druckmaschinen** (profile on page 113) is the best and **SKF** (profile on page 140) the worst performer of this sector. Performances do not vary as widely as in other sectors with the best in class being about 2.6 times more eco-efficient than the worst performer.

Engineering & Machinery	RCR 2003	Rank RCR 2003
Heidelberger Druckmaschinen	3.4 : 1	8
ABB	2.8 : 1	12
Robert Bosch	2.7 : 1	13
MAN	2.5 : 1	14
Atlas Copco	1.6 : 1	23
SKF	1.3 : 1	29

Table 17. Engineering & machinery sector ranking.

SO_x- and NO_x-emissions as well as water use are the most important value drivers of this sector delivering strong Return to Cost Ratios. Overall, the companies of this sector use SO_x-emissions more than 40 times more efficiently than the benchmark. Even in the future scenario SO_x-emissions are used almost 25 times more efficiently. Waste generation, VOC-emissions and CO₂-emissions are the impacts that are used the least efficiently by this sector.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	4 : 1	2.9 : 1
NO _x -emissions	17.2 : 1	8.9 : 1
SO _x -emissions	43.5 : 1	24.6 : 1
Waste generated	2.6 : 1	1.7 : 1
Water used	15.8 : 1	12.5 : 1
VOC-emissions	5.6 : 1	2.7 : 1

Table 18. Return to Cost Ratios of the engineering & machinery sector.

Forestry & paper

The forestry & paper sector is once again an example of a very resource intensive sector. As a result, the performance of all companies of this sector is below the EU15 benchmark and companies do not create Sustainable Value with their environmental resources. **SCA** (profile on page 135) is considered to be the best performer and **Crown van Gelder** (profile on page 101) the worst performing company of this sector. Overall, SCA is about 3.1 times more eco-efficient than Crown van Gelder. It can be assumed that the poor performance of Crown van Gelder is partly due to the fact that the company's activities are focused on a paper mill while the other companies encompass activities in forestry.

Forestry & Paper	RCR 2003	Rank RCR 2003
SCA	1 : 1.6	32
Holmen	1 : 2.1	34
UPM-Kymmene	1 : 2.7	40
M-Real	1 : 3.2	42
Stora Enso	1 : 4.6	44
Crown van Gelder	1 : 5	46

Table 19. Forestry & paper sector ranking.

It is well known that the pulp & paper industry is very water and energy intensive [43]. This is also reflected by the results for this sector as can be seen in Table 20. Energy related impacts such as CO₂-emissions and water use contribute significantly to the poor performance of this sector. In the context of energy related impacts, it is worth noting that we did not take into account the CO₂-emissions from burning wood as this is considered climate neutral.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	1 : 5.1	1 : 7
NO _x -emissions	1 : 3.6	1 : 6.9
SO _x -emissions	1 : 4.5	1 : 8
Waste generated	1.7 : 1	1.1 : 1
Water used	1 : 5.2	1 : 6.6

Table 20. Return to Cost Ratios of the forestry & paper sector¹⁸.

Oil & gas

The oil & gas sector can be considered to be one of the most damaging sectors. In addition, the diversity among the nine companies' performance is quite strong: The performance of the top performer (**BG Group**, profile on page 96) and the least efficient company (**Unipetrol**, profile on page 147) vary by a factor of almost 15. Some of this might be credited to a different fuel mix. Among others this is reflected in the CO₂-performance. The CO₂-efficiency of BG Group is more than twice as good as the CO₂-performance of the second ranked company (**BP**, profile on page 98) in 2003. The rather low performance of **ERG** (profile on page 109) may be partly due to the fact that the company is not only active in crude oil processing and the distribution of petroleum products, but also in power generation. Overall, the spread between the leaders and the laggards among the oil & gas companies is quite large.

¹⁸ Data coverage of VOC emissions is insufficient to report on the performance of this sector.

Oil & Gas	RCR 2003	Rank RCR 2003
BG Group	1 : 2.7	39
BP	1 : 5.4	47
OMV	1 : 5.8	48
Shell	1 : 5.9	49
ENI	1 : 7.1	51
Repsol YPF	1 : 8.7	53
Slovnaft	1 : 26.1	61
ERG	1 : 27.9	62
Unipetrol	1 : 40	64

Table 21. Oil & gas sector ranking.

A look at the environmental impacts of this sector (Table 22) shows that SO_x- and CO₂-emissions are the most pressing environmental problems from a value-oriented perspective. When we extend the perspective to the 2010 future performance scenario we also see that the importance of VOC-emissions can be expected to rise sharply.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	1 : 8.5	1 : 11.8
NO _x -emissions	1 : 7.1	1 : 13.7
SO _x -emissions	1 : 13.6	1 : 24.1
Waste generated	2.5 : 1	1.6 : 1
Water used	1 : 3	1 : 3.8
VOC-emissions	1 : 7.4	1 : 15.6

Table 22. Return to Cost Ratios of the oil & gas sector.

Pharmaceuticals

This sector can once again be considered to be a sector with a particularly high R&D content. This is reflected in the good Sustainable Value performance of the four companies of this sector. Among the companies of this sector we have analysed **Novonordisk** (profile on page 123), the best company of this sector, is about 3 times more efficient than **Richter** (profile on page 132), the worst performing company in this sector.

Pharmaceuticals	RCR 2003	Rank RCR 2003
Novonordisk	4.4 : 1	2
Schering	3.8 : 1	5
AstraZeneca	2.1 : 1	18
Richter	1.5 : 1	24

Table 23. Pharmaceutical sector ranking.

Water use and SO_x-emissions are the most important Sustainable Value drivers in this sector. CO₂-emissions are the most critical resource both in 2003 and the 2010 future performance scenario. However, performances with regard to specific environmental impacts vary widely across this sector. This can be shown by comparing the perfor-

mance of the sector leader and the sector laggard by way of example. In 2003, Novonordisk used VOC-emissions 45 times, water 20 times and waste 12 times more efficiently than Richter.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	4.6 : 1	3.3 : 1
NO _x -emissions	9.3 : 1	4.8 : 1
SO _x -emissions	14.4 : 1	8.1 : 1
Waste generated	12.4 : 1	7.9 : 1
Water used	20.3 : 1	16 : 1
VOC-emissions	11.4 : 1	5.4 : 1

Table 24. Return to Cost Ratios of the pharmaceuticals sector.

Utilities

These 13 companies reflect a sector with a particularly poor performance. Cooling water is particularly relevant in this sector and those companies that do report cooling water are particularly hard hit by this impact. For example both **Edison's** (profile on page 104) and **Fortum's** (profile on page 111) Return to Cost Ratio would improve to about 1 : 10 if cooling water was excluded from the assessment (see Annex I for details).

MVM (profile on page 121), the worst performing company of this sector, is at the same time the worst performing company of the entire ADVANCE survey. MVM uses its resources more than 150 times less efficiently than **Acea** (profile on page 87) the sector leader. Part of the variation among the companies can certainly be explained with the heterogeneous nature of this sector. However, MVM even performs very poorly compared to the second worst performer of this sector (**Union Fenosa**, profile on page 146).

Utilities	RCR 2003	Rank RCR 2003
Acea	1 : 1.2	30
Centrica	1 : 2.6	37
AEM Torino	1 : 3.2	41
ENEL	1 : 5	45
ASM	1 : 6	50
Suez	1 : 8.9	54
Scottish & Southern Energy	1 : 9	55
AEM	1 : 14.2	57
Fortum	1 : 16.3	58
Edison	1 : 18.8	59
Energias de Portugal	1 : 21	60
Union Fenosa	1 : 29.7	63
MVM	1 : 188.3	65

Table 25. Utilities sector ranking.

An analysis of the environmental value drivers of Sustainable Value is particularly revealing in the case of **MVM**. MVM uses CO₂ about 23 times, NO_x about 16 times, and waste about 20 times less efficiently than the benchmark. This does not vary widely

from the sector average (Table 26). The poor performance is mainly caused by the dismal performance contributions of SO_x-emissions and water use. MVM uses SO_x more than 850 times less efficiently than the benchmark and water about 400 times less efficiently. We estimate that MVM's overall Return to Cost Ratio (2003) would rise to about 1 : 70 and Sustainable Value to about -18 billion €, if the company was bringing its SO_x-performance in line with the rest of the sector.

Return to Cost Ratios	2003	2003 > 2010
CO ₂ -emissions	1 : 16.4	1 : 22.6
NO _x -emissions	1 : 9.2	1 : 17.7
SO _x -emissions	1 : 31.7	1 : 56.1
Waste generated	1 : 1.2	1 : 1.9
Water used	1 : 9.8	1 : 12.4
VOC-emissions	1 : 2.2	1 : 4.6

Table 26. Return to Cost Ratios of the utilities sector.

5.2.3 Further Implications of the Results

As one of its major results the ADVANCE project has proven that the Sustainable Value approach can be used in practice to produce meaningful quantitative assessments of corporate sustainable performance. The Sustainable Value approach provides a number of features that allow insightful analyses of corporate sustainable performance for different use(r)s.

- ***The Sustainable Value allows the comparison of corporate sustainable performance.***

One of the most important features of the Sustainable Value approach is that it expresses the sustainable performance of companies in a single monetary figure. This makes comparisons between companies very easy. At the same time, it allows to take into account company size so that meaningful comparisons between smaller and bigger companies are possible. In this context, it is very important to keep in mind that the Sustainable Value approach follows a value-oriented logic. This means that the underlying logic of the assessment is inline with the predominant paradigm of management and investment thinking. Consequently, assessing corporate sustainable performance with the Sustainable Value approach brings sustainability analyses closer together with mainstream management and investment thinking. This offers a broad field of application of the Sustainable Value approach both in management and investment analysis: With the Sustainable Value approach managers and investors can look at corporate sustainable performance using the same logic that they apply in their everyday decision making. For instance, companies can use the Sustainable Value approach to monitor and communicate their environmental or sustainable performance. Investors, especially Socially Responsible Investors could use the approach e.g. to identify out- and under-performers.

- ***The Sustainable Value approach allows an in-depth performance analysis.***

As the results of the ADVANCE survey show, the Sustainable Value approach can be used to conduct an in-depth analysis of the sustainable performance of companies. This is relevant for both the company and the industry level. On the company level, the analysis clearly identifies which resources highly contribute to value creation and which resources are not used in a value-creating way. Moreover, the Return to Cost Ratios provide an easy overview of the efficiency of environmental resource use over time. On the industry level, the results help to identify critical environmental resources and sector trends. From the viewpoint of corporate sustainability management, these features are most helpful to monitor corporate performance, to identify relevant areas of improvement and to develop environmental policies and performance targets. SRI-investors may use the approach to identify strengths and weaknesses of corporate sustainable performance as well as performance trends.

- ***The Sustainable Value approach takes policy targets into account.***

Companies act within a legal and societal framework. Therefore, they are subject to regulation and public policy. This refers to both environmental and economic policy. In the European context this translates into a series of environmental and economic regulations as well as economic and environmental policy targets. As the results of the ADVANCE survey illustrate, the Sustainable Value approach can integrate such policy targets. The results show the exposure of different companies to different performance targets like, e.g., the Kyoto targets or the European NEC-targets (National Emission Ceilings-targets). With the Sustainable Value approach companies can identify by how much they have to improve their efficiency in order to comply with tighter policy targets and potential future regulations. In the course of their risk analysis, investors can determine which companies or sectors are most vulnerable to tightened regulation in different environmental areas and which are best prepared to meet future challenges. Finally, policy makers can use the Sustainable Value approach to identify those sectors and companies that are most critical for reaching economic and environmental performance targets.

- ***The Sustainable Value approach considers both efficiency and effectiveness.***

The Sustainable Value approach compares the efficiency of corporate resource use to the efficiency of a benchmark. In the ADVANCE survey, the EU15 performance has been chosen as the benchmark. The results show which companies use their resources in a value creating way, i.e. more efficiently than the benchmark. Efficiency considerations have often been criticised in that they turn a blind eye on effectiveness, i.e. the absolute amount of environmental resources used [26-28]. It is argued, that an increase in efficiency can be over-compensated by growth so that more environmental resources are used in spite of an improved efficiency (so-called rebound effect). The results of the Sustainable Value analysis show how a *given and scarce amount* of resources should be best allocated to different users in order to achieve the highest output. In other words, the Sustain-

able Value leaves the overall amount of resource use constant on the benchmark level and addresses the clever and efficient allocation of these resources among different users, i.e. companies. In the future performance scenario the overall amount of resources that can be used in the EU15 are even reduced so that overall there is a reduction of the absolute environmental impact. The Sustainable Value thus shows how efficiently companies operate at an overall constant or even reduced level of environmental impacts. Thus, the Sustainable Value provides a link between the corporate level, where efficiency considerations predominate, and the policy level, where effectively reducing environmental impacts is of major concern.

6 Discussion of Methodological Experiences

Overall, the ADVANCE survey has provided inspiring and insightful results. The application of the Sustainable Value approach has proven to be successful. The methodology that had been developed and published before the ADVANCE project passed the real world test and did not have to be amended or changed in the light of this survey.

It is reassuring to see that the current state of corporate environmental reporting allows to calculate the Sustainable Value of 65 European companies of the manufacturing sector. At the same time, the current state of environmental reporting has turned out to be the most time-consuming factor and the most important reason why a further extension to more companies will be difficult at this point in time.

In the course of compiling the ADVANCE survey we gained rich and insightful methodological experiences. In this chapter, we will discuss the most important methodological aspects including life cycle issues (6.1), inter- vs. intra sector-approaches (6.2), corporate environmental reporting (6.3), the way low impact areas are addressed (6.4), and the different possible analytical perspectives of the Sustainable Value approach (6.5). Based on these experiences, we draw some conclusions for further developments in the area of corporate environmental reporting and sustainable performance assessment.

6.1 Life cycle issues are important

This analysis covers the production that takes place within the companies of the ADVANCE survey. This corresponds to the activities that create value within the companies. Environmental impacts that are caused by suppliers or customers are not taken into account. Conceptually, environmental impacts along the life cycle can be considered quite easily. However, current environmental reporting does not allow to systematically account for environmental impacts of the entire life cycle, as companies do not systematically report the environmental impacts that go along with the supplies they buy and with the products they sell.

When interpreting the results of this survey we must of course keep in mind that some value creating sectors (for example the automobile sector) rely on other sectors that are not creating Sustainable Value at this stage (for example the oil & gas sector). For instance, the production activities of companies from the car manufacturing or the aircraft sector yield positive Sustainable Value results. At the same time, in the use phase the products of these companies depend heavily on refined oil products, i.e. the activities of companies from the oil & gas sector. The results of the ADVANCE survey can thus be used to estimate the performance of the life cycle including the production and the use of products. Taking into account that the strong performance of for example the car manufacturing companies heavily depends on selling products that are based on oil derivatives sheds some new light on the results. Methodologically, the results of the ADVANCE survey can also be used to make an estimate of the overall Sustainable Value of the life cycle. Economically, the value of a product consists of the sum of the Value Added of different production stages. This also applies to Sustainable Value.

6.2 Best in class approaches have limited potential

In environmental assessments best in class approaches are very popular [44]. One frequent piece of criticism by companies is that Sustainable Value, as applied in the ADVANCE project, compares companies of different sectors. Companies often argue that environmental performance can only usefully be compared within a sector and that it is not acceptable to compare companies of different sectors. Intra-sector comparisons or best in class approaches are without any doubt valuable. To make an intra-sector comparison it is sufficient to compare the Sustainable Value of two companies of the same sector. Intra-sector comparisons can therefore be performed with the Sustainable Value approach as applied in the ADVANCE-project (see chapter 5.2.2 above).

The underlying idea of best in class approaches is that (a) only companies of the same sector can be compared and (b) that there will be significant improvements when best practices are deployed within each sector. Our results challenge both arguments. On the one hand, our results show that companies of different sectors can be compared. On the other hand it has become evident that there are dramatic differences between sectors while differences within sectors are more modest. Therefore, we believe that inter-sector comparisons should also be conducted. There is little doubt that the structure of our economies will need to change if we strive for a Sustainable Development. Benchmarking within a sector can only show the potential for improvements with a given industry structure. By explicitly comparing the value creation and the resource use of companies of different sectors, the potential for Sustainable Development of a change in the industry structure becomes clear. Put differently, our results show that there is much more potential for an improved performance when the resources are re-allocated across sectors rather than within sectors. Based on our results it becomes obvious that a given set of environmental resources may produce much more economic output in terms of GDP if these resources are shifted across sectors instead of within sectors.

Changing industry structures is not specific to Sustainable Development. Industry structures have changed at all times. Exclusively focussing on intra-sector analyses implies that industry structure remains constant so that the dynamics of economic and Sustainable Development are not taken into account. By insisting on a best in class view, this potential does not become clear. It is interesting to note that with respect to economic capital, there is much less hesitation to compare companies of different sectors. When looking for good investments investors will often compare the return of capital of companies from different sectors. It is furthermore generally accepted that investors will withdraw economic capital from sectors that appear to be failing. It is this market mechanism that is often credited for our economic prosperity. It is unlikely that this mechanism could work as effectively if restricted to intra-sector comparisons. Our results thus show that structural changes have a great potential to have a positive impact on Sustainable Development.

6.3 Corporate environmental reporting needs to improve dramatically

Calculating Sustainable Value is per se an easy exercise. It is not more complex than enterprise value calculations. For data mining, the ADVANCE survey has relied heavily on information provided by companies through their corporate environmental reporting. At this point in time, much of the work that goes into calculating Sustainable Value has to be dedicated to data mining. This is due to the fact that existing corporate environmental reporting often does not deliver sufficiently comparable data. Based on this experience, we can identify several problematic areas in the current practice of corporate environmental reporting.

One major issue in the context of reporting quality is the inconsistency of the scope of environmental information on the one hand and financial data on the other hand. In general, eco-efficiency analyses look at the ratio economic performance to environmental performance. For eco-efficiency calculations in general and Sustainable Value calculations in particular the economic value figure and the environmental impact figures used must match. If the environmental performance data do not cover the same scope as the economic performance data, eco-efficiency assessments get biased or distorted and no meaningful results can be achieved. In the context of this survey, Gross Value Added was used as a return figure. By relating Gross Value Added to environmental impacts we can calculate eco-efficiency. This presupposes that both the Gross Value Added and the impact figure cover the same parts of the organisations. Today's companies usually cover many different sites, subsidiaries and associated companies. In financial accounting there are rules how to report financial figures on a consolidated group level. These rules are conventions that find widespread agreement. Some of these rules might appear arbitrary at first sight. However, a comparison of different companies presupposes that the same rules are applied for all companies. Unfortunately, environmental reporting often does not follow the same rules that are applied for financial reporting and in the majority of cases, different companies apply different rules on how to consolidate environmental information. As a consequence, the scope of the environmental information of a company does often not match the scope of its financial information. An automobile manufacturer might for example include a power plant, which it owns 100% in its financial reporting. In its environmental reporting it might exclude the power plant based on the fact that producing energy is not a core activity and that this would distort the comparison with other automobile manufacturers that do not operate their own power plants. Unfortunately, a value figure derived from this company's financial reporting will now not have the same scope that the company's environmental reporting has (it would have to cover the economic performance excluding the power plant!). To calculate eco-efficiency the scope of either the financial or the environmental figures have to be corrected. Unfortunately these cases are still quite frequent. In some cases, environmental reports even give no proper indication on the scope of the quantitative environmental performance data, so that the reader has no guidance on how to correct for diverging data scopes. Overall, it is disheartening to see that it is still only a minority of good reporters that provide full transparency on the scope of the reported environmental data.

Another major problem is related to the definition of environmental indicators. In this context, we can distinguish between two main reasons. Firstly, the definition of an indicator and/or the way in which an indicator is measured might be unclear. Waste is a prime example in this context. There are many different definitions of waste and the delineation between what is waste and what constitutes a product is fuzzy at best. Measurement of waste, once defined, can be equally unclear. Some sectors (for example pulp and paper) produce wet waste. If waste is compared based on weight companies producing dry waste will of course score better than companies producing wet waste. Inconsistencies in definitions of indicators even exist among companies of the same sector. Commonly agreed definitions and procedures of generating environmental impact figures are thus highly important.

Secondly, companies might follow different conventions when it comes to reporting environmental indicators. Greenhouse gas emissions are a good example. Some companies aggregate all greenhouse gas emissions based on their contribution to climate change. Other companies report only some greenhouse gases and/or report them separately. The former has the advantage of providing the reader with a single impact measure. The latter allows the reader to analyse a company's contribution to climate change in greater detail. A comparison is made impossible, if some companies follow the former and other the latter example. Once again, there is a need for clear rules and procedures of how to report environmental performance.

Surprisingly, we had to discover that many stakeholders do not seem to be able to differentiate between good and poor data quality. The most striking example was the case of a major European industrial company that has been identified as one of the leaders in its sector by both Dow Jones Sustainability Index and FTSE4Good. NO_x- and SO_x-emissions as reported by the company resulted in very large negative value contributions. This contrasted unfavourably with the value contributions of other environmental impacts. After discussion with the company it was discovered that both emissions had been overstated by a factor of 1,000 for the last seven years. It is noteworthy that the company, its stakeholders and the independent verifier of the reports overlooked this fact during that time. The intuitive sensitivity that seems to exist in financial matters – it is unlikely that a profit figure that was off by a factor of 1,000 would pass unnoticed by management, investors and financial analysts and the auditor for seven years in an annual report – seems to be lacking when it comes to environmental information. It is our impression that this is due to the way this information is dealt with today. Sustainable Value provides an opportunity to translate environmental information into a language that is more accessible to decision-makers both within and outside the corporation.

A further problem refers to the completeness of environmental data and information provided. Not all companies show the same openness, transparency and willingness to share and publish information on their environmental impacts. Again, these differences persist also within sectors. Identifying enough suitable companies has thus been difficult. This is due to the fact that there are only few companies that report on their envi-

ronmental impact in a way that allows to conduct a quantitative analysis. This is despite an overall increase of corporate environmental reporting and some very laudable initiatives that promote corporate environmental reporting such as the Global Reporting Initiative (GRI). In this survey we present the Sustainable Value of 65 European manufacturing companies. Almost all of the companies can be considered to be very large corporations. This survey analyses more companies than the 50 that were targeted at first. However, as the experience during the survey has shown, a considerable extension of the scope of the survey would have been difficult. This is due to difficulties identifying enough suitable companies. There are many more companies in Europe reporting with a wealth of information on their environmental performance. However, to quantitatively compare the environmental performance of companies we need to identify a shared core set of indicators. One result of the ADVANCE survey is that there are not many companies in the manufacturing sector beyond the ones assessed in this survey that report on this core set of indicators.

Bearing these difficulties in mind, one key result of the ADVANCE survey is that the data quality of some of the environmental reporting is rather poor. In summary, it has to be noted that at this stage corporate environmental reporting does not provide sufficient ground to compare the environmental performance of companies across a large selection of companies. The poor quality of the reported data and – as a results – the amount of time that has to be spent to arrive at a consistent data set prohibits a wider application of corporate environmental performance assessments. One important conclusion of the ADVANCE survey is that corporate environmental reporting needs to improve dramatically on a broad scale. It is thus important that there is a constantly high pressure on companies to report properly – especially upon poor or non-reporters – in order to avoid that good reporters get “punished” for their transparency by attracting critical public attention and bad performance can be hidden behind poor or non-reporting.

Our results show that a widespread positive impact of quantitative assessments of corporate environmental performance depends on data availability. Consequently, it is of crucial importance that there will be more and better reports in the future. It is somewhat surprising that most companies using economic capital must report on their economic performance but that the use of environmental and social capital is not linked to a similar reporting duty. Better environmental reporting does not mean that environmental reporting should become more extensive. However, to discriminate good performers from bad performers stakeholders must be able to compare the environmental performance of companies. Meaningful comparisons will only be possible, if reporting is standardised. Ideally this standardisation will take current standards in economic accounting into account. We are, however, confident that the current development in corporate environmental reporting goes into the right direction. Many corporate reports that have been published after the time period analysed in ADVANCE (2001-2003) show considerable improvements in both quality and quantity. During the last two years, we observe more companies reporting with a substantially higher quality. This development is most beneficial for a more widespread use of Sustainable Value.

6.4 Low impact areas should be seen as Sustainable Value drivers

An interesting experience during this survey has been the way in which companies deal with low impacts. Many companies tend not to report on impacts of which they produce only small quantities or that they do not emit at all. In our experience this is a result of the current burden thinking of environmental managers. Companies that emit for example no methane (CH₄) or VOCs do often not report on these emissions. Consequently, it does not become clear, if they fail to report on these emissions or if these impacts are not produced at all. Burden-oriented environmental management attributes little importance to these emissions due to the small quantities emitted. From a value-oriented perspective low emissions are an interesting piece of information: It shows that a company creates its economic output (here: Gross Value Added) with little or even no consumption of certain environmental resources. Value-oriented management looks at these emissions as a value-driver for Sustainable Value and will report on these environmental impacts.¹⁹ Therefore, the application of the Sustainable Value approach is somewhat hampered by the fact that managers do not see the value-creating potential of low emissions. It is interesting to note that conventional value-oriented management would emphasize the fact to investors that it is capital extensive to make a case for the extent of its shareholder value creation.

6.5 Sustainable Value can take up different analytical perspectives

The explanatory power and the message of the results of Sustainable Value analyses largely depends on the choice of the set of resources considered, the return figure, and the benchmark. In the ADVANCE survey, we have chosen to assess the use of seven environmental resources. We have shown in previous case studies that the set of resources considered can be enlarged to cover also economic and social resources. With these case studies we have demonstrated that the Sustainable Value approach can be used under real world conditions to provide integrative and monetary assessments of triple bottom line performance of companies [22, 45, 46]. The application of Sustainable Value is thus not restricted to an assessment of the use of environmental resources.

Furthermore, ADVANCE considers Gross Value Added as the relevant return figure on the corporate level. Gross Value Added represents a rather broad return figure as it covers the return that is created for capital providers (as Gross Value Added comprises profits and interest payments), the state (as it comprises tax on profit) and for employees (as it comprises personnel expenses). In other words, choosing Gross Value Added as the return figure in Sustainable Value assessments means that corporate activity is analysed from a rather broad, societal perspective. However, Sustainable Value can also be used for assessments from a more focused perspective. For instance, if one chooses profits as a return figure in Sustainable Value assessments the perspective of capital

¹⁹ The reverse does obviously not hold true. Value-oriented environmental management will also report on large quantities of emissions as these have a large (negative) influence on Sustainable Value.

providers is adopted [47]. Alternatively, one could also take up an employees' perspective by using personnel expenses as the return figure in Sustainable Value assessments.

Finally, Sustainable Value analyses can be conducted with different benchmarks. In ADVANCE we have chosen the EU15 level as benchmark. This choice of benchmark allows us to determine which companies contribute most to a more sustainable use of environmental resources in the European economy. In addition, a cross-sector benchmark like the EU15 allows a bi-directional analysis. On the one hand, the results show the sustainability potential of structural change. While it is not surprising that resource intensive sectors perform poorly in our assessment, the analysis allows to quantify the gains in eco-efficiency that can be expected if we succeed to shift from resource intensive to R&D and knowledge driven economic activity. On the other hand, one might argue that an economy depends on certain sectors and products that are rather resource intensive. For this purpose we can use the analysis with the EU15 benchmark to assess companies within a sector to identify sector leaders and laggards. This shows which companies of a sector perform best relative to their peers. Choosing EU15 as benchmark thus allows us to take up a twofold analytical perspective. In financial markets where opportunity cost thinking is well established cross-sector and cross-country benchmarks are quite common. For instance just think of the MSCI world index that is composed of companies from many different sectors and countries and whose performance is often used as benchmark to assess the value creation of investments.

However, it is also possible to use other benchmarks in Sustainable Value analyses. We are currently conducting a worldwide study of a major industrial sector where the sector performance is used as benchmark. Other case studies we have conducted use national economies as benchmark [22, 45, 46]. In such a case the results show which companies contribute by how much to a sustainable use of resources in a national economy. Finally, performance targets can be used as benchmark in order to define hurdle rates. From this point of view, an "investment" of environmental resources to a specific economic activity is only justified if the return exceeds the defined hurdle rate. Overall, Sustainable Value thus provides considerable flexibility depending on the desired focus of the analysis. This flexibility should be used wisely to capture different perspectives on sustainable resource use by companies.

7 Conclusions

The ADVANCE survey represents the first large scale application of the Sustainable Value approach to European companies from the manufacturing sector. ADVANCE assesses the use of seven environmental resources (CO₂, NO_x, SO_x, VOC, CH₄, waste and water) by 65 European companies from 16 countries and 18 different sectors with the Sustainable Value approach. The assessments are based on the information that companies are already publishing today. As one of the major results, this survey demonstrates that a monetary assessment of corporate environmental performance can be done with the information that is already available today. At the same time, the Sustainable Value approach allows an in-depth analysis of corporate environmental performance across and within different sectors. As a consequence, the ADVANCE survey represents one of the most in-depth quantitative analyses of corporate environmental performance of European companies so far.

Methodologically, the Sustainable Value approach is based on the notion of opportunity costs. Opportunity cost thinking is the dominating and widely accepted paradigm for corporate performance assessment in financial markets and management. However, so far opportunity cost thinking has only been applied to the use of economic capital in companies. This is incompatible with the notion of Sustainable Development because it turns a blind eye to the fact that companies not only require economic resources but also use many different environmental and social resources. Sustainable Value for the first time applies opportunity cost thinking to cover also environmental and social resources. The Sustainable Value approach thus combines the way of managers' and investors' thinking and the need to go beyond a purely capital-focused perspective on corporate performance assessment. In the ADVANCE survey, we demonstrate the large scale applicability of the Sustainable Value approach for the assessment of the use of environmental resources in companies.

The results of the Sustainable Value analysis of 65 European companies in the ADVANCE survey offer insightful results. The results show which companies use their environmental resources in a value-creating way in comparison to the EU15 average. The absolute amount of Sustainable Value shows in monetary terms by how much a company contributes to a more sustainable use of environmental resources in the EU15. Moreover, by taking company size into account, the analysis also allows meaningful comparisons between companies. The rankings of the 65 companies under analysis clearly identify the pioneers and laggards with regard to their environmental performance. The ADVANCE survey looks at two performance scenarios. The past performance scenario analyses the environmental performance of the 65 companies over the three year period from 2001 to 2003. This allows to identify trends and to distinguish between those companies that have improved their performance and those whose performance deteriorated over the years. The future performance scenario incorporates the European economic and environmental performance targets for the year 2010. This reflects the fact that the EU15 is presently not yet sustainable but has to improve its environmental and economic performance considerably in the future. While at the one hand

the EU15 strives for a higher GDP, it has set several targets to reduce the overall environmental burden on the other hand. ADVANCE takes up these performance targets in the future performance scenario. The results under this scenario show that some companies contribute to the 2010 EU performance targets already today. Moreover, it becomes evident by how much some other companies must improve in order to catch up with the future performance targets.

The in-depth analyses of corporate environmental performance in the ADVANCE survey enable us to identify critical environmental resources and value drivers within as well as across sectors. The results show which environmental resources a company uses in a value-creating way. From this perspective, areas of low environmental impact appear as Sustainable Value drivers. For instance, a company that manages to produce without a resource, say e.g. SO_x-emissions, while the sector peers still use this resource, benefits largely in terms of an enhanced environmental performance. On the other hand, the analysis identifies those environmental resources that are most detrimental for the overall performance assessment of a company. The analysis of the performance trends in the past performance scenario reveals which environmental resources are persistently problematic because they are not used in a value-creating way.

Looking at sectors, it is not surprising that the sector affiliation is an important determinant of the assessment results of companies. This is obviously due to the fact that some sectors (such as the oil & gas sector) are more resource intensive than other sectors (such as the pharmaceuticals sector) which are more R&D and knowledge driven. On the one hand, the analysis identifies sector leaders and laggards. It becomes evident that the variety of performances within the same sector can be quite large: In some sectors the laggards use their environmental resources more than 20 times less efficiently than the leaders. The results even get more pronounced if we look at single resources. This indicates that there is still a tremendous potential for improvement of environmental performance within sectors. On the other hand, the ADVANCE survey also allows a cross-sector comparison. For instance, the results show how the different environmental resources are used by the different sectors in comparison to the EU15 average. This helps to compare different sectors with respect to their strengths and weaknesses in environmental performance. Moreover, comparing corporate environmental performance across sectors identifies the potential of structural change. The results of the ADVANCE survey thus show which sectors should be strengthened in order to achieve a more sustainable use of environmental resources in the EU15. At the same time, the results reveal the cost of an impeded structural change or a strong dependency on highly polluting sectors.

Overall, the ADVANCE survey provides a transparent and meaningful assessment of 65 European companies' environmental performance. This clearly demonstrates the large scale applicability and usefulness of the Sustainable Value approach under real world conditions today. It is encouraging to see that the Sustainable Value approach can be successfully applied with the data that is available in the market today. Furthermore, the Sustainable Value approach as the first value-based approach to corporate sustainable performance assessment provides a link between the notion of sustainability and inves-

tors' and managers' way of thinking. It assesses the use of environmental resources in the same way that the use of capital is assessed in the financial markets and in corporate decision making. The results of the ADVANCE survey are thus highly adaptive and compatible with mainstream business decision making. This bears the potential of leading corporate environmental performance out of the green niche.

The results of the Sustainable Value analysis could be used by different stakeholders. One particularly interesting group of potential users are corporate managers. For instance, they could use the Sustainable Value approach and the assessment results to monitor and communicate their environmental performance. In the context of performance monitoring, the identification of value drivers, strengths and weaknesses with the Sustainable Value analysis is particularly relevant. The results of the future performance scenario can be used as early warning signals for particularly relevant environmental fields in the future. Socially responsible investors and analysts may also be one of the most relevant user groups of the results. First of all, they can use the Sustainable Value methodology to identify out- and under-performers. For socially responsible investors and analysts it is highly beneficial that the assessment results follow a value-based logic, because this makes them compatible with standard financial analyses. Moreover, SRI-investors can use the results of the in-depth analysis to identify strengths and weaknesses of corporate sustainable performance as well as performance trends. In the future performance scenario, the results reveal the exposure of different companies to performance targets and tighter regulation in the future. This is particularly interesting in the context of risk analyses: SRI-investors can determine which companies or sectors are most vulnerable to tightened regulation in different environmental areas and which are best prepared to meet future challenges. Last but not least, the results of the future performance scenario are also relevant for policy makers. They can use the results to identify those sectors and companies that are most critical for reaching economic and environmental performance targets.

One major insight of the ADVANCE survey is that it clearly shows the value and importance of thorough and accurate corporate environmental reporting. The results demonstrate that high quality quantitative environmental data can be used to produce meaningful and rich environmental performance assessments. We hope that the ADVANCE survey encourages more users to apply the Sustainable Value approach for analysing corporate sustainable performance. We believe that this will further point out the usefulness of good environmental performance data and at the same time will strengthen the incentives for companies to produce high quality environmental reports.

The compilation of the ADVANCE survey marks an important milestone in the development and application of the Sustainable Value approach. However, more initiatives and activities are necessary to further promote the knowledge and the dissemination of the Sustainable Value methodology, both among researchers and practitioners alike. For instance, it is highly desirable to broaden the empirical application of the Sustainable Value approach further. More companies' environmental and sustainable performance should be assessed with the Sustainable Value approach and more resources should be

covered. This goes hand in hand with an improved and more widespread environmental and sustainability reporting of companies. A broader empirical basis would also allow regional and cross-country comparisons. With a larger sample than in the ADVANCE survey, regional performance trends could be analysed. Another possible area of extension is to cover more companies of the new member states which again is clearly a question of data availability. Furthermore, future applications of Sustainable Value should also cover the use of economic and social resources besides environmental resources. We have demonstrated through several case studies that integrated triple bottom line analyses are feasible under real world conditions with the Sustainable Value approach [22, 45, 46]. In addition, we are currently running different projects that apply Sustainable Value to more companies on a broad scale. In this context, we are also using different benchmarks as well as different return figures. For instance, currently we are running a worldwide sector study and a national study in Germany.

Another area of further dissemination is the real world application of the results and the Sustainable Value approach in every day decision making of different user groups, namely corporate (environmental) management and (SRI)-Investors. First steps in this direction will be undertaken in the ADVANCE project: We will publish a practitioner handbook and conduct a series of training workshop for potential users from different areas. We believe that the results of the ADVANCE survey are highly encouraging and hope that many readers share our enthusiasm to further spread the Sustainable Value methodology to advance corporate sustainability.

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Annex I – Impact of Cooling Water

A - Cooling water relevant and data on cooling water available

Company	Sector	Comments	Sustainable Value ^{ENV} and Value to Cost Ratio excluding cooling water					
			2001		2002		2003	
NedCar	Automobile		378,959,565 €	3 : 1	373,998,877 €	3 : 1	333,220,152 €	3 : 1
Volvo	Automobile		3,191,625,456 €	2.5 : 1	3,370,443,503 €	2.5 : 1	3,428,576,712 €	2.5 : 1
ABB	Engineering & Machinery	Cooling water data for 2001 and 2002 estimated	5,369,497,898 €	2.8 : 1	4,645,580,199 €	2.7 : 1	4,880,699,766 €	2.8 : 1
Unilever	Food	Cooling water data estimated based on corporate reporting	4,075,759,777 €	1.4 : 1	4,375,112,058 €	1.5 : 1	4,164,571,970 €	1.5 : 1
Crown van Gelder	Forestry & Paper		-73,005,063 €	1 : 3	-80,750,435 €	1 : 2.9	-84,571,656 €	1 : 3.2
SCA	Forestry & Paper		-866,904,130 €	1 : 1.3	-1,200,253,656 €	1 : 1.3	-1,431,429,594 €	1 : 1.4
Stora Enso	Forestry & Paper		-9,965,959,299 €	1 : 3	-10,164,073,571 €	1 : 3.3	-11,627,154,672 €	1 : 4
Agfa-Gevaert	Media & Photography	Cooling water data for 2001 and 2002 estimated	1,028,592,387 €	2.7 : 1	1,426,912,406 €	3 : 1	1,464,671,806 €	3.3 : 1
ENI	Oil & Gas		-48,121,646,799 €	1 : 4.7	-55,385,811,387 €	1 : 5.8	-57,692,155,014 €	1 : 5.5
ERG	Oil & Gas		-4,937,615,679 €	1 : 17.6	-5,197,458,278 €	1 : 30.3	-10,610,390,537 €	1 : 21.5
Acea	Utilities		24,278,227 €	1 : 1	-63,996,699 €	1 : 1.2	163,814,258 €	1.4 : 1
AEM	Utilities	Breakdown of water use not available for 2001	N/A	N/A	-587,115,223 €	1 : 2.4	-318,154,193 €	1 : 1.6
Centrica	Utilities		-1,614,223,512 €	1 : 1.6	-2,017,546,620 €	1 : 1.5	-2,197,529,624 €	1 : 1.6
Edison	Utilities		-8,032,925,761 €	1 : 7.8	-10,747,465,482 €	1 : 10.2	-11,221,056,456 €	1 : 10
Fortum	Utilities		-15,275,236,621 €	1 : 7.9	-18,527,686,159 €	1 : 7.8	-22,581,787,064 €	1 : 9.7
MVM	Utilities		-27,651,498,235 €	1 : 92.6	-29,304,587,591 €	1 : 211.2	-34,135,198,008 €	1 : 131.2
							-60,213,691,286 €	1 : 230.8

B - Cooling water relevant and data on cooling water included in aggregate figure on water use

Company	Sector	
BMW	Automobile	Impact on Sustainable Value ^{Env} and Return to Cost Ratio cannot be determined
DaimlerChrysler	Automobile	
PSA	Automobile	
Renault	Automobile	
Pirelli	Autoparts	
Heineken	Beverages	
Novozymes	Biotech	
Degussa	Chemicals	
Kemira Oyj	Chemicals	
Royal DSM	Chemicals	
Pilkington	Construction and Building Materials	
Heidelberger Druckmaschinen	Engineering & Machinery	
MAN	Engineering & Machinery	
Robert Bosch	Engineering & Machinery	
Gorenje	Household Goods	
BP	Oil & Gas	
OMV	Oil & Gas	
Repsol YPF	Oil & Gas	
Shell	Oil & Gas	
Slovnaft	Oil & Gas	
Unipetrol	Oil & Gas	
Henkel	Personal Care and Household Products	
Richter	Pharmaceuticals	
Schering	Pharmaceuticals	
Scottish & Southern Energy	Utilities	
Union Fenosa	Utilities	

C - Cooling water relevant but unclear if cooling water use is included in aggregate figure on water use

Company	Sector	
FIAT Group	Automobile	Impact on Sustainable Value ^{Env} and Return to Cost Ratio cannot be determined
Scania	Automobile	
Volkswagen	Automobile	
BASF	Chemicals	
Atlas Copco	Engineering & Machinery	
SKF	Engineering & Machinery	
Electrolux	Household Goods	
AstraZeneca	Pharmaceuticals	
Novonordisk	Pharmaceuticals	
ENEL	Utilities	

D - Cooling water relevant but water data excludes cooling water and no further data available

Company	Sector	Comments	Sustainable Value ^{Env} and Return to Cost Ratio including cooling water	
			2003	2003 > 2010
ICI	Chemicals	Cooling water data only available for 2003, data for 2001 and 2002 exclude cooling water	-1,518,305,628 € 1 : 1.5	-4,182,321,977 € 1 : 2.4
Holmen	Forestry & Paper			
M-Real Corporation	Forestry & Paper			
UPM-Kymmene	Forestry & Paper			
Suez	Utilities	Cooling water data only available for 2003, data for 2001 and 2002 exclude cooling water	-113,289,993,419 € 1 : 9.1	-178,720,595,454 € 1 : 13.8

E - Relevance of cooling water unclear

Company	Sector	
Airbus	Aircraft Construction	Impact on Sustainable Value ^{Env} and Return to Cost Ratio unclear
Philips	Electronic & Electrical Equipment	
ST Microelectronics	Semiconductors	

F - No water data available at all

Company	Sector	
Celanese	Chemicals	Impact on Sustainable Value ^{Env} and Return to Cost Ratio cannot be determined
BG Group	Oil & Gas	
AEM Torino	Utilities	
ASM	Utilities	
Energias de Portugal	Utilities	

Annex II – Company Profiles

ABB Group**ADVANCE-Rating**

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 4,864,578,563 €
<i>Industry</i>	Engineering & Machinery	<i>Return to Cost Ratio</i>	2.8 : 1
		<i>Rank</i>	12

Performance			
	2001	2002	2003
Gross Value Added	8,355,482,019 €	7,453,262,947 €	7,560,267,734 €
Sales	20,477,427,940 €	18,532,473,960 €	16,641,093,000 €
CO ₂ -emissions [t]	910,000	1,195,000	890,000
NO _x -emissions [t]	276	231	178
SO _x -emissions [t]	150	125	95
Waste generated [t]	N/A	N/A	N/A
Water used [m ³]	7,456,623	6,399,613	6,374,000
VOC-emissions [t]	1,347	993	755
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,377,898,132 €	3,238,353,819 €	2,404,279,069 €	3,322,689,904 €
NO _x -emissions	252,380,036 €	225,128,217 €	178,765,365 €	344,206,936 €
SO _x -emissions	226,958,966 €	202,452,097 €	169,033,845 €	299,419,465 €
Waste generated	N/A	N/A	N/A	N/A
Water used	292,155,004 €	260,608,312 €	264,349,806 €	334,772,301 €
VOC-emissions	1,166,250,863 €	931,962,107 €	732,860,641 €	1,549,445,401 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	5,977,583,886 €	4,214,909,127 €	5,155,988,665 €	4,237,577,830 €
NO _x -emissions	8,103,101,983 €	7,228,134,729 €	7,381,502,368 €	7,216,060,798 €
SO _x -emissions	8,128,523,052 €	7,250,810,850 €	7,391,233,889 €	7,260,848,269 €
Waste generated	N/A	N/A	N/A	N/A
Water used	8,063,327,015 €	7,192,654,635 €	7,295,917,928 €	7,225,495,433 €
VOC-emissions	7,189,231,156 €	6,521,300,840 €	6,827,407,093 €	6,010,822,333 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	5,351,681,013 €	4,629,687,169 €	4,864,578,563 €	4,564,400,666 €
Return to Cost Ratio	2.8 : 1	2.6 : 1	2.8 : 1	2.5 : 1
Rank	12	13	12	9
SV Margin	26.1%	25.0%	29.2%	27.4%



Acea S.p.A.**ADVANCE-Rating**

		Performance in 2003	
Country	Italy	Sustainable Value ^{Env}	-92,371,263 €
Industry	Utilities	Return to Cost Ratio	1 : 1.2
		Rank	30

Performance			
	2001	2002	2003
Gross Value Added	564,590,947 €	343,564,000 €	514,014,000 €
Sales	1,119,449,000 €	1,288,199,000 €	1,464,137,000 €
CO ₂ -emissions [t]	567,093	557,141	240,929
NO _x -emissions [t]	597	640	596
SO _x -emissions [t]	2	2	1
Waste generated [t]	9,315	3,063	10,101
Water used [m ³]	49,800,000	52,850,000	45,840,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,481,856,468 €	1,509,806,869 €	650,853,202 €	899,472,690 €
NO _x -emissions	547,043,913 €	623,244,567 €	598,863,974 €	1,153,093,237 €
SO _x -emissions	2,415,489 €	3,401,195 €	2,491,025 €	4,412,497 €
Waste generated	57,100,330 €	19,163,630 €	63,331,824 €	99,011,604 €
Water used	1,951,194,079 €	2,152,184,765 €	1,901,128,818 €	2,407,587,431 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-917,265,521 €	-1,166,242,869 €	-136,839,202 €	-385,458,690 €
NO _x -emissions	17,547,034 €	-279,680,567 €	-84,849,974 €	-639,079,237 €
SO _x -emissions	562,175,458 €	340,162,805 €	511,522,975 €	509,601,503 €
Waste generated	507,490,617 €	324,400,370 €	450,682,176 €	415,002,396 €
Water used	-1,386,603,132 €	-1,808,620,765 €	-1,387,114,818 €	-1,893,573,431 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-173,807,935 €	-369,997,290 €	-92,371,263 €	-284,786,780 €
Return to Cost Ratio	1 : 1.3	1 : 2.1	1 : 1.2	1 : 1.6
Rank	30	33	30	30
SV Margin	-15.5%	-28.7%	-6.3%	-19.5%

AEM S.p.A.**ADVANCE-Rating**

<i>Country</i>	Italy	<i>Sustainable Value^{Env}</i>	Performance in 2003 -7,142,337,483 €
<i>Industry</i>	Utilities	<i>Return to Cost Ratio</i>	1 : 14.2
		<i>Rank</i>	57

Performance

	2001	2002	2003
Gross Value Added	382,917,414 €	407,987,187 €	542,916,447 €
Sales	1,112,515,863 €	1,040,497,264 €	1,391,523,736 €
CO ₂ -emissions [t]	1,582,604	1,381,874	1,461,679
NO _x -emissions [t]	1,282	1,145	875
SO _x -emissions [t]	1,635	739	0
Waste generated [t]	3,695	4,962	4,776
Water used [m ³]	1,388,781,048	1,019,749,861	1,153,847,289
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	4,135,463,327 €	3,744,768,334 €	3,948,633,270 €	5,456,972,141 €
NO _x -emissions	1,174,318,508 €	1,115,973,828 €	878,694,946 €	1,691,898,732 €
SO _x -emissions	2,467,953,672 €	1,197,382,052 €	0 €	0 €
Waste generated	22,651,040 €	31,042,487 €	29,944,204 €	46,814,120 €
Water used	54,413,280,289 €	41,526,776,062 €	47,853,672,199 €	60,601,837,510 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-3,752,545,913 €	-3,336,781,147 €	-3,405,716,823 €	-4,914,055,694 €
NO _x -emissions	-791,401,094 €	-707,986,641 €	-335,778,499 €	-1,148,982,285 €
SO _x -emissions	-2,085,036,258 €	-789,394,865 €	542,916,447 €	542,916,447 €
Waste generated	360,266,374 €	376,944,700 €	512,972,243 €	496,102,327 €
Water used	-54,030,362,875 €	-41,118,788,875 €	-47,310,755,752 €	-60,058,921,063 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-8,614,154,252 €	-6,510,858,118 €	-7,142,337,483 €	-9,297,562,895 €
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Return to Cost Ratio	1 : 23.5	1 : 17	1 : 14.2	1 : 18.1
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Rank	60	58	57	57
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SV Margin	-774.3%	-625.7%	-513.3%	-668.2%
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AEM Torino S.p.A.**ADVANCE-Rating**

		Performance in 2003	
Country	Italy	Sustainable Value ^{Env}	-454,372,273 €
Industry	Utilities	Return to Cost Ratio	1 : 3.2
		Rank	41

Performance			
	2001	2002	2003
Gross Value Added	140,037,000 €	203,144,000 €	210,518,000 €
Sales	345,982,000 €	488,893,000 €	699,907,000 €
CO ₂ -emissions [t]	661,315	641,406	626,400
NO _x -emissions [t]	1,547	1,565	1,594
SO _x -emissions [t]	361	951	393
Waste generated [t]	4,053	6,297	4,845
Water used [m ³]	N/A	N/A	N/A
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,728,065,608 €	1,738,158,636 €	1,692,180,235 €	2,338,576,355 €
NO _x -emissions	1,416,600,155 €	1,525,219,309 €	1,600,853,891 €	3,082,392,452 €
SO _x -emissions	544,994,707 €	1,540,255,553 €	699,266,328 €	1,238,651,051 €
Waste generated	24,844,620 €	39,397,120 €	30,377,456 €	47,491,459 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-1,588,028,608 €	-1,535,014,636 €	-1,481,662,235 €	-2,128,058,355 €
NO _x -emissions	-1,276,563,155 €	-1,322,075,309 €	-1,390,335,891 €	-2,871,874,452 €
SO _x -emissions	-404,957,707 €	-1,337,111,553 €	-488,748,328 €	-1,028,133,051 €
Waste generated	115,192,380 €	163,746,880 €	180,140,544 €	163,026,541 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-450,622,442 €	-575,779,231 €	-454,372,273 €	-837,862,760 €
Return to Cost Ratio	1 : 4.2	1 : 3.8	1 : 3.2	1 : 5
Rank	44	41	41	42
SV Margin	-130.2%	-117.8%	-64.9%	-119.7%

Agfa-Gevaert Group**ADVANCE-Rating**

<i>Country</i>	Belgium	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,414,583,745 €
<i>Industry</i>	Media & Photography	<i>Return to Cost Ratio</i>	3.1 : 1
		<i>Rank</i>	9

Performance			
	2001	2002	2003
Gross Value Added	1,647,000,000 €	2,125,000,000 €	2,100,000,000 €
Sales	4,911,000,000 €	4,683,000,000 €	4,215,000,000 €
CO ₂ -emissions [t]	233,000	210,000	147,000
NO _x -emissions [t]	194	187	138
SO _x -emissions [t]	77	83	3
Waste generated [t]	72,103	71,986	66,093
Water used [m ³]	13,082,000	13,258,000	12,618,000
VOC-emissions [t]	1,349	1,329	1,256
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	608,846,445 €	569,083,098 €	397,111,262 €	548,803,838 €
NO _x -emissions	177,647,337 €	182,246,652 €	138,593,373 €	266,857,063 €
SO _x -emissions	116,245,409 €	134,428,192 €	5,337,911 €	9,455,352 €
Waste generated	441,986,594 €	450,379,722 €	414,393,649 €	647,854,070 €
Water used	512,560,661 €	539,899,066 €	523,308,103 €	662,716,802 €
VOC-emissions	1,167,982,490 €	1,247,308,802 €	1,219,169,490 €	2,577,620,429 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,038,153,555 €	1,555,916,902 €	1,702,888,738 €	1,551,196,162 €
NO _x -emissions	1,469,352,663 €	1,942,753,348 €	1,961,406,627 €	1,833,142,937 €
SO _x -emissions	1,530,754,591 €	1,990,571,808 €	2,094,662,089 €	2,090,544,648 €
Waste generated	1,205,013,406 €	1,674,620,278 €	1,685,606,351 €	1,452,145,930 €
Water used	1,134,439,339 €	1,585,100,934 €	1,576,691,897 €	1,437,283,198 €
VOC-emissions	479,017,510 €	877,691,198 €	880,830,510 €	-477,620,429 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	979,533,009 €	1,375,236,353 €	1,414,583,745 €	1,126,670,350 €
Return to Cost Ratio	2.5 : 1	2.8 : 1	3.1 : 1	2.2 : 1
Rank	14	12	9	13
SV Margin	19.9%	29.4%	33.6%	26.7%



Airbus S.A.S**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 4,979,414,025 €
<i>Industry</i>	Aircraft Construction	<i>Return to Cost Ratio</i>	4.5 : 1
		<i>Rank</i>	1

Performance			
	2001	2002	2003
Gross Value Added	6,279,359,018 €	6,299,860,773 €	6,405,514,729 €
Sales	20,549,000,000 €	19,512,000,000 €	19,048,000,000 €
CO ₂ -emissions [t]	176,281	170,055	199,606
NO _x -emissions [t]	222	212	249
SO _x -emissions [t]	127	102	126
Waste generated [t]	63,700	57,108	61,219
Water used [m ³]	1,702,927	1,689,776	1,772,284
VOC-emissions [t]	2,226	2,039	2,170
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	460,635,451 €	460,835,363 €	539,223,065 €	745,200,945 €
NO _x -emissions	203,287,159 €	206,611,178 €	250,070,652 €	481,502,961 €
SO _x -emissions	191,729,440 €	165,200,911 €	224,192,258 €	397,124,764 €
Waste generated	390,476,763 €	357,295,657 €	383,834,366 €	600,078,349 €
Water used	66,721,708 €	68,811,924 €	73,502,186 €	93,083,086 €
VOC-emissions	1,927,300,980 €	1,913,666,401 €	2,106,367,669 €	4,453,372,874 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	5,818,723,567 €	5,839,025,410 €	5,866,291,664 €	5,660,313,784 €
NO _x -emissions	6,076,071,859 €	6,093,249,595 €	6,155,444,077 €	5,924,011,768 €
SO _x -emissions	6,087,629,578 €	6,134,659,862 €	6,181,322,471 €	6,008,389,965 €
Waste generated	5,888,882,255 €	5,942,565,116 €	6,021,680,363 €	5,805,436,380 €
Water used	6,212,637,310 €	6,231,048,849 €	6,332,012,543 €	6,312,431,643 €
VOC-emissions	4,352,058,038 €	4,386,194,372 €	4,299,147,060 €	1,952,141,855 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	4,919,428,944 €	4,946,677,601 €	4,979,414,025 €	4,523,246,485 €
Return to Cost Ratio	4.6 : 1	4.7 : 1	4.5 : 1	3.4 : 1
Rank	1	1	1	3
SV Margin	23.9%	25.4%	26.1%	23.7%

ASM Group

ADVANCE-Rating

<i>Country</i>	Italy	<i>Sustainable Value^{Env}</i>	Performance in 2003 -1,627,498,489 €
<i>Industry</i>	Utilities	<i>Return to Cost Ratio</i>	1 : 6
		<i>Rank</i>	50

Performance			
	2001	2002	2003
Gross Value Added	323,326,660 €	267,831,417 €	324,437,050 €
Sales	617,609,079 €	704,639,684 €	766,111,124 €
CO ₂ -emissions [t]	1,468,528	1,478,215	1,450,213
NO _x -emissions [t]	2,166	2,277	2,212
SO _x -emissions [t]	3,981	3,354	3,041
Waste generated [t]	141,710	153,478	181,855
Water used [m ³]	N/A	N/A	N/A
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	3,837,373,614 €	4,005,843,675 €	3,917,659,283 €	5,414,166,397 €
NO _x -emissions	1,983,423,359 €	2,219,121,000 €	2,221,511,171 €	4,277,447,995 €
SO _x -emissions	6,010,038,588 €	5,432,194,664 €	5,410,862,353 €	9,584,574,673 €
Waste generated	868,672,875 €	960,233,643 €	1,140,204,817 €	1,782,571,557 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-3,514,046,954 €	-3,738,012,258 €	-3,593,222,233 €	-5,089,729,347 €
NO _x -emissions	-1,660,096,699 €	-1,951,289,583 €	-1,897,074,121 €	-3,953,010,945 €
SO _x -emissions	-5,686,711,928 €	-5,164,363,247 €	-5,086,425,303 €	-9,260,137,623 €
Waste generated	-545,346,215 €	-692,402,226 €	-815,767,767 €	-1,458,134,507 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-1,629,457,399 €	-1,649,438,188 €	-1,627,498,489 €	-2,823,001,775 €
Return to Cost Ratio	1 : 6	1 : 7.2	1 : 6	1 : 9.7
Rank	47	49	50	49
SV Margin	-263.8%	-234.1%	-212.4%	-368.5%



AstraZeneca Plc**ADVANCE-Rating**

<i>Country</i>	United Kingdom	<i>Sustainable Value^{Env}</i>	Performance in 2003 4,751,779,963 €
<i>Industry</i>	Pharmaceuticals	<i>Return to Cost Ratio</i>	2.1 : 1
		<i>Rank</i>	18

Performance			
	2001	2002	2003
Gross Value Added	9,749,074,460 €	9,878,468,600 €	8,985,039,200 €
Sales	18,118,514,020 €	18,930,371,460 €	16,688,904,600 €
CO ₂ -emissions [t]	735,000	709,800	663,600
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	68,000	60,000	58,400
Water used [m ³]	6,600,000	6,900,000	5,700,000
VOC-emissions [t]	345	313	291
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,920,610,030 €	1,923,500,871 €	1,792,673,697 €	2,477,457,326 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	416,835,477 €	375,389,428 €	366,159,640 €	572,446,064 €
Water used	258,591,986 €	280,985,334 €	236,396,908 €	299,372,783 €
VOC-emissions	298,705,677 €	293,760,463 €	282,466,817 €	597,203,459 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	7,828,464,430 €	7,954,967,729 €	7,192,365,503 €	6,507,581,874 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	9,332,238,983 €	9,503,079,172 €	8,618,879,560 €	8,412,593,136 €
Water used	9,490,482,474 €	9,597,483,266 €	8,748,642,292 €	8,685,666,417 €
VOC-emissions	9,450,368,783 €	9,584,708,137 €	8,702,572,383 €	8,387,835,741 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	5,157,364,953 €	5,234,319,758 €	4,751,779,963 €	4,570,525,310 €
Return to Cost Ratio	2.1 : 1	2.1 : 1	2.1 : 1	2 : 1
Rank	17	18	18	14
SV Margin	28.5%	27.7%	28.5%	27.4%

Atlas Copco Group

ADVANCE-Rating

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 764,760,925 €
<i>Industry</i>	Engineering & Machinery	<i>Return to Cost Ratio</i>	1.6 : 1
		<i>Rank</i>	23

Performance			
	2001	2002	2003
Gross Value Added	2,398,809,720 €	2,282,151,900 €	2,145,764,440 €
Sales	5,534,773,970 €	5,194,721,640 €	4,892,027,160 €
CO ₂ -emissions [t]	259,766	257,712	271,732
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	45,000	44,900	50,700
Water used [m ³]	896,895	830,343	772,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	678,787,762 €	698,378,740 €	734,067,840 €	1,014,474,497 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	275,847,007 €	280,916,422 €	317,881,742 €	496,969,442 €
Water used	35,140,888 €	33,813,653 €	32,017,265 €	40,546,630 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,720,021,958 €	1,583,773,160 €	1,411,696,600 €	1,131,289,943 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	2,122,962,713 €	2,001,235,478 €	1,827,882,698 €	1,648,794,998 €
Water used	2,363,668,832 €	2,248,338,247 €	2,113,747,175 €	2,105,217,810 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	886,664,786 €	833,335,269 €	764,760,925 €	697,900,393 €
Return to Cost Ratio	1.6 : 1	1.6 : 1	1.6 : 1	1.5 : 1
Rank	21	24	23	20
SV Margin	16.0%	16.0%	15.6%	14.3%

BASF Group**ADVANCE-Rating**

		Performance in 2003	
Country	Germany	Sustainable Value ^{Env}	-13,872,669,586 €
Industry	Chemicals	Return to Cost Ratio	1 : 2.2
		Rank	35

Performance			
	2001	2002	2003
Gross Value Added	11,254,000,000 €	11,357,900,000 €	11,566,000,000 €
Sales	32,500,000,000 €	32,216,000,000 €	33,361,000,000 €
CO ₂ -emissions [t]	17,600,000	18,235,000	18,960,000
NO _x -emissions [t]	14,300	15,000	15,000
SO _x -emissions [t]	7,300	6,600	6,300
Waste generated [t]	1,535,000	1,610,000	1,500,000
Water used [m ³]	1,800,000,000	1,890,000,000	1,880,000,000
VOC-emissions [t]	13,800	15,000	13,300
CH ₄ -emissions [t]	360	480	500

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	45,990,117,727 €	49,415,382,339 €	51,219,248,489 €	70,784,495,028 €
NO _x -emissions	13,094,623,283 €	14,618,715,417 €	15,064,497,088 €	29,006,202,499 €
SO _x -emissions	11,020,668,599 €	10,689,470,716 €	11,209,612,898 €	19,856,238,225 €
Waste generated	9,409,447,904 €	10,072,949,638 €	9,404,785,273 €	14,703,237,941 €
Water used	70,525,087,193 €	76,965,547,882 €	77,969,506,509 €	98,740,496,748 €
VOC-emissions	11,948,227,099 €	14,077,977,448 €	12,909,995,393 €	27,294,866,003 €
CH ₄ -emissions	191,219,073 €	270,674,588 €	293,041,453 €	289,852,153 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-34,736,117,727 €	-38,057,482,339 €	-39,653,248,489 €	-59,218,495,028 €
NO _x -emissions	-1,840,623,283 €	-3,260,815,417 €	-3,498,497,088 €	-17,440,202,499 €
SO _x -emissions	233,331,401 €	668,429,284 €	356,387,102 €	-8,290,238,225 €
Waste generated	1,844,552,096 €	1,284,950,362 €	2,161,214,727 €	-3,137,237,941 €
Water used	-59,271,087,193 €	-65,607,647,882 €	-66,403,506,509 €	-87,174,496,748 €
VOC-emissions	-694,227,099 €	-2,720,077,448 €	-1,343,995,393 €	-15,728,866,003 €
CH ₄ -emissions	11,062,780,927 €	11,087,225,412 €	11,272,958,547 €	11,276,147,847 €

Sustainable Value^{Env}	-11,914,484,411 €	-13,800,774,004 €	-13,872,669,586 €	-25,673,341,228 €
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Return to Cost Ratio	1 : 2.1	1 : 2.2	1 : 2.2	1 : 3.2
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Rank	35	35	35	35
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SV Margin	-36.7%	-42.8%	-41.6%	-77.0%
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BG Group**ADVANCE-Rating**

<i>Country</i> United Kingdom		Performance in 2003	
<i>Industry</i> Oil & Gas		<i>Sustainable Value^{Env}</i> -4,664,900,505 €	
		<i>Return to Cost Ratio</i> 1 : 2.7	
		<i>Rank</i> 39	

Performance			
	2001	2002	2003
Gross Value Added	2,315,204,119 €	2,318,348,049 €	2,757,272,975 €
Sales	4,326,735,450 €	4,443,886,800 €	5,544,539,100 €
CO ₂ -emissions [t]	4,279,213	4,104,872	3,898,225
NO _x -emissions [t]	8,440	7,490	8,590
SO _x -emissions [t]	11,202	16,266	9,487
Waste generated [t]	81,060	54,138	48,911
Water used [m ³]	N/A	N/A	N/A
VOC-emissions [t]	14,673	14,222	10,401
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	11,181,903,957 €	11,123,872,736 €	10,530,809,860 €	14,553,475,112 €
NO _x -emissions	7,728,574,860 €	7,299,611,898 €	8,626,935,332 €	16,610,885,298 €
SO _x -emissions	16,911,442,418 €	26,344,686,465 €	16,880,253,582 €	29,900,973,340 €
Waste generated	496,892,409 €	338,713,880 €	306,664,968 €	479,433,381 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	12,704,082,335 €	13,347,799,684 €	10,096,004,668 €	21,345,406,113 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-8,866,699,838 €	-8,805,524,687 €	-7,773,536,885 €	-11,796,202,138 €
NO _x -emissions	-5,413,370,741 €	-4,981,263,849 €	-5,869,662,358 €	-13,853,612,323 €
SO _x -emissions	-14,596,238,298 €	-24,026,338,416 €	-14,122,980,607 €	-27,143,700,365 €
Waste generated	1,818,311,711 €	1,979,634,168 €	2,450,608,006 €	2,277,839,594 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	-10,388,878,216 €	-11,029,451,635 €	-7,338,731,694 €	-18,588,133,138 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-5,349,553,626 €	-6,694,706,346 €	-4,664,900,505 €	-9,871,972,624 €
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Return to Cost Ratio	1 : 3.3	1 : 3.9	1 : 2.7	1 : 4.6
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Rank	41	43	39	40
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SV Margin	-123.6%	-150.6%	-84.1%	-178.0%
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BMW Group**ADVANCE-Rating**

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 9,510,633,231 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	3.9 : 1
		<i>Rank</i>	4

Performance			
	2001	2002	2003
Gross Value Added	11,616,000,000 €	12,236,000,000 €	12,789,000,000 €
Sales	38,463,000,000 €	42,411,000,000 €	41,525,000,000 €
CO ₂ -emissions [t]	897,507	1,068,690	1,381,769
NO _x -emissions [t]	404	481	534
SO _x -emissions [t]	6	7	10
Waste generated [t]	305,634	317,129	399,876
Water used [m ³]	3,391,628	3,618,995	3,633,135
VOC-emissions [t]	2,780	3,521	3,312
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,345,252,988 €	2,896,063,886 €	3,732,762,118 €	5,158,640,343 €
NO _x -emissions	369,946,000 €	468,773,474 €	536,095,236 €	1,032,234,060 €
SO _x -emissions	9,058,084 €	11,337,317 €	17,793,036 €	31,517,838 €
Waste generated	1,873,516,092 €	1,984,114,563 €	2,507,165,277 €	3,919,647,983 €
Water used	132,886,034 €	147,374,568 €	150,677,523 €	190,817,848 €
VOC-emissions	2,406,961,691 €	3,304,570,573 €	3,215,074,191 €	6,797,447,758 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	9,270,747,012 €	9,339,936,114 €	9,056,237,882 €	7,630,359,657 €
NO _x -emissions	11,246,054,000 €	11,767,226,526 €	12,252,904,764 €	11,756,765,940 €
SO _x -emissions	11,606,941,916 €	12,224,662,683 €	12,771,206,964 €	12,757,482,162 €
Waste generated	9,742,483,908 €	10,251,885,437 €	10,281,834,723 €	8,869,352,017 €
Water used	11,483,113,966 €	12,088,625,432 €	12,638,322,477 €	12,598,182,152 €
VOC-emissions	9,209,038,309 €	8,931,429,427 €	9,573,925,809 €	5,991,552,242 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	8,936,911,302 €	9,229,109,374 €	9,510,633,231 €	8,514,813,453 €
Return to Cost Ratio	4.3 : 1	4.1 : 1	3.9 : 1	3 : 1
Rank	3	5	4	5
SV Margin	23.2%	21.8%	22.9%	20.5%



BP Group**ADVANCE-Rating**

<i>Country</i>	United Kingdom	<i>Sustainable Value^{Env}</i>	Performance in 2003 -134,132,952,397 €
<i>Industry</i>	Oil & Gas	<i>Return to Cost Ratio</i>	1 : 5.4
		<i>Rank</i>	47

Performance			
	2001	2002	2003
Gross Value Added	34,485,712,740 €	28,777,007,320 €	30,651,662,600 €
Sales	194,585,826,380 €	189,633,704,260 €	205,918,363,400 €
CO ₂ -emissions [t]	83,540,000	88,070,000	88,890,000
NO _x -emissions [t]	266,133	242,088	220,318
SO _x -emissions [t]	224,541	169,236	150,895
Waste generated [t]	495,859	584,950	526,749
Water used [m ³]	615,611,373	494,253,350	516,922,761
VOC-emissions [t]	365,000	322,119	268,785
CH ₄ -emissions [t]	337,400	270,100	235,400

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	218,296,274,710 €	238,662,611,605 €	240,130,748,847 €	331,858,320,836 €
NO _x -emissions	243,700,096,368 €	235,934,371,858 €	221,265,324,629 €	426,039,234,817 €
SO _x -emissions	338,985,198,347 €	274,097,464,559 €	268,488,021,949 €	475,588,423,327 €
Waste generated	3,039,582,689 €	3,659,734,094 €	3,302,640,825 €	5,163,277,255 €
Water used	24,120,025,433 €	20,127,238,015 €	21,438,410,946 €	27,149,579,895 €
VOC-emissions	316,021,948,642 €	302,318,934,503 €	260,903,241,488 €	551,612,823,963 €
CH ₄ -emissions	179,214,764,627 €	152,310,846,347 €	137,963,916,295 €	136,462,393,416 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-183,810,561,970 €	-209,885,604,285 €	-209,479,086,247 €	-301,206,658,236 €
NO _x -emissions	-209,214,383,628 €	-207,157,364,538 €	-190,613,662,029 €	-395,387,572,217 €
SO _x -emissions	-304,499,485,607 €	-245,320,457,239 €	-237,836,359,349 €	-444,936,760,727 €
Waste generated	31,446,130,051 €	25,117,273,226 €	27,349,021,775 €	25,488,385,345 €
Water used	10,365,687,307 €	8,649,769,305 €	9,213,251,654 €	3,502,082,705 €
VOC-emissions	-281,536,235,902 €	-273,541,927,183 €	-230,251,578,888 €	-520,961,161,363 €
CH ₄ -emissions	-144,729,051,887 €	-123,533,839,027 €	-107,312,253,695 €	-105,810,730,816 €

Sustainable Value^{Env}	-154,568,271,662 €	-146,524,592,820 €	-134,132,952,397 €	-248,473,202,187 €
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Return to Cost Ratio	1 : 5.5	1 : 6.1	1 : 5.4	1 : 9.1
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Rank	46	48	47	48
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SV Margin	-79.4%	-77.3%	-65.1%	-120.7%
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Celanese AG**ADVANCE-Rating**

		Performance in 2003	
Country	Germany	Sustainable Value ^{Env}	-7,553,743,315 €
Industry	Chemicals	Return to Cost Ratio	1 : 7.8
		Rank	52

Performance				
	2001	2002	2003	
Gross Value Added	1,380,000,000 €	1,314,000,000 €	1,118,000,000 €	
Sales	4,433,000,000 €	4,064,000,000 €	4,075,000,000 €	
CO ₂ -emissions [t]	6,800,000	6,700,000	5,800,000	
NO _x -emissions [t]	13,500	12,000	10,500	
SO _x -emissions [t]	19,000	17,500	13,000	
Waste generated [t]	535,000	770,000	495,000	
Water used [m ³]	N/A	N/A	N/A	
VOC-emissions [t]	5,900	5,450	6,200	
CH ₄ -emissions [t]	N/A	N/A	N/A	

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	17,768,909,122 €	18,156,460,744 €	15,668,335,508 €	21,653,484,766 €
NO _x -emissions	12,362,056,945 €	11,694,972,334 €	10,545,147,962 €	20,304,341,750 €
SO _x -emissions	28,683,931,970 €	28,343,293,565 €	23,130,947,250 €	40,973,189,988 €
Waste generated	3,279,514,416 €	4,817,497,653 €	3,103,579,140 €	4,852,068,521 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	5,108,299,992 €	5,114,998,473 €	6,018,193,341 €	12,723,922,498 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-16,388,909,122 €	-16,842,460,744 €	-14,550,335,508 €	-20,535,484,766 €
NO _x -emissions	-10,982,056,945 €	-10,380,972,334 €	-9,427,147,962 €	-19,186,341,750 €
SO _x -emissions	-27,303,931,970 €	-27,029,293,565 €	-22,012,947,250 €	-39,855,189,988 €
Waste generated	-1,899,514,416 €	-3,503,497,653 €	-1,985,579,140 €	-3,734,068,521 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	-3,728,299,992 €	-3,800,998,473 €	-4,900,193,341 €	-11,605,922,498 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-8,614,673,206 €	-8,793,888,967 €	-7,553,743,315 €	-13,559,572,503 €
Return to Cost Ratio	1 : 7.2	1 : 7.7	1 : 7.8	1 : 13.1
Rank	52	51	52	52
SV Margin	-194.3%	-216.4%	-185.4%	-332.8%



Centrica Group

ADVANCE-Rating

Country United Kingdom		Performance in 2003
Industry Utilities		Sustainable Value ^{Env} -6,484,312,051 €
		Return to Cost Ratio 1 : 2.6
		Rank 37

Performance			
	2001	2002	2003
Gross Value Added	2,923,643,850 €	3,786,535,350 €	3,969,681,750 €
Sales	20,660,202,000 €	23,113,941,300 €	26,286,668,550 €
CO ₂ -emissions [t]	8,391,146	9,988,834	10,659,557
NO _x -emissions [t]	4,158	5,867	6,148
SO _x -emissions [t]	8	11	21
Waste generated [t]	23,521	29,612	25,585
Water used [m ³]	682,492,231	1,861,016,321	725,053,700
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	21,926,692,750 €	27,068,936,180 €	28,796,123,352 €	39,795,957,778 €
NO _x -emissions	3,807,513,539 €	5,717,866,890 €	6,174,435,206 €	11,888,675,531 €
SO _x -emissions	12,077,445 €	17,815,785 €	37,365,376 €	66,187,461 €
Waste generated	144,182,166 €	185,267,195 €	160,414,287 €	250,788,228 €
Water used	26,740,457,833 €	75,785,259,663 €	30,070,254,884 €	38,080,937,504 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-19,003,048,900 €	-23,282,400,830 €	-24,826,441,602 €	-35,826,276,028 €
NO _x -emissions	-883,869,689 €	-1,931,331,540 €	-2,204,753,456 €	-7,918,993,781 €
SO _x -emissions	2,911,566,405 €	3,768,719,565 €	3,932,316,374 €	3,903,494,289 €
Waste generated	2,779,461,684 €	3,601,268,155 €	3,809,267,463 €	3,718,893,522 €
Water used	-23,816,813,983 €	-71,998,724,313 €	-26,100,573,134 €	-34,111,255,754 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-5,430,386,355 €	-12,834,638,423 €	-6,484,312,051 €	-10,033,448,250 €
Return to Cost Ratio	1 : 2.9	1 : 4.4	1 : 2.6	1 : 3.5
Rank	38	45	37	36
SV Margin	-26.3%	-55.5%	-24.7%	-38.2%



Crown van Gelder N.V.**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 -155,668,471 €
<i>Industry</i>	Forestry & Paper	<i>Return to Cost Ratio</i>	1 : 5
		<i>Rank</i>	46

Performance			
	2001	2002	2003
Gross Value Added	36,467,000 €	41,844,000 €	38,667,000 €
Sales	152,506,000 €	150,633,000 €	139,553,000 €
CO ₂ -emissions [t]	153,000	153,000	151,000
NO _x -emissions [t]	212	216	217
SO _x -emissions [t]	0	0	0
Waste generated [t]	5,291	5,838	4,854
Water used [m ³]	18,470,000	18,150,000	15,210,000
VOC-emissions [t]	0	0	0
CH ₄ -emissions [t]	8	121	125

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	399,800,455 €	414,617,686 €	407,917,011 €	563,737,276 €
NO _x -emissions	194,130,079 €	210,509,502 €	217,933,058 €	419,623,063 €
SO _x -emissions	0 €	0 €	0 €	0 €
Waste generated	32,433,478 €	36,525,391 €	30,431,377 €	47,575,757 €
Water used	723,665,756 €	739,113,595 €	630,806,486 €	798,852,636 €
VOC-emissions	0 €	0 €	0 €	0 €
CH ₄ -emissions	3,983,731 €	68,232,552 €	73,260,363 €	72,463,038 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-363,333,455 €	-372,773,686 €	-369,250,011 €	-525,070,276 €
NO _x -emissions	-157,663,079 €	-168,665,502 €	-179,266,058 €	-380,956,063 €
SO _x -emissions	36,467,000 €	41,844,000 €	38,667,000 €	38,667,000 €
Waste generated	4,033,522 €	5,318,609 €	8,235,623 €	-8,908,757 €
Water used	-687,198,756 €	-697,269,595 €	-592,139,486 €	-760,185,636 €
VOC-emissions	36,467,000 €	41,844,000 €	38,667,000 €	38,667,000 €
CH ₄ -emissions	32,483,269 €	-26,388,552 €	-34,593,363 €	-33,796,038 €

Sustainable Value^{Env}	-156,963,500 €	-168,012,961 €	-155,668,471 €	-233,083,253 €
Return to Cost Ratio	1 : 5.3	1 : 5	1 : 5	1 : 7
Rank	45	46	46	45
SV Margin	-102.9%	-111.5%	-111.5%	-167.0%

DaimlerChrysler AG**ADVANCE-Rating**

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 29,876,257,351 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	3.6 : 1
		<i>Rank</i>	7

Performance			
	2001	2002	2003
Gross Value Added	41,630,000,000 €	43,836,000,000 €	41,572,000,000 €
Sales	150,386,000,000 €	147,368,000,000 €	136,437,000,000 €
CO ₂ -emissions [t]	7,022,335	7,155,788	7,088,985
NO _x -emissions [t]	2,259	2,356	2,902
SO _x -emissions [t]	422	464	505
Waste generated [t]	897,436	781,009	671,486
Water used [m ³]	45,440,000	40,912,000	42,743,000
VOC-emissions [t]	12,588	11,455	11,696
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	18,349,887,123 €	19,391,609,540 €	19,150,447,481 €	26,465,729,087 €
NO _x -emissions	2,068,858,908 €	2,296,112,901 €	2,914,076,317 €	5,610,959,811 €
SO _x -emissions	636,632,322 €	752,150,030 €	897,836,614 €	1,590,390,128 €
Waste generated	5,501,222,990 €	4,886,375,356 €	4,210,121,096 €	6,582,012,288 €
Water used	1,780,366,646 €	1,666,039,415 €	1,772,686,498 €	2,244,928,219 €
VOC-emissions	10,899,120,811 €	10,750,600,551 €	11,353,030,535 €	24,003,064,118 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	23,280,112,877 €	24,444,390,460 €	22,421,552,519 €	15,106,270,913 €
NO _x -emissions	39,561,141,092 €	41,539,887,099 €	38,657,923,683 €	35,961,040,189 €
SO _x -emissions	40,993,367,678 €	43,083,849,970 €	40,674,163,386 €	39,981,609,872 €
Waste generated	36,128,777,010 €	38,949,624,644 €	37,361,878,904 €	34,989,987,712 €
Water used	39,849,633,354 €	42,169,960,585 €	39,799,313,502 €	39,327,071,781 €
VOC-emissions	30,730,879,189 €	33,085,399,449 €	30,218,969,465 €	17,568,935,882 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	30,077,701,600 €	31,896,158,886 €	29,876,257,351 €	26,133,559,478 €
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Return to Cost Ratio	3.6 : 1	3.7 : 1	3.6 : 1	2.7 : 1
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Rank	7	6	7	8
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SV Margin	20.0%	21.6%	21.9%	19.2%
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Degussa AG**ADVANCE-Rating**

		Performance in 2003	
Country	Germany	Sustainable Value ^{Env}	-8,294,523,146 €
Industry	Chemicals	Return to Cost Ratio	1 : 2.7
		Rank	38

Performance			
	2001	2002	2003
Gross Value Added	5,322,000,000 €	4,909,000,000 €	4,974,000,000 €
Sales	11,862,000,000 €	11,765,000,000 €	11,427,000,000 €
CO ₂ -emissions [t]	6,048,000	5,748,000	4,930,000
NO _x -emissions [t]	11,896	11,178	10,456
SO _x -emissions [t]	22,540	23,810	23,653
Waste generated [t]	874,111	750,323	733,813
Water used [m ³]	452,000,000	440,000,000	416,000,000
VOC-emissions [t]	4,350	4,507	4,236
CH ₄ -emissions [t]	1,850	1,797	1,722

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	15,803,876,819 €	15,576,617,367 €	13,318,085,182 €	18,405,462,051 €
NO _x -emissions	10,893,261,438 €	10,893,866,729 €	10,500,958,770 €	20,219,256,889 €
SO _x -emissions	34,028,201,401 €	38,563,075,416 €	42,085,868,870 €	74,549,143,291 €
Waste generated	5,358,242,291 €	4,694,388,690 €	4,600,902,464 €	7,192,951,429 €
Water used	17,709,633,006 €	17,917,905,327 €	17,252,826,972 €	21,848,960,983 €
VOC-emissions	3,766,288,977 €	4,229,962,957 €	4,111,784,999 €	8,693,312,210 €
CH ₄ -emissions	982,653,570 €	1,013,337,989 €	1,009,234,766 €	998,250,813 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-10,481,876,819 €	-10,667,617,367 €	-8,344,085,182 €	-13,431,462,051 €
NO _x -emissions	-5,571,261,438 €	-5,984,866,729 €	-5,526,958,770 €	-15,245,256,889 €
SO _x -emissions	-28,706,201,401 €	-33,654,075,416 €	-37,111,868,870 €	-69,575,143,291 €
Waste generated	-36,242,291 €	214,611,310 €	373,097,536 €	-2,218,951,429 €
Water used	-12,387,633,006 €	-13,008,905,327 €	-12,278,826,972 €	-16,874,960,983 €
VOC-emissions	1,555,711,023 €	679,037,043 €	862,215,001 €	-3,719,312,210 €
CH ₄ -emissions	4,339,346,430 €	3,895,662,011 €	3,964,765,234 €	3,975,749,187 €

Sustainable Value^{Env}	-7,326,879,643 €	-8,360,879,211 €	-8,294,523,146 €	-16,727,048,238 €
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Return to Cost Ratio	1 : 2.4	1 : 2.7	1 : 2.7	1 : 4.4
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Rank	36	38	38	39
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SV Margin	-61.8%	-71.1%	-72.6%	-146.4%
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Edison Spa

ADVANCE-Rating

<i>Country</i>	Italy	<i>Sustainable Value^{Env}</i>	Performance in 2003 -22,242,425,384 €
<i>Industry</i>	Utilities	<i>Return to Cost Ratio</i>	1 : 18.8
		<i>Rank</i>	59

Performance			
	2001	2002	2003
Gross Value Added	1,188,000,000 €	1,166,000,000 €	1,253,000,000 €
Sales	4,058,000,000 €	4,418,000,000 €	5,141,000,000 €
CO ₂ -emissions [t]	15,258,115	20,655,656	21,195,610
NO _x -emissions [t]	9,958	13,543	14,265
SO _x -emissions [t]	7,598	6,434	6,460
Waste generated [t]	17,329	27,501	49,555
Water used [m ³]	1,712,153,000	1,895,472,000	1,894,528,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	39,870,596,883 €	55,975,165,271 €	57,258,608,410 €	79,130,830,731 €
NO _x -emissions	9,118,619,486 €	13,198,750,860 €	14,326,336,731 €	27,584,898,577 €
SO _x -emissions	11,470,553,427 €	10,420,614,331 €	11,494,301,480 €	20,360,523,640 €
Waste generated	106,225,617 €	172,059,744 €	310,702,756 €	485,745,971 €
Water used	67,083,188,673 €	77,188,381,468 €	78,572,028,312 €	99,503,529,694 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-38,682,596,883 €	-54,809,165,271 €	-56,005,608,410 €	-77,877,830,731 €
NO _x -emissions	-7,930,619,486 €	-12,032,750,860 €	-13,073,336,731 €	-26,331,898,577 €
SO _x -emissions	-10,282,553,427 €	-9,254,614,331 €	-10,241,301,480 €	-19,107,523,640 €
Waste generated	1,081,774,383 €	993,940,256 €	942,297,244 €	767,254,029 €
Water used	-65,895,188,673 €	-76,022,381,468 €	-77,319,028,312 €	-98,250,529,694 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-17,387,026,298 €	-21,589,281,668 €	-22,242,425,384 €	-31,542,932,659 €
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Return to Cost Ratio	1 : 15.6	1 : 19.5	1 : 18.8	1 : 26.2
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Rank	57	59	59	59
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SV Margin	-428.5%	-488.7%	-432.6%	-613.6%
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EDP Group

ADVANCE-Rating

Country	Portugal	Performance in 2003	
		Sustainable Value ^{Env}	-47,855,870,740 €
Industry	Utilities	Return to Cost Ratio	1 : 21
		Rank	60

Performance

	2001	2002	2003
Gross Value Added	1,930,200,000 €	2,012,900,000 €	2,397,900,000 €
Sales	5,650,400,000 €	6,386,500,000 €	6,977,500,000 €
CO ₂ -emissions [t]	15,750,000	16,069,022	24,219,479
NO _x -emissions [t]	48,125	45,215	63,571
SO _x -emissions [t]	149,875	128,462	116,296
Waste generated [t]	1,071,147	1,170,570	1,337,434
Water used [m ³]	N/A	N/A	N/A
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	41,155,929,216 €	43,545,754,950 €	65,427,400,934 €	90,420,021,237 €
NO _x -emissions	44,068,443,739 €	44,065,733,569 €	63,844,175,576 €	122,929,897,648 €
SO _x -emissions	226,263,384,425 €	208,059,802,287 €	206,925,598,944 €	366,539,328,768 €
Waste generated	6,566,059,866 €	7,323,660,036 €	8,385,519,725 €	13,109,740,222 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-39,225,729,216 €	-41,532,854,950 €	-63,029,500,934 €	-88,022,121,237 €
NO _x -emissions	-42,138,243,739 €	-42,052,833,569 €	-61,446,275,576 €	-120,531,997,648 €
SO _x -emissions	-224,333,184,425 €	-206,046,902,287 €	-204,527,698,944 €	-364,141,428,768 €
Waste generated	-4,635,859,866 €	-5,310,760,036 €	-5,987,619,725 €	-10,711,840,222 €
Water used	N/A	N/A	N/A	N/A
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-44,333,288,178 €	-42,134,764,406 €	-47,855,870,740 €	-83,343,912,554 €
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Return to Cost Ratio	1 : 24	1 : 21.9	1 : 21	1 : 35.8
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Rank	61	60	60	60
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SV Margin	-784.6%	-659.7%	-685.9%	-1194.5%
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Electrolux Group

ADVANCE-Rating

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,344,258,783 €
<i>Industry</i>	Household Goods	<i>Return to Cost Ratio</i>	1.6 : 1
		<i>Rank</i>	22

Performance			
	2001	2002	2003
Gross Value Added	4,074,101,890 €	4,138,018,140 €	3,713,616,440 €
Sales	14,697,958,690 €	14,542,643,000 €	13,603,802,280 €
CO ₂ -emissions [t]	899,152	897,829	848,002
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	456,485	353,357	317,270
Water used [m ³]	6,181,669	5,611,429	4,755,286
VOC-emissions [t]	2,087	490	997
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,349,551,182 €	2,433,043,166 €	2,290,824,112 €	3,165,896,274 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	2,798,222,688 €	2,210,774,699 €	1,989,237,482 €	3,109,930,868 €
Water used	242,201,532 €	228,511,468 €	197,216,639 €	249,754,933 €
VOC-emissions	1,806,779,733 €	459,505,184 €	967,376,046 €	2,045,267,929 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,724,550,708 €	1,704,974,974 €	1,422,792,328 €	547,720,166 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	1,275,879,202 €	1,927,243,441 €	1,724,378,958 €	603,685,572 €
Water used	3,831,900,358 €	3,909,506,672 €	3,516,399,801 €	3,463,861,507 €
VOC-emissions	2,267,322,157 €	3,678,512,956 €	2,746,240,394 €	1,668,348,511 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,299,950,346 €	1,602,891,149 €	1,344,258,783 €	897,659,394 €
Return to Cost Ratio	1.5 : 1	1.6 : 1	1.6 : 1	1.3 : 1
Rank	23	22	22	21
SV Margin	8.8%	11.0%	9.9%	6.6%



ENEL S.p.A.**ADVANCE-Rating**

<i>Country</i>	Italy	<i>Sustainable Value^{Env}</i>	Performance in 2003 -53,148,520,028 €
<i>Industry</i>	Utilities	<i>Return to Cost Ratio</i>	1 : 5
		<i>Rank</i>	45

Performance

	2001	2002	2003
Gross Value Added	12,258,000,000 €	11,450,000,000 €	13,281,000,000 €
Sales	28,781,000,000 €	29,977,000,000 €	31,317,000,000 €
CO ₂ -emissions [t]	84,848,485	80,223,404	71,482,000
NO _x -emissions [t]	102,020	79,787	62,000
SO _x -emissions [t]	286,869	208,511	101,000
Waste generated [t]	1,867,677	2,223,431	1,806,871
Water used [m ³]	44,545,455	40,638,298	43,400,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	7,255	6,383	6,000

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	221,715,443,586 €	217,398,968,678 €	193,104,130,826 €	266,867,999,663 €
NO _x -emissions	93,420,707,180 €	77,759,124,559 €	62,266,587,964 €	119,892,303,664 €
SO _x -emissions	433,080,099,926 €	337,707,327,584 €	179,709,667,099 €	318,330,168,369 €
Waste generated	11,448,734,363 €	13,910,873,905 €	11,328,822,515 €	17,711,236,162 €
Water used	1,745,317,814 €	1,654,893,577 €	1,799,934,352 €	2,279,434,872 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	3,853,397,172 €	3,599,396,118 €	3,516,497,442 €	3,478,225,830 €

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-209,457,443,586 €	-205,948,968,678 €	-179,823,130,826 €	-253,586,999,663 €
NO _x -emissions	-81,162,707,180 €	-66,309,124,559 €	-48,985,587,964 €	-106,611,303,664 €
SO _x -emissions	-420,822,099,926 €	-326,257,327,584 €	-166,428,667,099 €	-305,049,168,369 €
Waste generated	809,265,637 €	-2,460,873,905 €	1,952,177,485 €	-4,430,236,162 €
Water used	10,512,682,186 €	9,795,106,423 €	11,481,065,648 €	11,001,565,128 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	8,404,602,828 €	7,850,603,882 €	9,764,502,558 €	9,802,774,170 €

Sustainable Value^{Env}	-98,816,528,577 €	-83,332,940,631 €	-53,148,520,028 €	-92,696,195,508 €
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Return to Cost Ratio	1 : 9.1	1 : 8.3	1 : 5	1 : 8
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Rank	54	54	45	47
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SV Margin	-343.3%	-278.0%	-169.7%	-296.0%
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ENI S.p.A.**ADVANCE-Rating**

Country Italy Industry Oil & Gas	Sustainable Value ^{Env}	Performance in 2003 -76,763,875,489 €
	Return to Cost Ratio	1 : 7.1
	Rank	51

Performance			
	2001	2002	2003
Gross Value Added	13,164,000,000 €	11,605,000,000 €	12,683,000,000 €
Sales	49,272,000,000 €	47,922,000,000 €	51,487,000,000 €
CO ₂ -emissions [t]	47,869,147	51,062,264	51,954,571
NO _x -emissions [t]	75,700	80,300	88,500
SO _x -emissions [t]	103,200	101,000	88,900
Waste generated [t]	696,000	1,792,000	2,868,000
Water used [m ³]	4,467,000,000	4,424,000,000	3,487,000,000
VOC-emissions [t]	57,300	56,900	65,350
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	125,085,665,114 €	138,374,625,647 €	140,352,008,553 €	193,965,088,219 €
NO _x -emissions	69,319,089,685 €	78,258,856,532 €	88,880,532,819 €	171,136,594,746 €
SO _x -emissions	155,799,041,019 €	163,581,294,290 €	158,180,093,120 €	280,193,583,841 €
Waste generated	4,266,433,708 €	11,211,630,902 €	17,981,949,443 €	28,112,590,944 €
Water used	175,019,758,050 €	180,156,393,560 €	144,616,845,317 €	183,142,612,852 €
VOC-emissions	49,611,116,869 €	53,402,461,119 €	63,433,699,169 €	134,114,247,618 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-111,921,665,114 €	-126,769,625,647 €	-127,669,008,553 €	-181,282,088,219 €
NO _x -emissions	-56,155,089,685 €	-66,653,856,532 €	-76,197,532,819 €	-158,453,594,746 €
SO _x -emissions	-142,635,041,019 €	-151,976,294,290 €	-145,497,093,120 €	-267,510,583,841 €
Waste generated	8,897,566,292 €	393,369,098 €	-5,298,949,443 €	-15,429,590,944 €
Water used	-161,855,758,050 €	-168,551,393,560 €	-131,933,845,317 €	-170,459,612,852 €
VOC-emissions	-36,447,116,869 €	-41,797,461,119 €	-50,750,699,169 €	-121,431,247,618 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-71,445,300,635 €	-79,336,466,007 €	-76,763,875,489 €	-130,652,388,317 €
Return to Cost Ratio	1 : 6.4	1 : 7.8	1 : 7.1	1 : 11.3
Rank	50	52	51	51
SV Margin	-145.0%	-165.6%	-149.1%	-253.8%



ERG Group**ADVANCE-Rating**

<i>Country</i> Italy		<i>Sustainable Value^{Env}</i>	Performance in 2003 -13,934,166,613 €
<i>Industry</i> Oil & Gas		<i>Return to Cost Ratio</i>	1 : 27.9
		<i>Rank</i>	62

Performance

	2001	2002	2003
Gross Value Added	298,281,000 €	177,270,000 €	518,629,000 €
Sales	3,578,193,000 €	3,799,575,000 €	5,128,333,000 €
CO ₂ -emissions [t]	4,536,021	4,923,379	7,310,077
NO _x -emissions [t]	3,236	3,190	5,673
SO _x -emissions [t]	12,606	11,180	25,395
Waste generated [t]	18,244	17,860	186,855
Water used [m ³]	86,241,000	79,874,000	574,600,000
VOC-emissions [t]	2,632	2,833	5,170
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	11,852,962,489 €	13,341,960,827 €	19,747,713,625 €	27,291,144,993 €
NO _x -emissions	2,963,230,835 €	3,108,913,479 €	5,697,392,799 €	10,970,145,785 €
SO _x -emissions	19,031,034,022 €	18,107,315,546 €	45,185,415,802 €	80,039,550,750 €
Waste generated	111,834,507 €	111,740,920 €	1,171,554,102 €	1,831,582,350 €
Water used	3,378,974,469 €	3,252,669,932 €	23,830,467,255 €	30,178,877,357 €
VOC-emissions	2,278,821,284 €	2,658,860,674 €	5,018,396,706 €	10,610,109,567 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-11,554,681,489 €	-13,164,690,827 €	-19,229,084,625 €	-26,772,515,993 €
NO _x -emissions	-2,664,949,835 €	-2,931,643,479 €	-5,178,763,799 €	-10,451,516,785 €
SO _x -emissions	-18,732,753,022 €	-17,930,045,546 €	-44,666,786,802 €	-79,520,921,750 €
Waste generated	186,446,493 €	65,529,080 €	-652,925,102 €	-1,312,953,350 €
Water used	-3,080,693,469 €	-3,075,399,932 €	-23,311,838,255 €	-29,660,248,357 €
VOC-emissions	-1,980,540,284 €	-2,481,590,674 €	-4,499,767,706 €	-10,091,480,567 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-5,403,881,658 €	-5,645,405,911 €	-13,934,166,613 €	-22,544,233,829 €
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Return to Cost Ratio	1 : 19.1	1 : 32.8	1 : 27.9	1 : 44.5
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Rank	58	63	62	61
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SV Margin	-151.0%	-148.6%	-271.7%	-439.6%
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FIAT Group

ADVANCE-Rating

		Performance in 2003	
Country	Italy	Sustainable Value ^{Env}	-5,167,821,763 €
Industry	Automobile	Return to Cost Ratio	1 : 1.8
		Rank	33

Performance			
	2001	2002	2003
Gross Value Added	8,697,000,000 €	3,599,000,000 €	6,369,000,000 €
Sales	58,006,000,000 €	55,649,000,000 €	47,271,000,000 €
CO ₂ -emissions [t]	5,931,837	5,322,928	4,656,618
NO _x -emissions [t]	9,418	7,763	6,905
SO _x -emissions [t]	12,243	9,326	7,998
Waste generated [t]	2,500,707	2,337,678	1,849,706
Water used [m ³]	113,223,504	67,955,797	51,360,893
VOC-emissions [t]	29,803	26,212	27,730
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	15,500,334,157 €	14,424,706,050 €	12,579,562,022 €	17,384,830,345 €
NO _x -emissions	8,624,033,816 €	7,565,836,451 €	6,934,641,029 €	13,352,427,284 €
SO _x -emissions	18,483,394,782 €	15,104,755,539 €	14,230,093,265 €	25,206,590,485 €
Waste generated	15,329,168,182 €	14,625,662,011 €	11,597,389,325 €	18,131,107,706 €
Water used	4,436,165,264 €	2,767,330,750 €	2,130,097,588 €	2,697,553,228 €
VOC-emissions	25,803,954,110 €	24,601,167,031 €	26,916,969,112 €	56,909,010,635 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-6,803,334,157 €	-10,825,706,050 €	-6,210,562,022 €	-11,015,830,345 €
NO _x -emissions	72,966,184 €	-3,966,836,451 €	-565,641,029 €	-6,983,427,284 €
SO _x -emissions	-9,786,394,782 €	-11,505,755,539 €	-7,861,093,265 €	-18,837,590,485 €
Waste generated	-6,632,168,182 €	-11,026,662,011 €	-5,228,389,325 €	-11,762,107,706 €
Water used	4,260,834,736 €	831,669,250 €	4,238,902,412 €	3,671,446,772 €
VOC-emissions	-17,106,954,110 €	-21,002,167,031 €	-20,547,969,112 €	-50,540,010,635 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-5,142,150,044 €	-8,213,636,833 €	-5,167,821,763 €	-13,638,217,098 €
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Return to Cost Ratio	1 : 1.6	1 : 3.3	1 : 1.8	1 : 3.1
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Rank	32	39	33	34
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SV Margin	-8.9%	-14.8%	-10.9%	-28.9%
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Fortum Corporation

ADVANCE-Rating

Country	Finland	Sustainable Value ^{Env}	Performance in 2003 -40,000,506,604 €
Industry	Utilities	Return to Cost Ratio	1 : 16.3
		Rank	58

Performance			
	2001	2002	2003
Gross Value Added	2,220,000,000 €	2,740,000,000 €	2,612,000,000 €
Sales	10,410,000,000 €	11,148,000,000 €	11,392,000,000 €
CO ₂ -emissions [t]	14,625,600	17,976,800	19,622,400
NO _x -emissions [t]	33,000	37,000	42,000
SO _x -emissions [t]	30,000	33,000	39,000
Waste generated [t]	183,200	316,330	470,800
Water used [m ³]	2,464,000,000	2,532,000,000	2,954,000,000
VOC-emissions [t]	5,600	5,800	5,800
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	38,217,787,831 €	48,715,681,121 €	53,008,680,461 €	73,257,472,323 €
NO _x -emissions	30,218,361,421 €	36,059,498,029 €	42,180,591,846 €	81,217,366,998 €
SO _x -emissions	45,290,418,901 €	53,447,353,580 €	69,392,841,751 €	122,919,569,964 €
Waste generated	1,123,003,815 €	1,979,115,627 €	2,951,848,604 €	4,614,856,282 €
Water used	96,541,008,246 €	103,109,400,654 €	122,511,660,759 €	155,148,631,593 €
VOC-emissions	4,848,555,924 €	5,443,484,613 €	5,629,922,803 €	11,903,024,272 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-35,997,787,831 €	-45,975,681,121 €	-50,396,680,461 €	-70,645,472,323 €
NO _x -emissions	-27,998,361,421 €	-33,319,498,029 €	-39,568,591,846 €	-78,605,366,998 €
SO _x -emissions	-43,070,418,901 €	-50,707,353,580 €	-66,780,841,751 €	-120,307,569,964 €
Waste generated	1,096,996,185 €	760,884,373 €	-339,848,604 €	-2,002,856,282 €
Water used	-94,321,008,246 €	-100,369,400,654 €	-119,899,660,759 €	-152,536,631,593 €
VOC-emissions	-2,628,555,924 €	-2,703,484,613 €	-3,017,922,803 €	-9,291,024,272 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-28,988,448,020 €	-33,187,790,518 €	-40,000,506,604 €	-61,912,703,062 €
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Return to Cost Ratio	1 : 14.1	1 : 13.1	1 : 16.3	1 : 24.7
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Rank	56	57	58	58
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SV Margin	-278.5%	-297.7%	-351.1%	-543.5%
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Gorenje Group**ADVANCE-Rating**

<i>Country</i>	Slovenia	<i>Sustainable Value^{Env}</i>	Performance in 2003 173,345,874 €
<i>Industry</i>	Household Goods	<i>Return to Cost Ratio</i>	4.3 : 1
		<i>Rank</i>	3

Performance			
	2001	2002	2003
Gross Value Added	176,079,029 €	202,876,030 €	226,611,633 €
Sales	741,240,474 €	815,015,690 €	851,641,086 €
CO ₂ -emissions [t]	5,086	5,292	5,401
NO _x -emissions [t]	2	2	2
SO _x -emissions [t]	0.1	0.1	0.1
Waste generated [t]	15,803	15,391	15,681
Water used [m ³]	520,130	493,113	540,542
VOC-emissions [t]	14	9	9
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	13,290,099 €	14,340,894 €	14,590,462 €	20,163,874 €
NO _x -emissions	1,831,416 €	1,949,162 €	2,008,600 €	3,867,494 €
SO _x -emissions	150,968 €	161,962 €	177,930 €	315,178 €
Waste generated	96,871,339 €	96,293,645 €	98,317,625 €	153,707,649 €
Water used	20,379,008 €	20,080,800 €	22,417,975 €	28,390,099 €
VOC-emissions	12,121,390 €	8,446,786 €	8,736,087 €	18,470,210 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	162,788,930 €	188,535,136 €	212,021,171 €	206,447,759 €
NO _x -emissions	174,247,613 €	200,926,868 €	224,603,033 €	222,744,139 €
SO _x -emissions	175,928,061 €	202,714,068 €	226,433,703 €	226,296,455 €
Waste generated	79,207,690 €	106,582,385 €	128,294,008 €	72,903,984 €
Water used	155,700,022 €	182,795,230 €	204,193,658 €	198,221,534 €
VOC-emissions	163,957,639 €	194,429,243 €	217,875,546 €	208,141,423 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	130,261,422 €	153,711,847 €	173,345,874 €	162,107,899 €
Return to Cost Ratio	3.8 : 1	4.1 : 1	4.3 : 1	3.5 : 1
Rank	6	4	3	2
SV Margin	17.6%	18.9%	20.4%	19.0%

Heidelberger Druckmaschinen

ADVANCE-Rating

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,045,327,850 €
<i>Industry</i>	Engineering & Machinery	<i>Return to Cost Ratio</i>	3.4 : 1
		<i>Rank</i>	8

Performance			
	2001	2002	2003
Gross Value Added	2,155,773,000 €	1,748,867,000 €	1,486,646,000 €
Sales	5,016,585,000 €	4,129,893,000 €	3,660,720,000 €
CO ₂ -emissions [t]	241,200	222,200	221,000
NO _x -emissions [t]	310	300	280
SO _x -emissions [t]	170	140	139
Waste generated [t]	52,708	45,048	44,000
Water used [m ³]	495,300	433,400	462,004
VOC-emissions [t]	235	195	188
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	630,273,659 €	602,144,116 €	597,017,612 €	825,072,437 €
NO _x -emissions	283,869,456 €	292,374,308 €	281,203,946 €	541,449,113 €
SO _x -emissions	256,645,707 €	226,746,349 €	247,323,205 €	438,097,954 €
Waste generated	323,096,534 €	281,842,382 €	275,873,701 €	431,294,980 €
Water used	19,406,153 €	17,649,137 €	19,160,774 €	24,265,183 €
VOC-emissions	203,639,349 €	182,826,000 €	182,001,815 €	384,796,043 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,525,499,341 €	1,146,722,884 €	889,628,388 €	661,573,563 €
NO _x -emissions	1,871,903,544 €	1,456,492,692 €	1,205,442,054 €	945,196,887 €
SO _x -emissions	1,899,127,293 €	1,522,120,651 €	1,239,322,795 €	1,048,548,046 €
Waste generated	1,832,676,466 €	1,467,024,618 €	1,210,772,299 €	1,055,351,020 €
Water used	2,136,366,847 €	1,731,217,863 €	1,467,485,226 €	1,462,380,817 €
VOC-emissions	1,952,133,651 €	1,566,041,000 €	1,304,644,185 €	1,101,849,957 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,602,529,592 €	1,269,945,673 €	1,045,327,850 €	896,414,327 €
Return to Cost Ratio	3.9 : 1	3.7 : 1	3.4 : 1	2.5 : 1
Rank	5	7	8	10
SV Margin	31.9%	30.8%	28.6%	24.5%

Heineken Group

ADVANCE-Rating

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 945,376,403 €
<i>Industry</i>	Beverages	<i>Return to Cost Ratio</i>	1.3 : 1
		<i>Rank</i>	27

Performance			
	2001	2002	2003
Gross Value Added	3,119,000,000 €	3,453,000,000 €	3,698,000,000 €
Sales	9,333,000,000 €	10,293,000,000 €	9,255,000,000 €
CO ₂ -emissions [t]	946,625	1,019,946	1,117,850
NO _x -emissions [t]	647	680	1,654
SO _x -emissions [t]	2,093	1,803	1,961
Waste generated [t]	206,831	223,197	243,214
Water used [m ³]	45,200,000	48,897,226	52,501,333
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,473,602,874 €	2,763,970,572 €	3,019,800,920 €	4,173,335,016 €
NO _x -emissions	592,463,025 €	662,364,919 €	1,661,007,188 €	3,198,215,684 €
SO _x -emissions	3,159,761,559 €	2,920,410,811 €	3,489,246,779 €	6,180,705,426 €
Waste generated	1,267,862,117 €	1,396,432,304 €	1,524,915,051 €	2,384,019,218 €
Water used	1,770,963,301 €	1,991,217,873 €	2,177,395,240 €	2,757,450,922 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	645,397,126 €	689,029,428 €	678,199,080 €	-475,335,016 €
NO _x -emissions	2,526,536,975 €	2,790,635,081 €	2,036,992,812 €	499,784,316 €
SO _x -emissions	-40,761,559 €	532,589,189 €	208,753,221 €	-2,482,705,426 €
Waste generated	1,851,137,883 €	2,056,567,696 €	2,173,084,949 €	1,313,980,782 €
Water used	1,348,036,699 €	1,461,782,127 €	1,520,604,760 €	940,549,078 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	904,335,303 €	1,075,800,503 €	945,376,403 €	-29,103,752 €
Return to Cost Ratio	1.4 : 1	1.5 : 1	1.3 : 1	1 : 1
Rank	24	25	27	27
SV Margin	9.7%	10.5%	10.2%	-0.3%



Henkel KGaA**ADVANCE-Rating**

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,727,305,657 €
<i>Industry</i>	Personal Care and Household Products	<i>Return to Cost Ratio</i>	2.5 : 1
		<i>Rank</i>	16

Performance			
	2001	2002	2003
Gross Value Added	3,108,000,000 €	2,948,000,000 €	2,906,000,000 €
Sales	9,410,000,000 €	9,656,000,000 €	9,436,000,000 €
CO ₂ -emissions [t]	627,778	682,222	718,889
NO _x -emissions [t]	507	528	588
SO _x -emissions [t]	700	500	489
Waste generated [t]	172,222	183,333	194,444
Water used [m ³]	7,825,556	8,611,111	9,253,333
VOC-emissions [t]	311	381	350
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,640,430,336 €	1,848,767,313 €	1,942,033,156 €	2,683,870,621 €
NO _x -emissions	463,958,680 €	514,362,209 €	590,305,108 €	1,136,613,416 €
SO _x -emissions	1,056,776,441 €	809,808,388 €	869,881,777 €	1,540,872,102 €
Waste generated	1,055,710,767 €	1,147,023,251 €	1,219,138,832 €	1,905,975,289 €
Water used	306,609,993 €	350,666,076 €	383,764,805 €	485,999,324 €
VOC-emissions	269,364,218 €	357,684,908 €	339,736,721 €	718,285,947 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,467,569,664 €	1,099,232,687 €	963,966,844 €	222,129,379 €
NO _x -emissions	2,644,041,320 €	2,433,637,791 €	2,315,694,892 €	1,769,386,584 €
SO _x -emissions	2,051,223,559 €	2,138,191,612 €	2,036,118,223 €	1,365,127,898 €
Waste generated	2,052,289,233 €	1,800,976,749 €	1,686,861,168 €	1,000,024,711 €
Water used	2,801,390,007 €	2,597,333,924 €	2,522,235,195 €	2,420,000,676 €
VOC-emissions	2,838,635,782 €	2,590,315,092 €	2,566,263,279 €	2,187,714,053 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,979,307,081 €	1,808,526,836 €	1,727,305,657 €	1,280,626,186 €
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Return to Cost Ratio	2.8 : 1	2.6 : 1	2.5 : 1	1.8 : 1
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Rank	13	14	16	17
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SV Margin	21.0%	18.7%	18.3%	13.6%
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Holmen AB**ADVANCE-Rating**

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 -686,700,910 €
<i>Industry</i>	Forestry & Paper	<i>Return to Cost Ratio</i>	1 : 2.1
		<i>Rank</i>	34

Performance			
	2001	2002	2003
Gross Value Added	641,370,980 €	679,566,840 €	644,135,000 €
Sales	1,802,570,650 €	1,756,366,820 €	1,734,066,240 €
CO ₂ -emissions [t]	586,867	664,465	705,510
NO _x -emissions [t]	1,380	1,980	2,030
SO _x -emissions [t]	450	510	515
Waste generated [t]	101,000	82,000	75,100
Water used [m ³]	64,000,000	65,000,000	65,000,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,533,527,410 €	1,800,646,670 €	1,905,890,928 €	2,633,922,420 €
NO _x -emissions	1,263,990,889 €	1,929,670,435 €	2,038,728,606 €	3,925,506,072 €
SO _x -emissions	679,356,284 €	826,004,555 €	916,341,372 €	1,623,168,680 €
Waste generated	619,123,282 €	513,032,218 €	470,866,249 €	736,142,113 €
Water used	2,507,558,656 €	2,646,963,287 €	2,695,754,214 €	3,413,900,154 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-892,156,430 €	-1,121,079,830 €	-1,261,755,928 €	-1,989,787,420 €
NO _x -emissions	-622,619,909 €	-1,250,103,595 €	-1,394,593,606 €	-3,281,371,072 €
SO _x -emissions	-37,985,304 €	-146,437,715 €	-272,206,372 €	-979,033,680 €
Waste generated	22,247,698 €	166,534,622 €	173,268,751 €	-92,007,113 €
Water used	-1,866,187,676 €	-1,967,396,447 €	-2,051,619,214 €	-2,769,765,154 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-485,243,089 €	-616,926,138 €	-686,700,910 €	-1,301,709,206 €
Return to Cost Ratio	1 : 1.8	1 : 1.9	1 : 2.1	1 : 3
Rank	33	32	34	33
SV Margin	-26.9%	-35.1%	-39.6%	-75.1%



ICI Group

ADVANCE-Rating

		Performance in 2003	
Country	United Kingdom	Sustainable Value ^{Env}	-1,179,280,321 €
Industry	Chemicals	Return to Cost Ratio	1 : 1.4
		Rank	31

Performance			
	2001	2002	2003
Gross Value Added	3,470,720,850 €	3,213,541,350 €	2,929,899,900 €
Sales	10,338,146,250 €	9,748,856,250 €	8,458,531,350 €
CO ₂ -emissions [t]	2,637,001	2,290,038	2,412,322
NO _x -emissions [t]	2,947	3,831	3,924
SO _x -emissions [t]	4,154	4,452	4,413
Waste generated [t]	671,534	615,565	644,811
Water used [m ³]	104,261,613	59,135,375	102,351,244
VOC-emissions [t]	4,642	1,915	2,232
CH ₄ -emissions [t]	2	0.01	0.3

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	6,890,681,047 €	6,205,818,664 €	6,516,736,284 €	9,006,065,117 €
NO _x -emissions	2,698,591,246 €	3,733,619,918 €	3,940,872,438 €	7,588,022,574 €
SO _x -emissions	6,271,319,015 €	7,210,679,648 €	7,852,227,077 €	13,909,105,770 €
Waste generated	4,116,458,755 €	3,851,276,549 €	4,042,872,665 €	6,320,539,707 €
Water used	4,085,032,971 €	2,408,141,024 €	4,244,827,652 €	5,375,645,040 €
VOC-emissions	4,019,106,536 €	1,797,288,454 €	2,166,549,603 €	4,580,612,099 €
CH ₄ -emissions	1,062,328 €	5,639 €	175,825 €	173,911 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-3,419,960,197 €	-2,992,277,314 €	-3,586,836,384 €	-6,076,165,217 €
NO _x -emissions	772,129,604 €	-520,078,568 €	-1,010,972,538 €	-4,658,122,674 €
SO _x -emissions	-2,800,598,165 €	-3,997,138,298 €	-4,922,327,177 €	-10,979,205,870 €
Waste generated	-645,737,905 €	-637,735,199 €	-1,112,972,765 €	-3,390,639,807 €
Water used	-614,312,121 €	805,400,326 €	-1,314,927,752 €	-2,445,745,140 €
VOC-emissions	-548,385,686 €	1,416,252,896 €	763,350,297 €	-1,650,712,199 €
CH ₄ -emissions	3,469,658,522 €	3,213,535,711 €	2,929,724,075 €	2,929,725,989 €

Sustainable Value ^{Env}	-541,029,421 €	-387,434,350 €	-1,179,280,321 €	-3,752,980,703 €
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Return to Cost Ratio	1 : 1.2	1 : 1.1	1 : 1.4	1 : 2.3
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Rank	29	30	31	32
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SV Margin	-5.2%	-4.0%	-13.9%	-44.4%
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Kemira Oyj**ADVANCE-Rating**

<i>Country</i>	Finland	<i>Sustainable Value^{Env}</i>	Performance in 2003 -6,383,372,500 €
<i>Industry</i>	Chemicals	<i>Return to Cost Ratio</i>	1 : 9.2
		<i>Rank</i>	56

Performance			
	2001	2002	2003
Gross Value Added	739,000,000 €	775,800,000 €	781,100,000 €
Sales	2,454,400,000 €	2,612,300,000 €	2,738,200,000 €
CO ₂ -emissions [t]	2,752,903	2,802,565	2,795,609
NO _x -emissions [t]	4,583	3,950	4,038
SO _x -emissions [t]	4,272	4,580	4,436
Waste generated [t]	2,376,737	2,314,858	2,327,473
Water used [m ³]	393,000,000	351,000,000	364,000,000
VOC-emissions [t]	208	199	186
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	7,193,541,651 €	7,594,725,583 €	7,552,162,028 €	10,437,013,257 €
NO _x -emissions	4,196,689,406 €	3,849,595,060 €	4,055,362,616 €	7,808,469,713 €
SO _x -emissions	6,449,355,651 €	7,417,844,830 €	7,892,990,923 €	13,981,313,137 €
Waste generated	14,569,239,729 €	14,482,886,990 €	14,592,922,530 €	22,814,259,547 €
Water used	15,397,977,370 €	14,293,601,749 €	15,096,223,601 €	19,117,840,860 €
VOC-emissions	180,089,220 €	186,767,834 €	180,545,800 €	381,717,675 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-6,454,541,651 €	-6,818,925,583 €	-6,771,062,028 €	-9,655,913,257 €
NO _x -emissions	-3,457,689,406 €	-3,073,795,060 €	-3,274,262,616 €	-7,027,369,713 €
SO _x -emissions	-5,710,355,651 €	-6,642,044,830 €	-7,111,890,923 €	-13,200,213,137 €
Waste generated	-13,830,239,729 €	-13,707,086,990 €	-13,811,822,530 €	-22,033,159,547 €
Water used	-14,658,977,370 €	-13,517,801,749 €	-14,315,123,601 €	-18,336,740,860 €
VOC-emissions	558,910,780 €	589,032,166 €	600,554,200 €	399,382,325 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-6,221,841,861 €	-6,167,231,721 €	-6,383,372,500 €	-9,979,144,884 €
Return to Cost Ratio	1 : 9.4	1 : 8.9	1 : 9.2	1 : 13.8
Rank	55	56	56	54
SV Margin	-253.5%	-236.1%	-233.1%	-364.4%



MAN Group**ADVANCE-Rating**

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 2,911,193,152 €
<i>Industry</i>	Engineering & Machinery	<i>Return to Cost Ratio</i>	2.5 : 1
		<i>Rank</i>	14

Performance			
	2001	2002	2003
Gross Value Added	N/A	4,984,000,000 €	4,848,000,000 €
Sales	N/A	16,040,000,000 €	15,021,000,000 €
CO ₂ -emissions [t]	N/A	565,557	576,026
NO _x -emissions [t]	N/A	576	524
SO _x -emissions [t]	N/A	63	56
Waste generated [t]	N/A	189,362	194,113
Water used [m ³]	N/A	13,360,848	11,160,717
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	N/A	1,532,614,810 €	1,556,098,554 €	2,150,512,817 €
NO _x -emissions	N/A	560,978,348 €	526,061,803 €	1,012,915,008 €
SO _x -emissions	N/A	102,707,405 €	99,556,275 €	176,349,810 €
Waste generated	N/A	1,184,742,767 €	1,217,061,320 €	1,902,727,351 €
Water used	N/A	544,087,277 €	462,869,984 €	586,178,036 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	N/A	3,451,385,190 €	3,291,901,446 €	2,697,487,183 €
NO _x -emissions	N/A	4,423,021,652 €	4,321,938,197 €	3,835,084,992 €
SO _x -emissions	N/A	4,881,292,595 €	4,748,443,725 €	4,671,650,190 €
Waste generated	N/A	3,799,257,233 €	3,630,938,680 €	2,945,272,649 €
Water used	N/A	4,439,912,723 €	4,385,130,016 €	4,261,821,964 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	N/A	2,999,267,056 €	2,911,193,152 €	2,630,188,140 €
Return to Cost Ratio	N/A	2.5 : 1	2.5 : 1	2.2 : 1
Rank	N/A	15	14	12
SV Margin	N/A	18.7%	19.4%	17.5%

M-Real Corporation**ADVANCE-Rating**

<i>Country</i> Finland		Performance in 2003	
<i>Industry</i> Forestry & Paper		<i>Sustainable Value^{Env}</i> -3,484,338,448 €	
		<i>Return to Cost Ratio</i> 1 : 3.2	
		<i>Rank</i> 42	

Performance			
	2001	2002	2003
Gross Value Added	1,947,500,000 €	1,865,400,000 €	1,604,300,000 €
Sales	6,923,300,000 €	6,564,200,000 €	6,044,100,000 €
CO ₂ -emissions [t]	2,992,723	2,882,720	3,019,287
NO _x -emissions [t]	7,063	6,765	6,996
SO _x -emissions [t]	5,863	5,056	5,033
Waste generated [t]	202,262	148,804	170,080
Water used [m ³]	183,149,091	183,461,818	173,796,364
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	7,820,209,267 €	7,811,939,182 €	8,156,414,088 €	11,272,083,631 €
NO _x -emissions	6,467,395,314 €	6,593,483,644 €	7,026,446,642 €	13,529,196,026 €
SO _x -emissions	8,850,845,803 €	8,189,371,367 €	8,954,749,929 €	15,862,068,516 €
Waste generated	1,239,851,493 €	930,988,531 €	1,066,377,253 €	1,667,151,139 €
Water used	7,175,892,003 €	7,471,026,112 €	7,207,881,226 €	9,128,052,808 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-5,872,709,267 €	-5,946,539,182 €	-6,552,114,088 €	-9,667,783,631 €
NO _x -emissions	-4,519,895,314 €	-4,728,083,644 €	-5,422,146,642 €	-11,924,896,026 €
SO _x -emissions	-6,903,345,803 €	-6,323,971,367 €	-7,350,449,929 €	-14,257,768,516 €
Waste generated	707,648,507 €	934,411,469 €	537,922,747 €	-62,851,139 €
Water used	-5,228,392,003 €	-5,605,626,112 €	-5,603,581,226 €	-7,523,752,808 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-3,116,670,554 €	-3,095,686,977 €	-3,484,338,448 €	-6,205,293,160 €
Return to Cost Ratio	1 : 2.6	1 : 2.7	1 : 3.2	1 : 4.9
Rank	37	37	42	41
SV Margin	-45.0%	-47.2%	-57.6%	-102.7%

MVM Group**ADVANCE-Rating**

<i>Country</i>	Hungary	<i>Sustainable Value^{Env}</i>	Performance in 2003 -49,084,322,299 €
<i>Industry</i>	Utilities	<i>Return to Cost Ratio</i>	1 : 188.3
		<i>Rank</i>	65

Performance			
	2001	2002	2003
Gross Value Added	301,856,100 €	139,416,680 €	262,076,760 €
Sales	1,534,357,500 €	1,634,741,840 €	1,648,504,440 €
CO ₂ -emissions [t]	2,400,159	2,406,989	2,215,878
NO _x -emissions [t]	6,084	5,631	4,245
SO _x -emissions [t]	117,998	116,307	126,330
Waste generated [t]	823,220	863,690	826,613
Water used [m ³]	3,118,691,000	3,124,340,000	2,524,264,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	6,271,795,169 €	6,522,746,461 €	5,986,055,164 €	8,272,669,055 €
NO _x -emissions	5,571,350,138 €	5,487,865,768 €	4,263,252,676 €	8,208,755,307 €
SO _x -emissions	178,139,747,886 €	188,372,768,267 €	224,779,428,164 €	398,164,853,168 €
Waste generated	5,046,283,846 €	5,403,668,244 €	5,182,745,179 €	8,102,591,750 €
Water used	122,192,197,056 €	127,230,973,475 €	104,689,158,711 €	132,578,234,726 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-5,969,939,069 €	-6,383,329,781 €	-5,723,978,404 €	-8,010,592,295 €
NO _x -emissions	-5,269,494,038 €	-5,348,449,088 €	-4,001,175,916 €	-7,946,678,547 €
SO _x -emissions	-177,837,891,786 €	-188,233,351,587 €	-224,517,351,404 €	-397,902,776,408 €
Waste generated	-4,744,427,746 €	-5,264,251,564 €	-4,920,668,419 €	-7,840,514,990 €
Water used	-121,890,340,956 €	-127,091,556,795 €	-104,427,081,951 €	-132,316,157,966 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-45,101,727,657 €	-47,474,419,831 €	-49,084,322,299 €	-79,145,245,744 €
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Return to Cost Ratio	1 : 150.4	1 : 341.5	1 : 188.3	1 : 303
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Rank	64	65	65	65
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SV Margin	-2939.5%	-2904.1%	-2977.5%	-4801.0%
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NedCar B.V.**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 332,640,428 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	2.9 : 1
		<i>Rank</i>	11

Performance			
	2001	2002	2003
Gross Value Added	567,209,000 €	559,412,000 €	503,764,000 €
Sales	2,667,217,000 €	2,603,235,000 €	2,330,832,000 €
CO ₂ -emissions [t]	35,500	29,450	29,994
NO _x -emissions [t]	32	27	27
SO _x -emissions [t]	0	0	0
Waste generated [t]	7,756	9,957	10,780
Water used [m ³]	548,645	401,210	342,468
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	92,764,158 €	79,807,130 €	81,026,906 €	111,978,383 €
NO _x -emissions	28,936,370 €	25,826,397 €	27,517,815 €	52,984,663 €
SO _x -emissions	0 €	0 €	0 €	0 €
Waste generated	47,543,764 €	62,294,624 €	67,589,057 €	105,667,270 €
Water used	21,496,250 €	16,338,263 €	14,203,224 €	17,986,947 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	474,444,842 €	479,604,870 €	422,737,094 €	391,785,617 €
NO _x -emissions	538,272,630 €	533,585,603 €	476,246,185 €	450,779,337 €
SO _x -emissions	567,209,000 €	559,412,000 €	503,764,000 €	503,764,000 €
Waste generated	519,665,236 €	497,117,376 €	436,174,943 €	398,096,730 €
Water used	545,712,750 €	543,073,737 €	489,560,776 €	485,777,053 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	377,900,637 €	373,256,227 €	332,640,428 €	318,600,391 €
Return to Cost Ratio	3 : 1	3 : 1	2.9 : 1	2.7 : 1
Rank	9	10	11	7
SV Margin	14.2%	14.3%	14.3%	13.7%



Novonordisk A/S

ADVANCE-Rating

<i>Country</i>	Denmark	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,803,753,359 €
<i>Industry</i>	Pharmaceuticals	<i>Return to Cost Ratio</i>	4.4 : 1
		<i>Rank</i>	2

Performance			
	2001	2002	2003
Gross Value Added	1,896,811,200 €	2,147,483,130 €	2,331,426,240 €
Sales	3,191,690,240 €	3,390,925,810 €	3,573,480,240 €
CO ₂ -emissions [t]	143,000	149,000	153,000
NO _x -emissions [t]	251	283	291
SO _x -emissions [t]	245	162	158
Waste generated [t]	14,866	12,935	21,356
Water used [m ³]	1,790,000	2,044,000	2,621,000
VOC-emissions [t]	75	149	137
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	373,669,707 €	403,778,008 €	413,319,885 €	571,203,995 €
NO _x -emissions	229,842,688 €	275,806,431 €	292,251,244 €	562,720,328 €
SO _x -emissions	369,871,754 €	262,377,918 €	281,129,974 €	497,981,848 €
Waste generated	91,127,591 €	80,927,704 €	133,899,063 €	209,334,900 €
Water used	70,133,281 €	83,236,815 €	108,701,105 €	137,658,958 €
VOC-emissions	64,936,017 €	139,841,243 €	132,982,659 €	281,157,642 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,523,141,493 €	1,743,705,122 €	1,918,106,355 €	1,760,222,245 €
NO _x -emissions	1,666,968,512 €	1,871,676,699 €	2,039,174,996 €	1,768,705,912 €
SO _x -emissions	1,526,939,446 €	1,885,105,212 €	2,050,296,266 €	1,833,444,392 €
Waste generated	1,805,683,609 €	2,066,555,426 €	2,197,527,177 €	2,122,091,340 €
Water used	1,826,677,919 €	2,064,246,315 €	2,222,725,135 €	2,193,767,282 €
VOC-emissions	1,831,875,183 €	2,007,641,887 €	2,198,443,581 €	2,050,268,598 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,454,469,452 €	1,662,704,380 €	1,803,753,359 €	1,675,499,967 €
Return to Cost Ratio	4.3 : 1	4.4 : 1	4.4 : 1	3.6 : 1
Rank	4	2	2	1
SV Margin	45.6%	49.0%	50.5%	46.9%



Novozymes A/S**ADVANCE-Rating**

<i>Country</i>	Denmark	<i>Sustainable Value^{Env}</i>	Performance in 2003 188,204,358 €
<i>Industry</i>	Biotech	<i>Return to Cost Ratio</i>	1.7 : 1
		<i>Rank</i>	21

Performance			
	2001	2002	2003
Gross Value Added	399,900,960 €	435,797,310 €	456,294,960 €
Sales	707,579,040 €	759,582,460 €	781,315,920 €
CO ₂ -emissions [t]	357,000	331,000	344,000
NO _x -emissions [t]	66	77	81
SO _x -emissions [t]	132	82	90
Waste generated [t]	8,695	9,781	10,190
Water used [m ³]	3,897,000	4,080,000	4,196,000
VOC-emissions [t]	8	16	12
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	932,867,729 €	896,983,359 €	929,294,382 €	1,284,275,648 €
NO _x -emissions	60,436,723 €	75,042,739 €	81,348,284 €	156,633,493 €
SO _x -emissions	199,277,843 €	132,808,576 €	160,137,327 €	283,660,546 €
Waste generated	53,299,772 €	61,194,733 €	63,889,841 €	99,883,996 €
Water used	152,686,814 €	166,147,849 €	174,021,303 €	220,380,385 €
VOC-emissions	6,926,508 €	15,016,509 €	11,648,116 €	24,626,947 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-532,966,769 €	-461,186,049 €	-472,999,422 €	-827,980,688 €
NO _x -emissions	339,464,237 €	360,754,571 €	374,946,676 €	299,661,467 €
SO _x -emissions	200,623,117 €	302,988,734 €	296,157,633 €	172,634,414 €
Waste generated	346,601,188 €	374,602,577 €	392,405,119 €	356,410,964 €
Water used	247,214,146 €	269,649,461 €	282,273,657 €	235,914,575 €
VOC-emissions	392,974,452 €	420,780,801 €	444,646,844 €	431,668,013 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	141,987,196 €	181,084,299 €	188,204,358 €	95,472,678 €
Return to Cost Ratio	1.6 : 1	1.7 : 1	1.7 : 1	1.3 : 1
Rank	22	21	21	22
SV Margin	20.1%	23.8%	24.1%	12.2%

OMV AG

ADVANCE-Rating

Country Austria		Performance in 2003	
Industry Oil & Gas		Sustainable Value ^{Env}	-7,462,535,912 €
		Return to Cost Ratio	1 : 5.8
		Rank	48

Performance			
	2001	2002	2003
Gross Value Added	1,431,642,555 €	1,321,187,686 €	1,544,058,622 €
Sales	7,736,384,000 €	7,079,402,000 €	7,644,432,000 €
CO ₂ -emissions [t]	4,800,000	5,000,000	5,700,000
NO _x -emissions [t]	6,891	6,686	6,542
SO _x -emissions [t]	5,750	5,947	6,006
Waste generated [t]	49,762	51,389	46,506
Water used [m ³]	21,070,000	19,870,000	21,850,000
VOC-emissions [t]	1,882	1,929	1,913
CH ₄ -emissions [t]	2,288	2,634	46,643

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	12,542,759,380 €	13,549,597,570 €	15,398,191,792 €	21,280,148,822 €
NO _x -emissions	6,310,143,290 €	6,516,048,752 €	6,570,129,330 €	12,650,571,783 €
SO _x -emissions	8,680,663,623 €	9,631,860,962 €	10,686,497,630 €	18,929,613,774 €
Waste generated	305,037,750 €	321,514,788 €	291,585,963 €	455,859,189 €
Water used	825,535,326 €	809,156,316 €	906,188,147 €	1,147,595,667 €
VOC-emissions	1,629,461,116 €	1,810,427,900 €	1,856,903,849 €	3,925,945,764 €
CH ₄ -emissions	1,215,303,442 €	1,485,326,802 €	27,336,665,029 €	27,039,147,902 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-11,111,116,825 €	-12,228,409,884 €	-13,854,133,170 €	-19,736,090,200 €
NO _x -emissions	-4,878,500,735 €	-5,194,861,066 €	-5,026,070,708 €	-11,106,513,161 €
SO _x -emissions	-7,249,021,068 €	-8,310,673,276 €	-9,142,439,008 €	-17,385,555,152 €
Waste generated	1,126,604,805 €	999,672,898 €	1,252,472,659 €	1,088,199,433 €
Water used	606,107,229 €	512,031,370 €	637,870,475 €	396,462,955 €
VOC-emissions	-197,818,561 €	-489,240,214 €	-312,845,227 €	-2,381,887,142 €
CH ₄ -emissions	216,339,113 €	-164,139,116 €	-25,792,606,407 €	-25,495,089,280 €

Sustainable Value ^{Env}	-3,069,629,435 €	-3,553,659,898 €	-7,462,535,912 €	-10,660,067,507 €
Return to Cost Ratio	1 : 3.1	1 : 3.7	1 : 5.8	1 : 7.9
Rank	40	40	48	46
SV Margin	-39.7%	-50.2%	-97.6%	-139.4%

Philips Electronics N.V.**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 7,598,054,795 €
<i>Industry</i>	Consumer Electronics	<i>Return to Cost Ratio</i>	3.6 : 1
		<i>Rank</i>	6

Performance			
	2001	2002	2003
Gross Value Added	10,287,000,000 €	11,302,000,000 €	10,509,000,000 €
Sales	32,339,000,000 €	31,820,000,000 €	29,037,000,000 €
CO ₂ -emissions [t]	2,106,869	2,025,536	1,457,000
NO _x -emissions [t]	1,504	1,670	1,162
SO _x -emissions [t]	689	838	426
Waste generated [t]	181,000	167,000	166,000
Water used [m ³]	19,077,986	17,502,739	14,200,000
VOC-emissions [t]	2,890	3,029	2,448
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	5,505,406,440 €	5,489,039,533 €	3,935,993,937 €	5,439,504,708 €
NO _x -emissions	1,377,089,608 €	1,627,525,054 €	1,166,600,418 €	2,246,251,419 €
SO _x -emissions	1,039,936,499 €	1,356,828,569 €	758,719,443 €	1,343,963,806 €
Waste generated	1,109,517,961 €	1,044,833,907 €	1,040,796,237 €	1,627,158,332 €
Water used	747,486,995 €	712,755,501 €	588,918,613 €	745,805,880 €
VOC-emissions	2,502,187,918 €	2,843,020,261 €	2,376,587,789 €	5,024,683,840 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	4,781,593,560 €	5,812,960,467 €	6,573,006,063 €	5,069,495,292 €
NO _x -emissions	8,909,910,392 €	9,674,474,946 €	9,342,399,582 €	8,262,748,581 €
SO _x -emissions	9,247,063,501 €	9,945,171,431 €	9,750,280,557 €	9,165,036,194 €
Waste generated	9,177,482,039 €	10,257,166,093 €	9,468,203,763 €	8,881,841,668 €
Water used	9,539,513,005 €	10,589,244,499 €	9,920,081,387 €	9,763,194,120 €
VOC-emissions	7,784,812,082 €	8,458,979,739 €	8,132,412,211 €	5,484,316,160 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	7,062,910,654 €	7,819,713,882 €	7,598,054,795 €	6,660,947,431 €
Return to Cost Ratio	3.2 : 1	3.2 : 1	3.6 : 1	2.7 : 1
Rank	8	8	6	6
SV Margin	21.8%	24.6%	26.2%	22.9%

Pilkington plc**ADVANCE-Rating**

<i>Country</i>	United Kingdom	<i>Sustainable Value^{Env}</i>	Performance in 2003 -4,271,035,368 €
<i>Industry</i>	Construction and Building Materials	<i>Return to Cost Ratio</i>	1 : 3.9
		<i>Rank</i>	43

Performance			
	2001	2002	2003
Gross Value Added	1,680,446,880 €	1,566,903,600 €	1,464,652,890 €
Sales	4,544,000,000 €	4,296,000,000 €	3,961,907,670 €
CO ₂ -emissions [t]	3,896,000	3,666,000	4,034,000
NO _x -emissions [t]	19,460	18,810	16,890
SO _x -emissions [t]	4,960	3,890	3,260
Waste generated [t]	990,293	897,407	481,767
Water used [m ³]	14,000,000	15,000,000	13,000,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	10,180,539,697 €	9,934,564,939 €	10,897,597,490 €	15,060,371,991 €
NO _x -emissions	17,819,676,159 €	18,331,869,133 €	16,962,623,721 €	32,660,984,014 €
SO _x -emissions	7,488,015,925 €	6,300,309,255 €	5,800,529,849 €	10,274,815,335 €
Waste generated	6,070,430,224 €	5,614,618,333 €	3,020,610,125 €	4,722,356,556 €
Water used	548,528,456 €	610,837,682 €	539,150,843 €	682,780,031 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-8,500,092,817 €	-8,367,661,339 €	-9,432,944,600 €	-13,595,719,101 €
NO _x -emissions	-16,139,229,279 €	-16,764,965,533 €	-15,497,970,831 €	-31,196,331,124 €
SO _x -emissions	-5,807,569,045 €	-4,733,405,655 €	-4,335,876,959 €	-8,810,162,445 €
Waste generated	-4,389,983,344 €	-4,047,714,733 €	-1,555,957,235 €	-3,257,703,666 €
Water used	1,131,918,424 €	956,065,918 €	925,502,047 €	781,872,859 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-4,814,993,723 €	-4,708,240,192 €	-4,271,035,368 €	-8,011,149,068 €
Return to Cost Ratio	1 : 3.9	1 : 4	1 : 3.9	1 : 6.5
Rank	43	44	43	43
SV Margin	-106.0%	-109.6%	-107.8%	-202.2%

Pirelli & C. SpA**ADVANCE-Rating**

		Performance in 2003	
Country	Italy	Sustainable Value ^{Env}	484,840,349 €
Industry	Autoparts	Return to Cost Ratio	1.3 : 1
		Rank	28

Performance			
	2001	2002	2003
Gross Value Added	2,335,000,000 €	1,990,000,000 €	2,026,000,000 €
Sales	7,762,000,000 €	6,718,000,000 €	6,671,000,000 €
CO ₂ -emissions [t]	1,435,632	1,330,342	1,370,613
NO _x -emissions [t]	845	737	772
SO _x -emissions [t]	0	0	0
Waste generated [t]	145,096	153,943	171,867
Water used [m ³]	29,632,531	29,898,051	29,960,663
VOC-emissions [t]	6,201	3,693	4,111
CH ₄ -emissions [t]	0	0	0

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	3,751,413,903 €	3,605,120,031 €	3,702,623,890 €	5,116,989,610 €
NO _x -emissions	773,641,469 €	718,112,336 €	774,896,587 €	1,492,038,346 €
SO _x -emissions	0 €	0 €	0 €	0 €
Waste generated	889,427,539 €	963,143,899 €	1,077,583,797 €	1,684,671,208 €
Water used	1,161,020,444 €	1,217,523,725 €	1,242,562,830 €	1,573,580,193 €
VOC-emissions	5,368,909,873 €	3,465,998,048 €	3,990,450,456 €	8,436,781,514 €
CH ₄ -emissions	0 €	0 €	0 €	0 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-1,416,413,903 €	-1,615,120,031 €	-1,676,623,890 €	-3,090,989,610 €
NO _x -emissions	1,561,358,531 €	1,271,887,664 €	1,251,103,413 €	533,961,654 €
SO _x -emissions	2,335,000,000 €	1,990,000,000 €	2,026,000,000 €	2,026,000,000 €
Waste generated	1,445,572,461 €	1,026,856,101 €	948,416,203 €	341,328,792 €
Water used	1,173,979,556 €	772,476,275 €	783,437,170 €	452,419,807 €
VOC-emissions	-3,033,909,873 €	-1,475,998,048 €	-1,964,450,456 €	-6,410,781,514 €
CH ₄ -emissions	2,335,000,000 €	1,990,000,000 €	2,026,000,000 €	2,026,000,000 €

Sustainable Value ^{Env}	628,655,253 €	565,728,852 €	484,840,349 €	-588,865,839 €
Return to Cost Ratio	1.4 : 1	1.4 : 1	1.3 : 1	1 : 1.3
Rank	26	28	28	29
SV Margin	8.1%	8.4%	7.3%	-8.8%



PSA Peugeot Citroën

ADVANCE-Rating

<i>Country</i> France		Performance in 2003	
<i>Industry</i> Automobile		<i>Sustainable Value^{Env}</i>	6,768,651,026 €
		<i>Return to Cost Ratio</i>	3 : 1
		<i>Rank</i>	10

Performance			
	2001	2002	2003
Gross Value Added	9,741,000,000 €	10,684,000,000 €	10,144,000,000 €
Sales	40,677,000,000 €	43,040,000,000 €	42,560,000,000 €
CO ₂ -emissions [t]	765,558	671,489	711,794
NO _x -emissions [t]	917	759	811
SO _x -emissions [t]	1,737	1,104	1,047
Waste generated [t]	531,836	474,866	440,624
Water used [m ³]	25,551,769	23,251,506	24,208,873
VOC-emissions [t]	16,006	16,002	15,694
CH ₄ -emissions [t]	40	41	45

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,000,461,652 €	1,819,681,145 €	1,922,866,759 €	2,657,382,851 €
NO _x -emissions	839,791,477 €	739,317,168 €	814,688,003 €	1,568,655,431 €
SO _x -emissions	2,621,622,387 €	1,787,894,958 €	1,863,286,766 €	3,300,548,043 €
Waste generated	3,260,118,823 €	2,970,994,598 €	2,762,649,404 €	4,319,066,343 €
Water used	1,001,133,749 €	946,859,735 €	1,004,018,022 €	1,271,487,312 €
VOC-emissions	13,858,419,174 €	15,018,386,341 €	15,233,794,564 €	32,207,941,884 €
CH ₄ -emissions	21,182,301 €	23,232,902 €	26,139,298 €	25,854,812 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	7,740,538,348 €	8,864,318,855 €	8,221,133,241 €	7,486,617,149 €
NO _x -emissions	8,901,208,523 €	9,944,682,832 €	9,329,311,997 €	8,575,344,569 €
SO _x -emissions	7,119,377,613 €	8,896,105,042 €	8,280,713,234 €	6,843,451,957 €
Waste generated	6,480,881,177 €	7,713,005,402 €	7,381,350,596 €	5,824,933,657 €
Water used	8,739,866,251 €	9,737,140,265 €	9,139,981,978 €	8,872,512,688 €
VOC-emissions	-4,117,419,174 €	-4,334,386,341 €	-5,089,794,564 €	-22,063,941,884 €
CH ₄ -emissions	9,719,817,699 €	10,660,767,098 €	10,117,860,702 €	10,118,145,188 €

Sustainable Value^{Env}	6,369,181,491 €	7,354,519,022 €	6,768,651,026 €	3,665,294,761 €
Return to Cost Ratio	2.9 : 1	3.2 : 1	3 : 1	1.6 : 1
Rank	10	9	10	19
SV Margin	15.7%	17.1%	15.9%	8.6%

Renault Group**ADVANCE-Rating**

<i>Country</i>	France	<i>Sustainable Value^{Env}</i>	Performance in 2003 4,033,665,898 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	1.9 : 1
		<i>Rank</i>	20

Performance			
	2001	2002	2003
Gross Value Added	7,272,000,000 €	8,514,000,000 €	8,740,000,000 €
Sales	36,351,000,000 €	36,336,000,000 €	37,525,000,000 €
CO ₂ -emissions [t]	635,772	720,322	745,701
NO _x -emissions [t]	755	831	828
SO _x -emissions [t]	688	751	702
Waste generated [t]	787,538	926,258	1,049,122
Water used [m ³]	19,060,300	20,945,000	20,682,200
VOC-emissions [t]	13,014	13,318	13,057
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,661,320,103 €	1,952,015,918 €	2,014,464,932 €	2,783,970,620 €
NO _x -emissions	691,637,881 €	809,764,153 €	831,258,949 €	1,600,562,254 €
SO _x -emissions	1,039,124,886 €	1,216,599,186 €	1,248,893,221 €	2,212,237,081 €
Waste generated	4,827,556,785 €	5,795,124,339 €	6,577,844,757 €	10,283,660,264 €
Water used	746,794,066 €	852,933,016 €	857,755,813 €	1,086,261,012 €
VOC-emissions	11,267,611,061 €	12,499,366,910 €	12,674,121,041 €	26,796,170,331 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	5,610,679,897 €	6,561,984,082 €	6,725,535,068 €	5,956,029,380 €
NO _x -emissions	6,580,362,119 €	7,704,235,847 €	7,908,741,051 €	7,139,437,746 €
SO _x -emissions	6,232,875,114 €	7,297,400,814 €	7,491,106,779 €	6,527,762,919 €
Waste generated	2,444,443,215 €	2,718,875,661 €	2,162,155,243 €	-1,543,660,264 €
Water used	6,525,205,934 €	7,661,066,984 €	7,882,244,187 €	7,653,738,988 €
VOC-emissions	-3,995,611,061 €	-3,985,366,910 €	-3,934,121,041 €	-18,056,170,331 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	3,342,565,031 €	3,994,028,068 €	4,033,665,898 €	1,096,734,063 €
Return to Cost Ratio	1.9 : 1	1.9 : 1	1.9 : 1	1.1 : 1
Rank	18	20	20	25
SV Margin	9.2%	11.0%	10.7%	2.9%

Repsol YPF Group

ADVANCE-Rating

Country	Spain	Sustainable Value ^{Env}	Performance in 2003 -55,854,211,710 €
Industry	Oil & Gas	Return to Cost Ratio	1 : 8.7
		Rank	53

Performance			
	2001	2002	2003
Gross Value Added	9,623,000,000 €	7,110,000,000 €	7,216,000,000 €
Sales	43,653,000,000 €	36,490,000,000 €	37,206,000,000 €
CO ₂ -emissions [t]	22,191,260	20,465,019	21,033,000
NO _x -emissions [t]	88,150	93,273	96,189
SO _x -emissions [t]	123,479	116,696	108,957
Waste generated [t]	1,177,060	645,899	499,584
Water used [m ³]	125,442,000	136,809,000	132,871,000
VOC-emissions [t]	67,278	54,975	56,143
CH ₄ -emissions [t]	45,000	62,000	53,000

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	57,987,424,283 €	55,458,554,263 €	56,819,327,714 €	78,523,749,152 €
NO _x -emissions	80,719,653,312 €	90,902,096,206 €	96,602,594,027 €	186,005,174,147 €
SO _x -emissions	186,413,854,515 €	189,002,799,193 €	193,867,586,119 €	343,408,912,425 €
Waste generated	7,215,299,511 €	4,041,060,931 €	3,132,320,164 €	4,897,001,616 €
Water used	4,914,893,326 €	5,571,206,159 €	5,510,577,819 €	6,978,589,651 €
VOC-emissions	58,250,204,550 €	51,595,787,347 €	54,496,682,058 €	115,219,222,709 €
CH ₄ -emissions	23,902,384,138 €	34,962,134,297 €	31,062,394,068 €	30,724,328,169 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-48,364,424,283 €	-48,348,554,263 €	-49,603,327,714 €	-71,307,749,152 €
NO _x -emissions	-71,096,653,312 €	-83,792,096,206 €	-89,386,594,027 €	-178,789,174,147 €
SO _x -emissions	-176,790,854,515 €	-181,892,799,193 €	-186,651,586,119 €	-336,192,912,425 €
Waste generated	2,407,700,489 €	3,068,939,069 €	4,083,679,836 €	2,318,998,384 €
Water used	4,708,106,674 €	1,538,793,841 €	1,705,422,181 €	237,410,349 €
VOC-emissions	-48,627,204,550 €	-44,485,787,347 €	-47,280,682,058 €	-108,003,222,709 €
CH ₄ -emissions	-14,279,384,138 €	-27,852,134,297 €	-23,846,394,068 €	-23,508,328,169 €

Sustainable Value ^{Env}	-50,291,816,234 €	-54,537,662,628 €	-55,854,211,710 €	-102,177,853,981 €
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Return to Cost Ratio	1 : 6.2	1 : 8.7	1 : 8.7	1 : 15.2
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Rank	49	55	53	56
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SV Margin	-115.2%	-149.5%	-150.1%	-274.6%
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Richter Gedeon Rt.**ADVANCE-Rating**

<i>Country</i>	Hungary	<i>Sustainable Value^{Env}</i>	Performance in 2003 65,527,374 €
<i>Industry</i>	Pharmaceuticals	<i>Return to Cost Ratio</i>	1.5 : 1
		<i>Rank</i>	24

Performance			
	2001	2002	2003
Gross Value Added	156,889,200 €	191,534,680 €	193,469,760 €
Sales	346,050,900 €	409,148,960 €	461,969,640 €
CO ₂ -emissions [t]	31,778	35,374	22,708
NO _x -emissions [t]	20	25	18
SO _x -emissions [t]	0	0	0
Waste generated [t]	18,592	20,423	22,106
Water used [m ³]	4,143,000	4,465,000	4,256,000
VOC-emissions [t]	469	529	516
CH ₄ -emissions [t]	0	0	0

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	83,038,293 €	95,860,693 €	61,344,235 €	84,777,126 €
NO _x -emissions	18,314,158 €	24,364,526 €	18,077,397 €	34,807,443 €
SO _x -emissions	0 €	0 €	0 €	0 €
Waste generated	113,966,252 €	127,773,302 €	138,599,324 €	216,683,186 €
Water used	162,325,242 €	181,826,017 €	176,509,691 €	223,531,678 €
VOC-emissions	406,326,303 €	496,054,403 €	501,066,053 €	1,059,375,342 €
CH ₄ -emissions	0 €	0 €	0 €	0 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	73,850,907 €	95,673,987 €	132,125,525 €	108,692,634 €
NO _x -emissions	138,575,042 €	167,170,154 €	175,392,363 €	158,662,317 €
SO _x -emissions	156,889,200 €	191,534,680 €	193,469,760 €	193,469,760 €
Waste generated	42,922,948 €	63,761,378 €	54,870,436 €	-23,213,426 €
Water used	-5,436,042 €	9,708,663 €	16,960,069 €	-30,061,918 €
VOC-emissions	-249,437,103 €	-304,519,723 €	-307,596,293 €	-865,905,582 €
CH ₄ -emissions	156,889,200 €	191,534,680 €	193,469,760 €	193,469,760 €

Sustainable Value^{Env}	44,893,450 €	59,266,260 €	65,527,374 €	-37,840,922 €
Return to Cost Ratio	1.4 : 1	1.4 : 1	1.5 : 1	1 : 1.2
Rank	25	26	24	28
SV Margin	13.0%	14.5%	14.2%	-8.2%

Robert Bosch GmbH**ADVANCE-Rating**

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 9,831,338,053 €
<i>Industry</i>	Engineering & Machinery	<i>Return to Cost Ratio</i>	2.7 : 1
		<i>Rank</i>	13

Performance			
	2001	2002	2003
Gross Value Added	13,591,000,000 €	15,116,000,000 €	15,613,000,000 €
Sales	34,029,000,000 €	34,977,000,000 €	36,357,000,000 €
CO ₂ -emissions [t]	260,000	308,341	623,615
NO _x -emissions [t]	437	445	727
SO _x -emissions [t]	69	68	91
Waste generated [t]	750,000	723,824	916,840
Water used [m ³]	18,000,000	18,046,091	22,194,575
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	679,399,466 €	835,579,293 €	1,684,656,732 €	2,328,178,949 €
NO _x -emissions	400,164,362 €	433,688,557 €	730,125,959 €	1,405,833,948 €
SO _x -emissions	104,167,963 €	110,133,941 €	161,916,631 €	286,812,330 €
Waste generated	4,597,450,116 €	4,528,597,950 €	5,748,455,553 €	8,987,011,116 €
Water used	705,250,872 €	734,882,159 €	920,478,755 €	1,165,693,277 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	12,911,600,534 €	14,280,420,707 €	13,928,343,268 €	13,284,821,051 €
NO _x -emissions	13,190,835,638 €	14,682,311,443 €	14,882,874,041 €	14,207,166,052 €
SO _x -emissions	13,486,832,037 €	15,005,866,059 €	15,451,083,369 €	15,326,187,670 €
Waste generated	8,993,549,884 €	10,587,402,050 €	9,864,544,447 €	6,625,988,884 €
Water used	12,885,749,128 €	14,381,117,841 €	14,692,521,245 €	14,447,306,723 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	8,781,223,889 €	9,848,159,729 €	9,831,338,053 €	9,127,352,912 €
Return to Cost Ratio	2.8 : 1	2.9 : 1	2.7 : 1	2.4 : 1
Rank	11	11	13	11
SV Margin	25.8%	28.2%	27.0%	25.1%

Royal DSM N.V.**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 -2,362,906,433 €
<i>Industry</i>	Chemicals	<i>Return to Cost Ratio</i>	1 : 2.2
		<i>Rank</i>	36

Performance			
	2001	2002	2003
Gross Value Added	1,992,000,000 €	1,984,000,000 €	1,938,000,000 €
Sales	5,751,000,000 €	5,636,000,000 €	6,050,000,000 €
CO ₂ -emissions [t]	8,000,000	4,900,000	5,000,000
NO _x -emissions [t]	5,500	3,450	3,550
SO _x -emissions [t]	1,000	810	810
Waste generated [t]	43,080	23,920	19,080
Water used [m ³]	55,300,000	56,862,745	58,000,000
VOC-emissions [t]	11,880	9,400	9,100
CH ₄ -emissions [t]	400	300	400

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	20,904,598,967 €	13,278,605,619 €	13,507,185,783 €	18,666,797,212 €
NO _x -emissions	5,036,393,570 €	3,362,304,546 €	3,565,264,311 €	6,864,801,258 €
SO _x -emissions	1,509,680,630 €	1,311,889,588 €	1,441,235,944 €	2,552,944,915 €
Waste generated	264,077,535 €	149,655,252 €	119,628,869 €	187,025,187 €
Water used	2,166,687,401 €	2,315,593,826 €	2,405,442,222 €	3,046,249,368 €
VOC-emissions	10,285,865,068 €	8,822,199,201 €	8,833,154,743 €	18,675,434,634 €
CH ₄ -emissions	212,465,637 €	169,171,618 €	234,433,163 €	231,881,722 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-18,912,598,967 €	-11,294,605,619 €	-11,569,185,783 €	-16,728,797,212 €
NO _x -emissions	-3,044,393,570 €	-1,378,304,546 €	-1,627,264,311 €	-4,926,801,258 €
SO _x -emissions	482,319,370 €	672,110,412 €	496,764,056 €	-614,944,915 €
Waste generated	1,727,922,465 €	1,834,344,748 €	1,818,371,131 €	1,750,974,813 €
Water used	-174,687,401 €	-331,593,826 €	-467,442,222 €	-1,108,249,368 €
VOC-emissions	-8,293,865,068 €	-6,838,199,201 €	-6,895,154,743 €	-16,737,434,634 €
CH ₄ -emissions	1,779,534,363 €	1,814,828,382 €	1,703,566,837 €	1,706,118,278 €

Sustainable Value^{Env}	-3,776,538,401 €	-2,217,345,664 €	-2,362,906,433 €	-5,237,019,185 €
Return to Cost Ratio	1 : 2.9	1 : 2.1	1 : 2.2	1 : 3.7
Rank	39	34	36	37
SV Margin	-65.7%	-39.3%	-39.1%	-86.6%



SCA

ADVANCE-Rating

Country Sweden		Performance in 2003
Industry Forestry & Paper		Sustainable Value ^{Env} -2,053,526,721 €
		Return to Cost Ratio 1 : 1.6
		Rank 32

Performance				
	2001	2002	2003	
Gross Value Added	3,398,000,000 €	3,689,000,000 €	3,563,000,000 €	
Sales	8,919,000,000 €	9,617,000,000 €	9,368,000,000 €	
CO ₂ -emissions [t]	3,129,549	3,592,281	3,854,053	
NO _x -emissions [t]	5,131	5,327	6,071	
SO _x -emissions [t]	2,496	2,102	2,175	
Waste generated [t]	362,418	508,481	435,177	
Water used [m ³]	163,000,000	178,000,000	219,000,000	
VOC-emissions [t]	N/A	N/A	N/A	
CH ₄ -emissions [t]	N/A	N/A	N/A	

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	8,177,745,849 €	9,734,792,382 €	10,411,481,978 €	14,388,565,159 €
NO _x -emissions	4,698,497,347 €	5,191,593,135 €	6,097,104,121 €	11,739,777,025 €
SO _x -emissions	3,768,162,853 €	3,404,434,461 €	3,869,985,405 €	6,855,129,863 €
Waste generated	2,221,598,235 €	3,181,306,525 €	2,728,497,494 €	4,265,673,985 €
Water used	6,386,438,451 €	7,248,607,155 €	9,082,618,045 €	11,502,217,440 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-4,779,745,849 €	-6,045,792,382 €	-6,848,481,978 €	-10,825,565,159 €
NO _x -emissions	-1,300,497,347 €	-1,502,593,135 €	-2,534,104,121 €	-8,176,777,025 €
SO _x -emissions	-370,162,853 €	284,565,539 €	-306,985,405 €	-3,292,129,863 €
Waste generated	1,176,401,765 €	507,693,475 €	834,502,506 €	-702,673,985 €
Water used	-2,988,438,451 €	-3,559,607,155 €	-5,519,618,045 €	-7,939,217,440 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-1,180,348,962 €	-1,473,676,237 €	-2,053,526,721 €	-4,419,480,496 €
Return to Cost Ratio	1 : 1.3	1 : 1.4	1 : 1.6	1 : 2.2
Rank	31	31	32	31
SV Margin	-13.2%	-15.3%	-21.9%	-47.2%



Scania Group

ADVANCE-Rating

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 918,892,898 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	2 : 1
		<i>Rank</i>	19

Performance			
	2001	2002	2003
Gross Value Added	1,439,610,428 €	1,680,677,360 €	1,872,760,840 €
Sales	5,228,591,300 €	5,164,467,700 €	5,545,700,840 €
CO ₂ -emissions [t]	75,790	72,000	74,000
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	89,410	83,600	90,000
Water used [m ³]	626,088	580,000	550,000
VOC-emissions [t]	428	300	280
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	198,043,899 €	195,114,205 €	199,906,350 €	276,268,599 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	548,075,882 €	523,042,602 €	564,287,116 €	882,194,276 €
Water used	24,530,506 €	23,619,057 €	22,810,228 €	28,886,847 €
VOC-emissions	370,893,749 €	281,559,549 €	271,789,377 €	574,628,758 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,241,566,529 €	1,485,563,155 €	1,672,854,490 €	1,596,492,241 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	891,534,546 €	1,157,634,758 €	1,308,473,724 €	990,566,564 €
Water used	1,415,079,922 €	1,657,058,303 €	1,849,950,612 €	1,843,873,993 €
VOC-emissions	1,068,716,679 €	1,399,117,811 €	1,600,971,463 €	1,298,132,082 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	659,556,811 €	814,196,290 €	918,892,898 €	818,437,840 €
Return to Cost Ratio	1.8 : 1	1.9 : 1	2 : 1	1.8 : 1
Rank	19	19	19	18
SV Margin	12.6%	15.8%	16.6%	14.8%



Schering Group

ADVANCE-Rating

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,856,454,221 €
<i>Industry</i>	Pharmaceuticals	<i>Return to Cost Ratio</i>	3.8 : 1
		<i>Rank</i>	5

Performance			
	2001	2002	2003
Gross Value Added	2,494,000,000 €	2,628,000,000 €	2,513,000,000 €
Sales	4,842,000,000 €	5,023,000,000 €	4,828,000,000 €
CO ₂ -emissions [t]	260,000	280,000	297,062
NO _x -emissions [t]	229	206	230
SO _x -emissions [t]	25	24	39
Waste generated [t]	42,000	74,000	78,859
Water used [m ³]	3,700,000	4,100,000	4,100,000
VOC-emissions [t]	122	145	325
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	679,399,466 €	758,777,464 €	802,494,325 €	1,109,039,223 €
NO _x -emissions	209,697,114 €	200,763,692 €	230,988,955 €	444,761,772 €
SO _x -emissions	37,742,016 €	38,870,803 €	69,392,842 €	122,919,570 €
Waste generated	257,457,206 €	462,980,294 €	494,434,641 €	772,988,427 €
Water used	144,968,235 €	166,962,300 €	170,039,881 €	215,338,317 €
VOC-emissions	105,629,254 €	136,087,115 €	315,469,812 €	666,979,808 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,814,600,534 €	1,869,222,536 €	1,710,505,675 €	1,403,960,777 €
NO _x -emissions	2,284,302,886 €	2,427,236,308 €	2,282,011,045 €	2,068,238,228 €
SO _x -emissions	2,456,257,984 €	2,589,129,197 €	2,443,607,158 €	2,390,080,430 €
Waste generated	2,236,542,794 €	2,165,019,706 €	2,018,565,359 €	1,740,011,573 €
Water used	2,349,031,765 €	2,461,037,700 €	2,342,960,119 €	2,297,661,683 €
VOC-emissions	2,388,370,746 €	2,491,912,885 €	2,197,530,188 €	1,846,020,192 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,932,729,530 €	2,000,508,333 €	1,856,454,221 €	1,677,996,126 €
Return to Cost Ratio	4.4 : 1	4.2 : 1	3.8 : 1	3 : 1
Rank	2	3	5	4
SV Margin	39.9%	39.8%	38.5%	34.8%

Scottish & Southern Energy plc

ADVANCE-Rating

Country	United Kingdom	Performance in 2003	
		Sustainable Value ^{Env}	-12,309,698,069 €
Industry	Utilities	Return to Cost Ratio	1 : 9
		Rank	55

Performance

	2001	2002	2003
Gross Value Added	1,655,171,172 €	1,592,592,672 €	1,543,430,189 €
Sales	6,492,316,536 €	6,337,477,476 €	7,380,007,148 €
CO ₂ -emissions [t]	14,300,000	16,110,000	16,650,000
NO _x -emissions [t]	16,010	15,670	16,280
SO _x -emissions [t]	18,730	16,350	18,230
Waste generated [t]	14,889	12,493	11,739
Water used [m ³]	1,178,003	1,186,151	1,104,349
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	37,366,970,653 €	43,656,803,372 €	44,978,928,657 €	62,160,434,716 €
NO _x -emissions	14,660,483,829 €	15,271,684,706 €	16,350,000,840 €	31,481,398,446 €
SO _x -emissions	28,276,318,200 €	26,480,734,274 €	32,436,705,259 €	57,457,019,499 €
Waste generated	91,268,580 €	78,162,335 €	73,601,850 €	115,067,540 €
Water used	46,154,869 €	48,303,048 €	45,800,823 €	58,002,111 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-35,711,799,481 €	-42,064,210,700 €	-43,435,498,468 €	-60,617,004,527 €
NO _x -emissions	-13,005,312,657 €	-13,679,092,034 €	-14,806,570,651 €	-29,937,968,257 €
SO _x -emissions	-26,621,147,028 €	-24,888,141,602 €	-30,893,275,070 €	-55,913,589,310 €
Waste generated	1,563,902,592 €	1,514,430,337 €	1,469,828,339 €	1,428,362,649 €
Water used	1,609,016,303 €	1,544,289,624 €	1,497,629,366 €	1,485,428,078 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-10,309,334,324 €	-11,081,817,768 €	-12,309,698,069 €	-20,507,824,481 €
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Return to Cost Ratio	1 : 7.2	1 : 8	1 : 9	1 : 14.3
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Rank	51	53	55	55
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SV Margin	-158.8%	-174.9%	-166.8%	-277.9%
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Shell Group

ADVANCE-Rating

Country	The Netherlands	Sustainable Value ^{Env}	Performance in 2003 -180,917,018,746 €
Industry	Oil & Gas	Return to Cost Ratio	1 : 5.9
		Rank	49

Performance			
	2001	2002	2003
Gross Value Added	33,344,231,140 €	35,396,961,600 €	37,102,687,000 €
Sales	187,005,358,210 €	236,370,214,080 €	238,076,976,800 €
CO ₂ -emissions [t]	95,000,000	100,000,000	106,000,000
NO _x -emissions [t]	213,000	213,000	220,000
SO _x -emissions [t]	274,000	270,000	292,000
Waste generated [t]	897,000	1,028,000	1,064,000
Water used [m ³]	1,701,000,000	1,710,000,000	1,690,000,000
VOC-emissions [t]	372,000	379,000	294,000
CH ₄ -emissions [t]	315,000	241,000	234,000

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	248,242,112,730 €	270,991,951,408 €	286,352,338,596 €	395,736,100,896 €
NO _x -emissions	195,045,787,356 €	207,585,758,922 €	220,945,957,291 €	425,424,303,324 €
SO _x -emissions	413,652,492,627 €	437,296,529,290 €	519,556,661,315 €	920,320,882,808 €
Waste generated	5,498,550,339 €	6,431,672,191 €	6,671,127,687 €	10,429,496,780 €
Water used	66,646,207,397 €	69,635,495,702 €	70,089,609,574 €	88,761,403,992 €
VOC-emissions	322,082,643,548 €	355,703,563,517 €	285,378,845,537 €	603,360,195,863 €
CH ₄ -emissions	167,316,688,967 €	135,901,199,443 €	137,143,400,225 €	135,650,807,389 €

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-214,897,881,590 €	-235,594,989,808 €	-249,249,651,596 €	-358,633,413,896 €
NO _x -emissions	-161,701,556,216 €	-172,188,797,322 €	-183,843,270,291 €	-388,321,616,324 €
SO _x -emissions	-380,308,261,487 €	-401,899,567,690 €	-482,453,974,315 €	-883,218,195,808 €
Waste generated	27,845,680,801 €	28,965,289,409 €	30,431,559,313 €	26,673,190,220 €
Water used	-33,301,976,257 €	-34,238,534,102 €	-32,986,922,574 €	-51,658,716,992 €
VOC-emissions	-288,738,412,408 €	-320,306,601,917 €	-248,276,158,537 €	-566,257,508,863 €
CH ₄ -emissions	-133,972,457,827 €	-100,504,237,843 €	-100,040,713,225 €	-98,548,120,389 €

Sustainable Value ^{Env}	-169,296,409,283 €	-176,538,205,610 €	-180,917,018,746 €	-331,423,483,150 €
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Return to Cost Ratio	1 : 6.1	1 : 6	1 : 5.9	1 : 9.9
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Rank	48	47	49	50
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SV Margin	-90.5%	-74.7%	-76.0%	-139.2%
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SKF Group

ADVANCE-Rating

<i>Country</i> Sweden		<i>Sustainable Value^{Env}</i>	Performance in 2003 462,421,338 €
<i>Industry</i> Engineering & Machinery		<i>Return to Cost Ratio</i>	1.3 : 1
		<i>Rank</i>	29

Performance			
	2001	2002	2003
Gross Value Added	2,178,020,520 €	2,198,598,600 €	2,200,584,440 €
Sales	4,693,935,100 €	4,634,204,600 €	4,536,574,280 €
CO ₂ -emissions [t]	554,970	563,610	567,120
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	351,346	406,122	398,811
Water used [m ³]	16,500,000	11,000,000	10,700,000
VOC-emissions [t]	1,221	1,243	1,122
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,450,178,161 €	1,527,337,737 €	1,532,039,040 €	2,117,262,807 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	2,153,727,611 €	2,540,898,418 €	2,500,487,880 €	3,909,208,684 €
Water used	646,479,966 €	447,947,633 €	443,762,617 €	561,980,487 €
VOC-emissions	1,057,158,354 €	1,166,595,065 €	1,089,098,859 €	2,302,619,523 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	727,842,359 €	671,260,863 €	668,545,400 €	83,321,633 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	24,292,909 €	-342,299,818 €	-299,903,440 €	-1,708,624,244 €
Water used	1,531,540,554 €	1,750,650,967 €	1,756,821,823 €	1,638,603,953 €
VOC-emissions	1,120,862,166 €	1,032,003,535 €	1,111,485,581 €	-102,035,083 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	486,362,570 €	444,516,507 €	462,421,338 €	-12,676,249 €
Return to Cost Ratio	1.3 : 1	1.3 : 1	1.3 : 1	1 : 1
Rank	28	29	29	26
SV Margin	10.4%	9.6%	10.2%	-0.3%



Slovnaft Group

ADVANCE-Rating

<i>Country</i>	Slovak Republic	<i>Sustainable Value^{Env}</i>	Performance in 2003 -5,612,746,855 €
<i>Industry</i>	Oil & Gas	<i>Return to Cost Ratio</i>	1 : 26.1
		<i>Rank</i>	61

Performance			
	2001	2002	2003
Gross Value Added	289,073,400 €	211,511,640 €	223,295,000 €
Sales	1,674,195,600 €	1,532,989,990 €	1,624,525,440 €
CO ₂ -emissions [t]	2,780,558	2,832,307	2,769,549
NO _x -emissions [t]	3,444	3,614	3,724
SO _x -emissions [t]	13,307	11,174	12,049
Waste generated [t]	64,116	48,488	111,996
Water used [m ³]	66,010,925	54,234,654	47,411,448
VOC-emissions [t]	6,840	6,335	5,460
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	7,265,806,237 €	7,675,324,009 €	7,481,762,576 €	10,339,721,910 €
NO _x -emissions	3,153,698,083 €	3,522,135,834 €	3,740,012,477 €	7,201,273,207 €
SO _x -emissions	20,089,320,144 €	18,097,597,845 €	21,438,829,494 €	37,975,843,551 €
Waste generated	393,026,816 €	303,364,709 €	702,198,888 €	1,097,802,558 €
Water used	2,586,347,912 €	2,208,571,354 €	1,966,301,704 €	2,490,122,302 €
VOC-emissions	5,922,164,736 €	5,945,599,142 €	5,299,892,846 €	11,205,260,780 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-6,976,732,837 €	-7,463,812,369 €	-7,258,467,576 €	-10,116,426,910 €
NO _x -emissions	-2,864,624,683 €	-3,310,624,194 €	-3,516,717,477 €	-6,977,978,207 €
SO _x -emissions	-19,800,246,744 €	-17,886,086,205 €	-21,215,534,494 €	-37,752,548,551 €
Waste generated	-103,953,416 €	-91,853,069 €	-478,903,888 €	-874,507,558 €
Water used	-2,297,274,512 €	-1,997,059,714 €	-1,743,006,704 €	-2,266,827,302 €
VOC-emissions	-5,633,091,336 €	-5,734,087,502 €	-5,076,597,846 €	-10,981,965,780 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-5,382,274,790 €	-5,211,931,865 €	-5,612,746,855 €	-9,852,893,473 €
Return to Cost Ratio	1 : 19.6	1 : 25.6	1 : 26.1	1 : 45.1
Rank	59	61	61	62
SV Margin	-321.5%	-340.0%	-345.5%	-606.5%

STMicroelectronics Group**ADVANCE-Rating**

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 1,864,722,805 €
<i>Industry</i>	Semiconductors	<i>Return to Cost Ratio</i>	2.2 : 1
		<i>Rank</i>	17

Performance			
	2001	2002	2003
Gross Value Added	3,520,500,320 €	3,794,350,560 €	3,422,956,400 €
Sales	7,041,000,640 €	6,652,846,200 €	6,404,983,600 €
CO ₂ -emissions [t]	929,000	940,000	971,000
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	25	36	49
Waste generated [t]	31,100	31,100	33,000
Water used [m ³]	20,330,000	19,450,000	19,850,000
VOC-emissions [t]	310	341	331
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	2,427,546,555 €	2,547,324,343 €	2,623,095,479 €	3,625,092,019 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	37,742,016 €	58,792,089 €	87,185,878 €	154,437,408 €
Waste generated	190,640,931 €	194,576,853 €	206,905,276 €	323,471,235 €
Water used	796,541,679 €	792,052,860 €	823,241,864 €	1,042,552,585 €
VOC-emissions	268,402,203 €	320,039,354 €	321,293,870 €	679,293,282 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,092,953,765 €	1,247,026,217 €	799,860,921 €	-202,135,619 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	3,482,758,304 €	3,735,558,471 €	3,335,770,522 €	3,268,518,992 €
Waste generated	3,329,859,389 €	3,599,773,707 €	3,216,051,124 €	3,099,485,165 €
Water used	2,723,958,641 €	3,002,297,700 €	2,599,714,536 €	2,380,403,815 €
VOC-emissions	3,252,098,117 €	3,474,311,206 €	3,101,662,530 €	2,743,663,118 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	1,983,089,745 €	2,151,281,043 €	1,864,722,805 €	1,612,847,924 €
Return to Cost Ratio	2.3 : 1	2.3 : 1	2.2 : 1	1.9 : 1
Rank	16	17	17	16
SV Margin	28.2%	32.3%	29.1%	25.2%

Stora Enso Oyj

ADVANCE-Rating

Country	Finland	Sustainable Value ^{Env}	Performance in 2003 -14,082,317,266 €
Industry	Forestry & Paper	Return to Cost Ratio	1 : 4.6
		Rank	44

Performance			
	2001	2002	2003
Gross Value Added	4,934,700,000 €	4,406,200,000 €	3,941,000,000 €
Sales	13,508,800,000 €	12,782,600,000 €	12,172,300,000 €
CO ₂ -emissions [t]	9,124,755	8,901,100	9,377,028
NO _x -emissions [t]	18,350	19,166	20,145
SO _x -emissions [t]	20,974	17,467	18,307
Waste generated [t]	419,000	297,126	330,485
Water used [m ³]	870,000,000	921,000,000	918,000,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	23,843,667,993 €	24,121,264,587 €	25,331,451,857 €	35,007,816,026 €
NO _x -emissions	16,803,240,366 €	18,678,819,979 €	20,231,619,589 €	38,955,329,957 €
SO _x -emissions	31,664,041,534 €	28,289,846,211 €	32,573,711,639 €	57,699,706,855 €
Waste generated	2,568,442,131 €	1,858,965,984 €	2,072,093,641 €	3,239,466,394 €
Water used	34,087,125,476 €	37,505,433,650 €	38,072,344,136 €	48,214,774,476 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-18,908,967,993 €	-19,715,064,587 €	-21,390,451,857 €	-31,066,816,026 €
NO _x -emissions	-11,868,540,366 €	-14,272,619,979 €	-16,290,619,589 €	-35,014,329,957 €
SO _x -emissions	-26,729,341,534 €	-23,883,646,211 €	-28,632,711,639 €	-53,758,706,855 €
Waste generated	2,366,257,869 €	2,547,234,016 €	1,868,906,359 €	701,533,606 €
Water used	-29,152,425,476 €	-33,099,233,650 €	-34,131,344,136 €	-44,273,774,476 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-12,041,859,643 €	-12,631,904,344 €	-14,082,317,266 €	-23,344,584,815 €
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Return to Cost Ratio	1 : 3.4	1 : 3.9	1 : 4.6	1 : 6.9
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Rank	42	42	44	44
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SV Margin	-89.1%	-98.8%	-115.7%	-191.8%
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Suez Group

ADVANCE-Rating

Country	France	Sustainable Value ^{Env}	Performance in 2003 -110,625,047,824 €
Industry	Utilities	Return to Cost Ratio	1 : 8.9
		Rank	54

Performance

	2001	2002	2003
Gross Value Added	15,589,100,000 €	16,073,500,000 €	13,963,400,000 €
Sales	42,359,200,000 €	46,089,800,000 €	39,621,800,000 €
CO ₂ -emissions [t]	73,368,010	70,287,560	71,086,899
NO _x -emissions [t]	141,112	110,826	117,076
SO _x -emissions [t]	216,766	176,089	192,339
Waste generated [t]	1,788,447	2,888,720	2,371,157
Water used [m ³]	89,222,222	90,333,333	52,087,912
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	447,602	386,389	322,963

Opportunity Costs of Resource Use by the Company

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	191,716,103,254 €	190,473,630,441 €	192,036,790,304 €	265,392,945,614 €
NO _x -emissions	129,217,577,725 €	108,008,488,171 €	117,579,404,072 €	226,395,344,254 €
SO _x -emissions	327,246,767,189 €	285,196,520,161 €	342,229,481,783 €	606,210,953,008 €
Waste generated	10,963,058,153 €	18,073,247,678 €	14,866,812,887 €	23,242,453,810 €
Water used	3,495,780,556 €	3,678,600,260 €	2,160,249,362 €	2,735,737,401 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	237,750,226,745 €	217,886,778,434 €	189,282,996,359 €	187,222,945,027 €

Value Contributions

	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-176,127,003,254 €	-174,400,130,441 €	-178,073,390,304 €	-251,429,545,614 €
NO _x -emissions	-113,628,477,725 €	-91,934,988,171 €	-103,616,004,072 €	-212,431,944,254 €
SO _x -emissions	-311,657,667,189 €	-269,123,020,161 €	-328,266,081,783 €	-592,247,553,008 €
Waste generated	4,626,041,847 €	-1,999,747,678 €	-903,412,887 €	-9,279,053,810 €
Water used	12,093,319,444 €	12,394,899,740 €	11,803,150,638 €	11,227,662,599 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	-222,161,126,745 €	-201,813,278,434 €	-175,319,596,359 €	-173,259,545,027 €

Sustainable Value ^{Env}	-115,264,987,660 €	-103,839,466,449 €	-110,625,047,824 €	-175,345,711,302 €
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Return to Cost Ratio	1 : 8.4	1 : 7.5	1 : 8.9	1 : 13.6
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Rank	53	50	54	53
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SV Margin	-272.1%	-225.3%	-279.2%	-442.5%
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Unilever

ADVANCE-Rating

<i>Country</i>	The Netherlands	<i>Sustainable Value^{Env}</i>	Performance in 2003 3,936,173,454 €
<i>Industry</i>	Food	<i>Return to Cost Ratio</i>	1.4 : 1
		<i>Rank</i>	26

Performance			
	2001	2002	2003
Gross Value Added	14,271,000,000 €	14,001,000,000 €	12,944,000,000 €
Sales	51,514,000,000 €	48,270,000,000 €	42,963,000,000 €
CO ₂ -emissions [t]	4,700,000	4,300,000	4,000,000
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	8,100	6,400	5,000
Waste generated [t]	278,100	228,200	211,000
Water used [m ³]	119,400,000	94,900,000	77,100,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	12,281,451,893 €	11,652,653,911 €	10,805,748,626 €	14,933,437,770 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	12,228,413,103 €	10,365,547,361 €	8,896,518,173 €	15,758,919,226 €
Waste generated	1,704,734,503 €	1,427,731,123 €	1,322,939,795 €	2,068,255,470 €
Water used	4,678,164,117 €	3,864,566,399 €	3,197,579,230 €	4,049,410,798 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,989,548,107 €	2,348,346,089 €	2,138,251,374 €	-1,989,437,770 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	2,042,586,897 €	3,635,452,639 €	4,047,481,827 €	-2,814,919,226 €
Waste generated	12,566,265,497 €	12,573,268,877 €	11,621,060,205 €	10,875,744,530 €
Water used	9,592,835,883 €	10,136,433,601 €	9,746,420,770 €	8,894,589,202 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	3,741,605,198 €	4,099,071,601 €	3,936,173,454 €	2,137,996,677 €
Return to Cost Ratio	1.4 : 1	1.4 : 1	1.4 : 1	1.2 : 1
Rank	27	27	26	23
SV Margin	7.3%	8.5%	9.2%	5.0%



Union Fenosa Group

ADVANCE-Rating

Country	Spain	Sustainable Value ^{Env}	Performance in 2003
			-56,413,585,743 €
Industry	Utilities	Return to Cost Ratio	1 : 29.7
			Rank 63

Performance			
	2001	2002	2003
Gross Value Added	1,987,937,000 €	2,062,570,000 €	1,965,788,000 €
Sales	5,442,246,000 €	5,831,238,000 €	5,560,119,000 €
CO ₂ -emissions [t]	16,638,000	18,339,000	18,705,000
NO _x -emissions [t]	59,000	68,900	61,200
SO _x -emissions [t]	173,100	177,900	159,900
Waste generated [t]	1,182,539	1,173,902	1,135,723
Water used [m ³]	25,100,000	28,100,000	26,500,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	43,476,339,701 €	49,697,213,969 €	50,530,382,014 €	69,832,488,370 €
NO _x -emissions	54,026,767,390 €	67,148,632,815 €	61,463,148,119 €	118,345,306,197 €
SO _x -emissions	261,325,717,057 €	288,129,824,299 €	284,510,651,179 €	503,970,236,853 €
Waste generated	7,248,885,417 €	7,344,506,662 €	7,120,820,630 €	11,132,537,003 €
Water used	983,433,160 €	1,144,302,590 €	1,099,038,257 €	1,391,820,832 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-41,488,402,701 €	-47,634,643,969 €	-48,564,594,014 €	-67,866,700,370 €
NO _x -emissions	-52,038,830,390 €	-65,086,062,815 €	-59,497,360,119 €	-116,379,518,197 €
SO _x -emissions	-259,337,780,057 €	-286,067,254,299 €	-282,544,863,179 €	-502,004,448,853 €
Waste generated	-5,260,948,417 €	-5,281,936,662 €	-5,155,032,630 €	-9,166,749,003 €
Water used	1,004,503,840 €	918,267,410 €	866,749,743 €	573,967,168 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value ^{Env}	-51,017,351,104 €	-57,593,090,048 €	-56,413,585,743 €	-99,263,349,894 €
Return to Cost Ratio	1 : 26.7	1 : 28.9	1 : 29.7	1 : 51.5
Rank	62	62	63	63
SV Margin	-937.4%	-987.7%	-1014.6%	-1785.3%



Unipetrol Group

ADVANCE-Rating

<i>Country</i> Czech Republic		<i>Sustainable Value^{Env}</i> -9,494,288,327 €	
<i>Industry</i> Oil & Gas		<i>Return to Cost Ratio</i> 1 : 40	
		<i>Rank</i>	64

Performance			
	2001	2002	2003
Gross Value Added	286,752,621 €	228,495,552 €	243,732,324 €
Sales	419,807,807 €	462,594,902 €	503,300,642 €
CO ₂ -emissions [t]	6,776,000	6,924,000	6,418,000
NO _x -emissions [t]	8,018	8,998	9,336
SO _x -emissions [t]	14,478	19,113	18,105
Waste generated [t]	558,597	563,056	468,829
Water used [m ³]	99,900,000	111,900,000	125,300,000
VOC-emissions [t]	974	942	884
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	17,706,195,325 €	18,763,482,716 €	17,337,823,671 €	23,960,700,901 €
NO _x -emissions	7,342,146,117 €	8,769,280,088 €	9,376,142,988 €	18,053,460,436 €
SO _x -emissions	21,857,156,162 €	30,955,735,423 €	32,214,292,305 €	57,063,046,518 €
Waste generated	3,424,162,457 €	3,522,754,492 €	2,939,490,717 €	4,595,536,227 €
Water used	3,914,142,339 €	4,556,849,105 €	5,196,584,663 €	6,580,949,065 €
VOC-emissions	843,302,405 €	884,096,984 €	858,077,889 €	1,814,185,079 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-17,419,442,704 €	-18,534,987,164 €	-17,094,091,347 €	-23,716,968,578 €
NO _x -emissions	-7,055,393,496 €	-8,540,784,537 €	-9,132,410,664 €	-17,809,728,112 €
SO _x -emissions	-21,570,403,540 €	-30,727,239,872 €	-31,970,559,981 €	-56,819,314,194 €
Waste generated	-3,137,409,835 €	-3,294,258,940 €	-2,695,758,393 €	-4,351,803,904 €
Water used	-3,627,389,718 €	-4,328,353,553 €	-4,952,852,339 €	-6,337,216,742 €
VOC-emissions	-556,549,784 €	-655,601,432 €	-614,345,566 €	-1,570,452,755 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-7,623,798,440 €	-9,440,175,071 €	-9,494,288,327 €	-15,800,783,469 €
Return to Cost Ratio	1 : 27.6	1 : 42.3	1 : 40	1 : 65.8
Rank	63	64	64	64
SV Margin	-1816.0%	-2040.7%	-1886.4%	-3139.4%

UPM-Kymmene Group

ADVANCE-Rating

<i>Country</i> Finland		Performance in 2003	
<i>Industry</i> Forestry & Paper		<i>Sustainable Value^{Env}</i>	-5,896,828,632 €
		<i>Return to Cost Ratio</i>	1 : 2.7
		<i>Rank</i>	40

Performance			
	2001	2002	2003
Gross Value Added	3,887,000,000 €	3,789,000,000 €	3,371,000,000 €
Sales	9,918,000,000 €	10,475,000,000 €	9,948,000,000 €
CO ₂ -emissions [t]	6,496,227	7,553,100	7,718,679
NO _x -emissions [t]	9,000	11,500	11,300
SO _x -emissions [t]	7,000	8,400	7,400
Waste generated [t]	246,700	238,800	250,100
Water used [m ³]	270,000,000	280,000,000	270,000,000
VOC-emissions [t]	N/A	N/A	N/A
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	16,975,127,529 €	20,468,293,082 €	20,851,526,250 €	28,816,603,128 €
NO _x -emissions	8,241,371,297 €	11,207,681,820 €	11,348,587,806 €	21,851,339,216 €
SO _x -emissions	10,567,764,410 €	13,604,780,911 €	13,166,846,896 €	23,323,200,455 €
Waste generated	1,512,254,592 €	1,494,049,921 €	1,568,091,198 €	2,451,519,873 €
Water used	10,578,763,079 €	11,402,303,390 €	11,197,748,275 €	14,180,816,022 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	-13,088,127,529 €	-16,679,293,082 €	-17,480,526,250 €	-25,445,603,128 €
NO _x -emissions	-4,354,371,297 €	-7,418,681,820 €	-7,977,587,806 €	-18,480,339,216 €
SO _x -emissions	-6,680,764,410 €	-9,815,780,911 €	-9,795,846,896 €	-19,952,200,455 €
Waste generated	2,374,745,408 €	2,294,950,079 €	1,802,908,802 €	919,480,127 €
Water used	-6,691,763,079 €	-7,613,303,390 €	-7,826,748,275 €	-10,809,816,022 €
VOC-emissions	N/A	N/A	N/A	N/A
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	-4,062,897,272 €	-5,604,587,018 €	-5,896,828,632 €	-10,538,354,099 €
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Return to Cost Ratio	1 : 2	1 : 2.5	1 : 2.7	1 : 4.1
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Rank	34	36	40	38
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SV Margin	-41.0%	-53.5%	-59.3%	-105.9%
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Volkswagen Group

ADVANCE-Rating

<i>Country</i>	Germany	<i>Sustainable Value^{Env}</i>	Performance in 2003 8,059,197,491 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	1.5 : 1
		<i>Rank</i>	25

Performance			
	2001	2002	2003
Gross Value Added	25,381,000,000 €	25,888,000,000 €	24,050,000,000 €
Sales	88,540,000,000 €	86,948,000,000 €	87,153,000,000 €
CO ₂ -emissions [t]	5,576,306	5,670,064	5,976,764
NO _x -emissions [t]	N/A	N/A	N/A
SO _x -emissions [t]	N/A	N/A	N/A
Waste generated [t]	401,215	380,327	508,974
Water used [m ³]	35,510,000	34,730,000	33,616,803
VOC-emissions [t]	19,367	18,881	19,630
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	14,571,305,081 €	15,365,417,080 €	16,145,852,346 €	22,313,408,314 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	2,459,421,264 €	2,379,512,247 €	3,191,194,120 €	4,989,043,885 €
Water used	1,391,303,248 €	1,414,292,845 €	1,394,194,436 €	1,765,606,291 €
VOC-emissions	16,768,211,176 €	17,720,419,480 €	19,054,376,659 €	40,285,580,424 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	10,809,694,919 €	10,522,582,920 €	7,904,147,654 €	1,736,591,686 €
NO _x -emissions	N/A	N/A	N/A	N/A
SO _x -emissions	N/A	N/A	N/A	N/A
Waste generated	22,921,578,736 €	23,508,487,753 €	20,858,805,880 €	19,060,956,115 €
Water used	23,989,696,752 €	24,473,707,155 €	22,655,805,564 €	22,284,393,709 €
VOC-emissions	8,612,788,824 €	8,167,580,520 €	4,995,623,341 €	-16,235,580,424 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	9,476,251,319 €	9,524,622,621 €	8,059,197,491 €	3,835,194,441 €
Return to Cost Ratio	1.6 : 1	1.6 : 1	1.5 : 1	1.2 : 1
Rank	20	23	25	24
SV Margin	10.7%	11.0%	9.2%	4.4%



Volvo Group

ADVANCE-Rating

<i>Country</i>	Sweden	<i>Sustainable Value^{Env}</i>	Performance in 2003 3,396,583,146 €
<i>Industry</i>	Automobile	<i>Return to Cost Ratio</i>	2.5 : 1
		<i>Rank</i>	15

Performance			
	2001	2002	2003
Gross Value Added	5,328,812,280 €	5,622,427,160 €	5,694,701,600 €
Sales	20,485,774,400 €	20,336,545,560 €	20,096,025,240 €
CO ₂ -emissions [t]	575,808	587,120	557,335
NO _x -emissions [t]	718	726	570
SO _x -emissions [t]	310	167	200
Waste generated [t]	N/A	N/A	N/A
Water used [m ³]	9,172,000	9,187,000	8,587,000
VOC-emissions [t]	1,743	1,896	1,965
CH ₄ -emissions [t]	N/A	N/A	N/A

Opportunity Costs of Resource Use by the Company				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	1,504,629,415 €	1,591,047,945 €	1,505,605,478 €	2,080,731,885 €
NO _x -emissions	657,478,288 €	707,545,826 €	572,450,889 €	1,102,235,695 €
SO _x -emissions	468,000,995 €	270,476,001 €	355,860,727 €	630,356,769 €
Waste generated	N/A	N/A	N/A	N/A
Water used	359,364,500 €	374,117,719 €	356,129,868 €	451,002,471 €
VOC-emissions	1,509,113,031 €	1,779,456,349 €	1,907,379,019 €	4,032,662,534 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Value Contributions				
	2001	2002	2003	2003 → 2010
CO ₂ -emissions	3,824,182,865 €	4,031,379,215 €	4,189,096,122 €	3,613,969,715 €
NO _x -emissions	4,671,333,992 €	4,914,881,334 €	5,122,250,711 €	4,592,465,905 €
SO _x -emissions	4,860,811,285 €	5,351,951,159 €	5,338,840,873 €	5,064,344,831 €
Waste generated	N/A	N/A	N/A	N/A
Water used	4,969,447,780 €	5,248,309,441 €	5,338,571,732 €	5,243,699,129 €
VOC-emissions	3,819,699,249 €	3,842,970,811 €	3,787,322,581 €	1,662,039,066 €
CH ₄ -emissions	N/A	N/A	N/A	N/A

Sustainable Value^{Env}	3,163,639,310 €	3,341,355,994 €	3,396,583,146 €	2,882,359,807 €
Return to Cost Ratio	2.5 : 1	2.5 : 1	2.5 : 1	2 : 1
Rank	15	16	15	15
SV Margin	15.4%	16.4%	16.9%	14.3%



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