Sustainable Development
Sust. Dev. **14**, 268–276 (2006)
Published online 15 May 2006 in Wiley InterScience
(www.interscience.wiley.com) **DOI**: 10.1002/sd.287

The Contextual Meaning of Sustainable Development: The Case of the Dutch Drinking Water Sector[1]

Judith E. M. Klostermann[1]* and Jacqueline Cramer[2†]
[1] *Alterra, Wageningen University and Research, The Netherlands*
[2] *Erasmus Centre for Sustainability and Management, Erasmus University Rotterdam, The Netherlands*

ABSTRACT
The concept of sustainable development means different things to different people in different contexts, leading to 'strong' and 'weak' versions of sustainability. This article addresses the question of which meaning of sustainability is given by the Dutch drinking water sector and its main stakeholders. The 'weak', or human-oriented, school was found at three of the four water companies studied. This is understandable, because water companies have a human-oriented task: to provide the public with drinking water. The 'strong' version of sustainability was found within several governmental bodies. Their view of 'staying within the natural water system' was unacceptable for most other societal actors. A third form of sustainability was developed by the fourth drinking water company studied. It bridges the human and nature interests in a step by step dialogue. This way of looking at sustainable development may be an interesting perspective in which humans start seeing themselves as an integral part of nature again, instead of as being outside and above nature. Copyright © 2006 John Wiley & Sons, Ltd and ERP Environment.

Received 5 June 2004; revised 25 April 2005; accepted 6 May 2005
Keywords: sustainability; social construction; drinking water companies; strategy; ethnographic interviewing; grounded theory

Introduction

THE LITERATURE ON SUSTAINABLE DEVELOPMENT SHOWS THAT THE CONCEPT MEANS DIFFERENT things to different people in different contexts (WCED, 1987; Pezzey, 1992; Bebbington, 2001; Springett, 2003). The main debate is whether a 'strong' or a 'weak' version of sustainability should be pursued. Strong, or ecocentric, sustainability aims for an acceptable balance between

* Correspondence to: Dr. Judith E. M. Klostermann – researcher, Alterra, Wageningen University and Research, P.O. Box 47, 6700 AA Wageningen, The Netherlands. E-mail: judith.klostermann@wur.nl or jmcramer@xs4all.nl
† Current address: Copernicus Research Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands.
[1] This article is based on the thesis of Judith Klostermann, 'The social construction of sustainability in Dutch water companies' (Alterra, Wageningen UR, 2003) which has been prepared at the Erasmus Centre for Sustainability and Management, Erasmus University Rotterdam.

human society and the natural ecosystem. The balance is assumed to be disturbed or endangered and this usually implies a reduction of the human population (or a stand-still at the least) and redistribution of wealth to give more to the poor, and less to the rich. These difficult issues are avoided with the weak, or anthropocentric version of sustainability. According to the 'weak' view, poverty is the main driver towards unsustainability. This implies that the natural ecosystem must be exploited further until the poor have the same wealth that the rich have today. As soon as this point has been reached, the world population as a whole will start working on the ecological aspects of sustainability. In the meantime, we should also work on a higher technological efficiency. Which version of sustainability should be chosen depends on one's estimate of the earth's condition. The earth's resources are limited, but maybe we are not even near these limits (Lomborg, 2001). Then it would be a waste to go through the upheaval of a global restructuring of human society. As long as the opinions on the earth's condition remain different, the debate on sustainability will continue.

Social construction theory provides a useful framework for the description of the current debate on the meanings of sustainability (Hajer, 1995; Hannigan, 1995). According to this theoretical framework, a concept such as sustainability is constructed in a discourse of social actors (Berger and Luckmann, 1966; Bijker and Hughes, 1987; Sarbin and Kitsuse, 1994; Eder, 1996). They discuss facts, figures and uncertainties, values, norms and goals, until a shared view of reality emerges. Depending on the complexity of the subject, such a debate may take up to 50 years before consensus is achieved. The theoretical framework implies that the network of actors and the discourse they engage in must be studied.

This article addresses the question how the concept of 'sustainable development' is translated into meaningful practices. The step towards practices is important to test whether the concept makes any sense at all. In the abstract realm it is easy to agree that economic, social and ecological aspects of human activities should be balanced, but what if these aspects are fundamentally antagonistic? Or if balancing three things at the same time is too complex for the human mind?

We investigated the meaning of sustainability for a particular Dutch sector: the drinking water sector. For a number of reasons water companies were expected to operationalize sustainability more elaborately than other sectors. They function under Dutch legislation and policy. The Netherlands is generally seen as one of the most successful nations in environmental policy performance (Dryzek, 1997, p. 137). Water companies need clean water resources, so they were expected to welcome a concept such as sustainability. The trade organization of the drinking water sector, Vewin, published an Environmental Plan in 1991. It looked at environmental problems from two angles: on one hand water companies as 'victims' of environmental pollution, on the other hand water companies as 'polluters'. An unresolved issue in this domain is desiccation caused by groundwater extraction. Water companies operate on a stable market in the rather wealthy economy of the Netherlands. They must be able to invest in new technology, if necessary.

Because of the liberalization trend in Europe, water companies were urged to adopt norms of the free market such as efficiency and customer-friendliness. This debate took place between 1995 and 1998. The majority of the water companies was against liberalization. To counter the arguments about efficiency and customer-friendliness the sector developed a voluntary benchmark. It covered four themes: product quality, customer satisfaction, environmental performance and costs. After the elections in May 1998, the minister of environment at that time, Mr. Pronk, chose a public monopoly structure. During the period of the research and the interviews, Dutch drinking water regulations were still being revised. In this period of uncertainty 'anything could happen', and water companies had started to experiment with new strategies (see also Tweede Kamer, 1998). This divergence made it extra interesting to investigate these companies.

DOI: 10.1002/sd

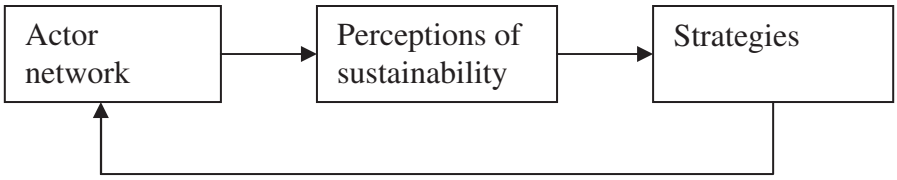

Figure 1. Conceptual model

Focus of the Analysis

The analysis is based on the conceptual model in Figure 1. It uses the idea of Latour and Woolgar (1979) that concepts travel through society through contact between societal actors. Therefore we looked at the network of actors around the company, to see who inspired them. It also includes the theory from Karl Weick (1979) that managers' perceptions of their environment are of more importance to their strategy than the 'real' characteristics of their environment. We assumed a feedback loop between the strategies and the network, because companies will probably make deliberate choices about their contacts.

These sub-questions follow from this model.

What perceptions do people within Dutch water companies have of the concept of sustainability?
Which societal actors are involved in the process in which these perceptions are constructed?
How do these perceptions influence company strategy and operations?

Ways had to be found to unearth the beliefs of Dutch water companies without provoking socially desirable answers, and also without providing the respondents with new information through interview questions. Therefore, ethnographic interview techniques as described by Spradley (1979) were used. Of the 25 existing drinking water companies in the Netherlands in 1999, four companies were selected for further analysis. Within the framework of these four case studies a total of 57 internal and external interviews were held, and five group meetings of about one hour. The interviews and group meetings were taped and the tapes were typed out literally, which resulted in a total of 930 pages of data.

The case study methods from Yin (1994) were used during analysis because they help to investigate the complexity of a contemporary process. Grounded theory ideas of theoretical sampling, data saturation and open coding were used, but the idea of conceptualizing the codes in researcher terms was abandoned (Strauss and Corbin, 1990). Instead, the ethnographic idea of 'emic' codes was used in an effort to describe reality as seen from within water companies (Miles and Huberman, 1994). The ethnographic methods of collecting and analysing data were not followed to their limits, because it was not efficient to collect evidence for the entire culture of water companies, since the research question was only about sustainability issues. The data were analysed with Atlas-ti software. Quotations and codes were used to develop individual case stories, and finally these case descriptions were compared in a cross-case analysis.

The four drinking water companies studied were PWN (Provinciaal Waterbedrijf Noord-Holland), WMO (Waterleiding Maatschappij Overijssel), Nuon and Delta (Delta Nutsbedrijven). These four companies operated in the same sector, but differed in a number of aspects. First, they had to operate under different physical and societal circumstances. In some regions groundwater is available (Nuon and WMO), in others mostly surface water (PWN and Delta). Their regions differed in population density and in industrial water demand. Furthermore, two were multi-utilities (Nuon and Delta) while the other two had a mono-water structure (PWN and WMO).

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Major Results of the Four Case Studies

Below the main results are described of the individual case studies, addressing the relationship between the meaning of sustainability, the company strategy and its network.

PWN

At the time of the interviews, there was general agreement among Dutch water companies that PWN was the greenest water company. This seemed to be mainly due to their role in nature conservation in the dunes. The nature conservation task was given to this water company by the provincial government in 1934. The word 'sustainability' was rarely heard in this company, but the perceived meaning of sustainability was valued highly and the managers of PWN insisted that it was exactly what they were striving for. For PWN, the most important theme related to sustainability was the balancing of drinking water production with nature management. PWN's most important network partner, the provincial government, did not use the term in discussions with PWN, because environmental decisions had already been made before the term sustainability became popular. PWN's other network partners, the nature organizations, did not really use the term sustainability either. They saw the term as relevant to human society and not to nature. There was much similarity between these network partners and PWN in how they used and interpreted the term. Sustainability ideas combined well with PWN's strategy. This strategy was based on a positive decision to remain a governmental monopoly, with high water quality, guaranteed supply and protection of nature as its main goals. Most of the ideas on sustainability developed by this company were fully implemented. Membrane technology was operational, dune infiltration areas had been rebuilt in a nature-friendly way and the extraction of natural groundwater had been reduced to a low percentage of total sales. In the year 2000, when the interviews were held, the company still wrestled with the green energy theme. PWN wanted to buy green energy, but it also wanted to reduce costs to legitimize the governmental monopoly structure. Although PWN can be considered a sustainable company, this was probably not due to the concept of sustainability. The important decisions were made before the concept came up, and PWN had not integrated the word itself in the company language. When questioned, managers of the company attributed meanings to the concept that had already been developed within company practices.

WMO

WMO used the concept of sustainability a lot, because it fitted well with the existing company culture. People within the company actively tried to give meaning to the concept by reading literature on sustainable development and through internal and external debate. The structured way in which this company organized the debate may be due to its previous experiences with stakeholder relations. In WMO's region, shallow groundwater layers are often used for drinking water production. Owing to this, WMO has a long history of negotiating with farmers, both about preventing pollution and about paying off for desiccation. The company emphasized the People and Profit aspects of the concept of sustainability. With this meaning, the concept could be used for the company strategy of balancing company and society interests. The concept helped in defining a long-term strategy, something WMO needed badly because its social and economic environment had been changing so rapidly. WMO had lost 20% of water sales, partly because of water saving by citizens, but also because many farmers had started their own wells. This loss in sales meant an improvement for water resources (as far as it was due to water saving), less income for WMO, pending job losses and the company's decision to no longer

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promote water saving. Another issue was of course the liberalization debate. This was partly a threat, because losing business at this pace would have been deadly for a commercial company. At the same time it was seen as an opportunity to develop all kinds of side businesses, which could make the company profitable again. During the external debate WMO came to realize that its network partners had different views of sustainability. One of the two water boards in WMO's region stirred up the debate by claiming that to become sustainable all of WMO's wells would have to move from the high areas (where groundwater is pure) to lower areas (where groundwater is polluted). WMO disagreed, because clean drinking water was part of its concept of sustainability, and a low water price was also part of it. Rebuilding its whole infrastructure in economically hard times was impossible for WMO. Also, WMO expected to get a worse product quality, which would be against the new norm from the liberalization debate: customer-friendliness. According to WMO, the water board view was 'ecocentric', whereas WMO adhered to the 'anthropocentric' view. Within the most influential actor, the provincial government, both the ecocentric and the anthropocentric views were found. Next to organizing the debate, WMO was active in all kinds of research and innovation in the field of sustainability: membrane technology for water recycling by industries, new combinations of nature development and water extraction, making use of places where water boards wanted them to extract water. However, WMO's operationalization of sustainability was limited to small scale and/or cheap options.

At this company we saw a very serious attempt to create new meanings with the concept of sustainability. Unfortunately, they were limited by economic realities. Probably because of these circumstances, the economic aspects dominated their conceptualization of sustainability. The influence of the network on the meanings of sustainability was clear in this case, also because the process was made explicit by WMO. In the end, they could not help but wonder what good the concept had brought them.

Nuon

The sustainable profile of the multi-utility company Nuon was largely based on renewable energy. In this area Nuon's energy business unit had achieved market leadership. The water business units shared the corporate idea that sustainable energy was the most important environmental issue. They decided to use 100% sustainable energy for their water production and distribution activities. This action led to a ranking of Nuon Water Gelderland as the most environmentally friendly Dutch water company in the Vewin benchmark (Vewin, 1999, 2001). For general improvement of sustainability aspects, Nuon Water Gelderland had a management system for quality, safety and environment. Apart from sustainable energy, these activities did not take place under the heading 'sustainability', but under 'quality management'. Another high interest of Nuon was its investment in new technology. The company invested in solar energy, membrane filtration techniques and small scale drinking water production. These developments were meant for market expansion, not for innovation of their own water production facilities. Nuon's goal was to continue groundwater extractions at the same level. At Nuon, groundwater use was seen as sustainable, because it is a cheap and pure resource. This view was shared by the province of Gelderland, which not only was one of Nuon's shareholders, but also was in charge of the groundwater licenses. There was a debate between the Province of Gelderland and Nuon that groundwater extraction should be reduced, but Nuon simply disagreed. Here the effect of a company that had risen above the provincial level became visible: at the corporate level, several provincial governments had a say, and in the end, not one of them had real influence anymore. Nuon had one of the largest nature reserves in the Netherlands at its disposal for extraction of groundwater. Management of nature and reduction of desiccation, however, was not seen as an operational task for Nuon itself. The company provided financial support to municipalities, who could then improve rainwater infiltration. This shows again how important the renewability of a resource was in Nuon's perceptions of sustainability (see also Baan

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and de Savornin Lohman, 1992). Nuon did not organize a debate on sustainability with regional network partners or other water companies; it only developed the concept internally in a technology-oriented way. Nevertheless, Nuon communicated its interpretations of sustainability frequently to the outside world, because it saw this as a way to win new customers. Nuon's extremely market-oriented attitude had a lot to do with the planned liberalization of the energy market. Nuon's sustainability aspirations were not taken seriously by other Dutch water companies. This was partly because Nuon's views on sustainability were not shared by the other companies, partly because Nuon's behaviour was seen as 'greenwashing', and partly their negative opinions on Nuon may have been influenced by their fears of being 'bought' by Nuon.

Delta

Delta also was a multi-utility company, including drinking water, energy, waste management and telecom businesses. In this company the concept of 'sustainable development' was interpreted entirely in the framework of its transition to the market. Delta was eager to make the transition because it saw mainly positive consequences. Its faith in the Dutch government had received some blows in the past, because Delta had invested in expensive waste management technology, and then waste legislation became more lenient. These experiences had made Delta eager to become independent of 'politics'. At the same time, Delta had positive experiences with large industries such as Dow Chemical. For 20 years, Delta had been providing industries with cheaper water types called 'industry water'. They also had started to build on-site water recycling facilities for several customers. Large industries were the most important customers for Delta, because their region, Zeeland, is not densely populated. More importantly, the energy market was going to be liberalized, and Delta wanted to offer their customers a complete set of utilities. Therefore, the water business unit had to be included in the liberalization process. At Delta, 'sustainability' was seen as governmental terminology imposed on the company. The general concepts that Delta connected with the term, such as long term thinking, a whole system approach, renewability and carrying capacity, were nevertheless valued by the company. Delta's managers even claimed that they had always worked along these principles. The term 'sustainability' itself was not appreciated by them, because it was associated with political whims. This is also how the respondents used the term themselves: in a strategic way, to legitimize activities, for example when Delta applied for a subsidy. Towards the provincial government Delta emphasized the sustainable aspect of their activities for industry, and at the negotiation table of the industries they emphasized the financial efficiency of water recycling. Strangely enough, Delta also invested some money in nature development, which is not understandable from a strict business standpoint. It turned out that a tight provincial groundwater policy had forced Delta to take nature-friendly measures in the dunes (Province of Zeeland, 2001). Even though Delta had an aversion to governmental politics, the provincial government still had the power to make Delta adopt financially unrewarding activities.

Cross-Case Analysis

The case descriptions are used to check the hypothesized relations between the network of actors, perceptions of sustainability, strategy and operations. The cases provide evidence that the network influences perceptions of sustainability at the water companies. Respondents confirm that they are influenced by network partners, especially by governmental shareholders; the use of the term shows

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similar patterns at companies and network partners and the perceptions of the companies match those of their networks. It appears to be an ongoing dialogue, to which water companies actively add views from their own cultural perspective. The views on sustainability that we found are therefore a mixture of governmental and company views on reality. This means that the culture of the water company is at least one other factor explaining the perceptions of sustainability.

Unexpectedly, perceptions of sustainability are no input to the strategies, but more a kind of output. The strategy is much more important to the companies. Strategy is constructed (or emerges, Mintzberg, 1989) in the light of the company structure (e.g. is it a multi-utility or not?), the market, problems with water resources and the decision structure (e.g. one or more shareholders?). At the time of the interviews, the most important strategic question for each company was whether they wanted to keep the public monopoly, or whether they preferred liberalization. The multi-utility companies were in favour of liberalization, and the mono-water companies said no. Strategy is also influenced by a company's history and culture from which the value of the concept of sustainability for achieving strategic goals is estimated. If the concept seems useful, it is filled with existing cultural values, which depend on the situation the company is in. For example, the multi-utility companies were involved in the debate on renewable energy. This is then translated to water resources: they should also be renewable. PWN had been involved in nature management since 1934, and these practices influenced their conceptualization of sustainability.

Another important finding is that the networks around the companies not only influence perceptions of sustainability, but also strategy, and in many cases they even have the power to influence operations. This is especially true for the shareholders: municipal and provincial governments. The relationship with the main regional actor – the province – differed. The relationship of PWN with the Province of Noord-Holland was as close as can be: 100% shareholdership. We found full support of PWN's strategy by the provincial government, and a complete overlap in ideas about sustainability. WMO, on the other hand, had a slightly troubled relationship with the provincial government. This government seemed less influential: WMO apparently was a strong negotiation partner. A similarity was that WMO and the provincial government were both not so nature oriented. WMO also had municipal shareholders, who may have been more interested in selling their shares. This made WMO more uneasy with the liberalization debate compared with PWN. Delta and Nuon also had different relationships with provincial and national governments. Because Nuon had merged to a size above the provincial level, provincial influence on the strategy had become limited. Nuon had the Ministry of Economic Affairs as its most important reference. This allowed Nuon to ignore provincial wishes. For Delta, the provincial government of Zeeland still was its most important contact. Serving the Province of Zeeland remained the most important goal for Delta, and growth was sought in diversification within this region. The provincial influence induced Delta to invest in nature management, even though this was not interesting from a commercial viewpoint.

A change in the strategy did indeed lead to changes in the networks of these companies, especially with regard to the market. For example, the decision of PWN to reduce their impact on nature greatly improved their relationships with nature organizations. Delta's decision to go for liberalization caused them to seek close relations with all industries inside and outside their region. WMO's strategy to become more customer-friendly was put into practice via customer surveys among citizens. Therefore, the feedback loop in the original model was confirmed.

At the operational level, a number of factors explain the existence of sustainable activities: activities may be a remnant of former company strategies, some of which are influenced by perceptions of sustainability; activities may be a result of deliberate operationalization of present company strategy; activities may also be a result of direct market demand, which happened to be sustainable, and activities may have been forced upon the company by external actors.

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Conclusions

Based on the cross-case analysis described above, the questions raised in the introduction can be answered as follows.

What perceptions do people within Dutch water companies have of the concept of sustainability? Water companies perceived sustainability as a concept that was in their own interests to use. The concept also made them realize that the water companies need to perform well on environmental issues so that they can rightfully ask other actors to behave responsibly. Apart from this shared view (originating from the Vewin Environmental Plan of 1991), the companies each developed their own specific versions of sustainability.

Which societal actors are involved in the process in which these perceptions are constructed? Provincial governments had the most significant influence on the water companies. They have a groundwater licensing task and often were major shareholders. In addition, the EU and the Dutch Ministries of the Environment and of Economic Affairs were influential, because they decide on the market structure for energy and water utilities. The influence of other societal actors, such as large industrial customers, water boards and nature organizations, differed in every case, giving the perceptions of sustainability of each company a special flavour.

How do these perceptions influence company strategies and operations? Environmental awareness had been present in the sector for more than 70 years. As a consequence of this long experience, the concept of sustainability did not lead to a strategic turnaround in any of these companies. They saw most of their present processes as sufficiently sustainable, because they built durable infrastructure and implemented the Environmental Plan (1990) of the sector organization Vewin.

A certain level of consensus is necessary in order to put sustainability into practice. However, the case studies show that expressing different opinions is equally important. Sustainability has a broad and multifunctional meaning, and every organization and person needs to apply it to his or her own situation. In this process, people use their own frameworks of reality, and because the frameworks differ everyone comes to different conclusions. This is clearly illustrated by the case studies, in which four companies with the same end product, within the same legal boundaries, come to four different conclusions about what is sustainable.

Reflective Thoughts

The analysis showed how the concept of sustainability entered a society that was already filled with meanings, actors, activities and coalitions. The concept of sustainability was then connected to these existing meanings. For example, for most respondents in this research 'sustainable' is a label for all issues and activities previously labelled as 'environmental'.

The 'weak', or human-oriented, school is found at three of the four water companies: Delta, WMO and Nuon. This is understandable, because water companies have a human-oriented task: to provide the public with drinking water. The problem with the 'weak' approach to sustainability is that the economic and social aspects are likely to prevail when times are more difficult. This is shown in the case studies by the influence of the liberalization debate: sustainable activities are postponed or cancelled, unless they are financially rewarding.

The 'strong' version of sustainability was found in several governments: the Ministry of VROM, provincial governments and a water board, who all mentioned the theme of staying within the limits of the natural system. The problems with this version of sustainability are that the limits of the natural

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system are often hard to calculate, and that the consequences of this principle are unacceptable for most other societal actors.

Neither the weak nor the strong version of sustainability seem to be a solution for the problems sustainable development was meant to solve (Gladwin *et al.*, 1995). A third form of sustainability should be developed that bridges the human and the nature interests. Humans have to start seeing themselves as an integral part of nature again, instead of as being outside and above nature (Dryzek, 1997). This idea seemed to be put into practice by PWN. PWN combined human and nature goals and tried to improve them both continuously. This is likely to be a new, more promising model for the interaction of humanity and nature.

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