

Chapter 6 Nuon: sustainability as a market opportunity

6.1 Introducing the company: Nuon

Nuon uses a number of buildings. I visited:

- A building in Velp which Nuon shared with cable company UPC. It's an ordinary nineteen-nineties office with a small foyer. It accommodated the water business unit of Gelderland. Nuon left the building in 2001 to move to Zutphen.
- Bellevue, which is a large, new building in Arnhem. Nuon shares it with engineering firm Arcadis. It is 'announced' with a metal art structure across the street, and a solar energy unit stands in front of it. Inside there are 'streets', receiving daylight from a glass roof, its floors connected with open staircases. Near the entrance a coffee bar is located, as in a hospital.
- In Baarn Nuon rented an office for its strategy unit. It was probably built in the nineteen eighties, and had a luxurious interior. Nuon left it in 2001 to move to a new head office in Amsterdam.
- A tall, slim, dark-grey building, built for the Nuon business units Water Friesland and Water Technology between 1999 and 2000. It stands out in its surroundings because of its height, form and dark colour. Around the building, a large, undep pond has been filled with water, but is otherwise still lifeless. The smart reception desk of wood and glass is not quite finished yet. The receptionist sits in the next room.
(description of Nuon's entrances on the 2nd of October, 2001)



Nuon's building in Velp



The Bellevue in Arnhem



Nuon's new building in Leeuwarden

Nuon's year report of 2000 starts like this: "Nuon has had a good and important year. The enterprise is on course strategically, and the foundation has been laid for further growth. The focus has been to create a sound basis for the enterprise: integrating the companies that merged into Nuon in 1999, building an organisation, securing financial control, controlling the costs, and human resources management."

Table 6.1: Main figures according to Nuon's year report 2000

	2000	1999	unit
Total operating income	8190	7254	Dfl. 1 million
Net profit from normal operations	722	610	Dfl. 1 million
Solvency	47,7	46,9	%
Water sales	97	97	1 million m ³
Customers electricity	2,647,000	2,609,000	
Customers gas	2,034,000	1,911,000	
Customers warmth	64,000	57,000	
Customers water	567,000	561,000	
Employees	6807	6919	fte
Production of sustainable energy in the Netherlands	653	490	GWh
Production of sustainable energy abroad	607	70	GWh

6.2 How is the term 'sustainability' used at this company?

At Nuon, there is no agreement among respondents about the use of the term 'sustainability'. Two respondents claim it is used a lot:

R6 : The concept sustainability wanders around, swarms around here at this organization. Many people choose to work for Nuon, because we are explicitly committed to that. (77:28)

This respondent works at the corporate level. The other respondent works at a division specialized in sustainable energy:

R5 : In our vision we state that we want to be a leader in sustainability. And that is not just talk, we are serious about it. (67:3)

The respondents from Nuon's water division do not use the term very often. They switch to more tangible terms as soon as possible. One respondent only uses it when he has contact with the sustainable energy division:

I : Do you use the term sustainability a lot at this company?

R2 : Well, I don't, because I don't know what to do with it. I don't know what it is. (...) Look, when I'm talking to [R5], then it's about using natural resources whenever possible, renewable resources (66:3)

Maybe sustainability is part of Nuon's strategy at the corporate level, because it is important for their energy business. This influences the water business units somewhat, but otherwise the term is not very important for them.

6.3 Themes associated with sustainability at Nuon

To answer the research question about perceptions of sustainability, it was analyzed what meanings the respondents attributed to sustainability. As described in Chapter 2, these meanings were sorted into themes. The set of themes presented here characterizes the views of Nuon.

6.3.1 Environment and long term

For most of the Nuon respondents, sustainability means caring about the environment and a long term perspective:

R2 : We are of course dealing with (...) nature and environment. (...) everything we build is for the very long term, if that's what you call sustainable. Our pipelines stay in use for one hundred years. (66:23)

The person at the corporate level also uses the concept for social and economic relations:

WF : Sustainability has a lot of different meanings (...) we want a sustainable relationship with customers, but we also want a sustainable relationship with our employees. (77:29)

Apparently, he is involved in more fundamental discussions on sustainability. Respondents from the water company tend to use it strictly in the environmental sense:

R1 : We try to achieve a balance (...) in which sustainability plays a role but not at any cost. (...) Because you can't say: I'm sustainable and I don't care about the customer. (73:4)

Maybe the corporate message on a broader meaning of sustainability had not reached the water division yet at the time of the interviews.

6.3.2 Use renewables and minimize damage

Nuon respondents translate sustainability to use of renewable resources and minimizing environmental damage. Responsibility is especially felt at the energy business:

R5 : We feel responsible because we sell a product with significant negative consequences for the environment. We try to do as much as possible to reduce these negative consequences. (67:7)

At the energy business the reasoning is coherent: sustainability is for the long term, this means using renewables, and renewables are restricted to solar, wind and water energy. At the water company the reasoning is more fragmented: a number of activities for minimizing environmental damage exist already. If you want, you can put a banner such as 'sustainability' on those activities:

R2 : All our efforts aim at reducing the environmental burden. We continuously work on reducing energy demand (...) Even though it's green energy. What I told you about sludge, what I told you about changing the vegetation, about improved infiltration in urbanized areas. All aimed at nature aspects, that is what we are working on. And if you call that sustainability, then it's sustainability. (66:23)

6.3.3 LCA methodology

At the Nuon water division sustainability is not discussed at a fundamental level, but one of the respondents would like to apply LCA methodology in decision processes:

I : So your way of dealing with it is putting it into practice?

R2 : Yes.

I : Without exploring exactly what it all means?

R2 : Well, not the term sustainability, but we do work out the term environment. We have thought about applying environmental life cycle analysis on all our practices, it has not been done yet. (66:25)

6.3.4 Groundwater or surface water?

The dilemma of using groundwater or surface water is most talked about. In this discussion the general principle of renewable resources is applied:

R2 : When you say: I only use renewable resources, if that's sustainability, then we are totally sustainable, because water is very sustainable. Water never breaks down. (66:4)

One respondent argues why groundwater is sustainable:

R1 : groundwater is simply a..., well, I should not say that, surface water is also sustainable, but surface water costs more energy to clean it (...) when you look at the Vewin-benchmark, then we have a good score with a couple of others, but that's partly also because of the resource they have, if you have a bad resource then you have to purify it more thoroughly (24:30)

Groundwater is sustainable because it requires less energy. This view is reinforced by the Vewin benchmark, because surface water using companies score badly on environmental aspects. In the benchmark, energy aspects define 75% of the outcome.

Another Nuon respondent, however, identifies the use of surface water as more sustainable:

R4 : There is an abundance of surface water in the Netherlands. Groundwater, well, we say there is enough but it does have consequences. Much more than surface water. (68:19)

During extraction of groundwater, damage to the environment should be minimized, but some damage is allowed:

R1 : I think sustainable groundwater management should not cause any damage on the long term, and allow future generations to have a good ecosystem, but it can have some influence compared to a natural situation. (...) sometimes I hear people from the provincial government say: you should not have any influence at all. I said, well, then you must exterminate humanity because we live on the earth, so we have an influence. (24:7)

This is especially true if an important human interest is at stake:

R1 : If you look at the reason why we do it, and for whom we do it, then I still think it's sustainable. It's a balanced situation (...) it's no exhaustion, and we do it for the people. (24:43)

The human interest in drinking water is clear, while the goals for nature are not. There is no real nature left in the Netherlands, and besides, nature changes over time, so Nuon is allowed to change it too:

R1 : There is no nature left in the Netherlands, it's a culture landscape of different ages. (...) and if you look at history, with ice ages and so on, it has always been dynamic, so in that sense sustainability is a relative thing. (24:9)

If nature is a relative interest, it will be difficult to compete with the human interests. Luckily, extraction of groundwater does not always damage nature on the Veluwe. Only at the rims of the system some influence is felt:

R1 : if the groundwater table (...) in the middle of the Veluwe is at 40 metres below surface, and I lower it with one metre without bothering a single tree (...) then I don't feel like I'm doing an unsustainable thing. When I'm at the border of the Veluwe in seepage flow areas with water-dependent nature, and I lower the groundwater table with 5 centimetres, then I can cause a whole different biotope (24:8)

Therefore, sustainable groundwater use is locally defined:

R2 : We argue to look at it locally, not generally. You can't just say: we are going to close down pumping stations. (66:6)

6.3.5 Theme overview

Figure 6.1 shows which themes are associated with sustainability by Nuon respondents. To them, sustainability is about the long term and about caring for the environment. General principles they use are using renewables and minimizing damage to the environment. The 'use renewable resources' principle is important for Nuon's energy business and entered the water business through contacts between these business units. At the water units the principle is simplified with the conclusion that water is a renewable. The 'minimize damage' principle is explained in a human-oriented way: causing damage is unavoidable since we humans exist. Nature has a relative, not an absolute value, and sustainable groundwater use is locally defined.

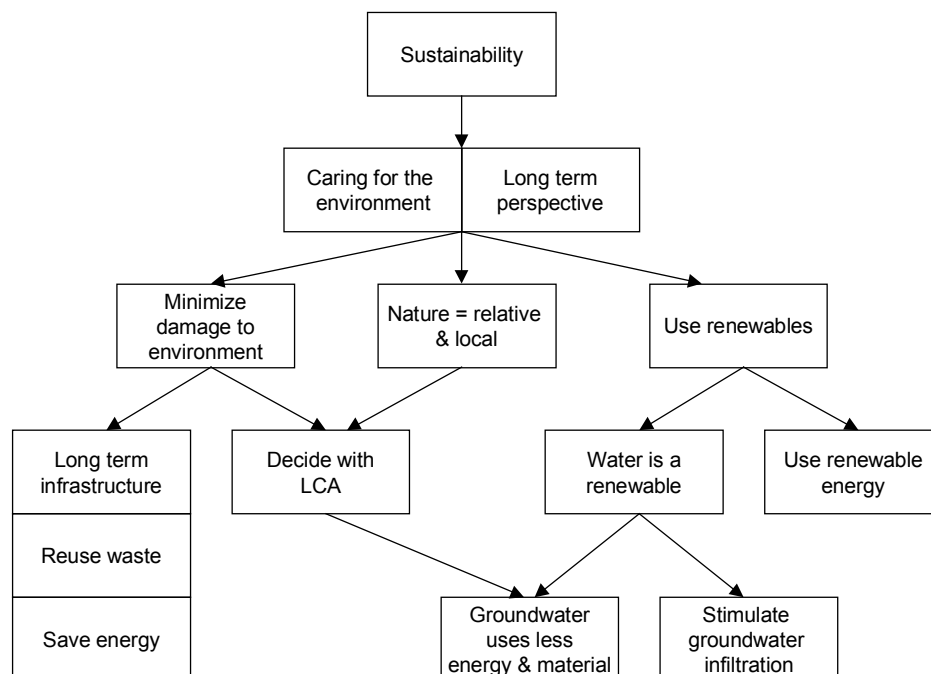


Figure 6.1: Themes associated with sustainability by Nuon respondents.

At Nuon principles are quickly translated to practice: long term infrastructure, reuse of waste, saving energy and using green energy. This may be due to a technological culture. If it is difficult to decide between alternatives such as household water or drinking water, surface water or groundwater, they think an LCA should be used, but this is not practiced yet. The Vewin benchmark supported Nuon's idea that groundwater is more sustainable because it requires less energy.

The sustainability principles used by Nuon concern mainly the Planet aspects nature and environment. Nuon is mostly interested in 'grey' environmental issues such as green energy and waste reuse.

Nuon respondents often use natural scientific arguments to explain groundwater use (groundwater uses less energy, humans belong in the ecosystem; groundwater reduction not always benefits nature). They do not use economic arguments, for example, they do not say: "groundwater is more sustainable because it's cheaper".

6.4 How does sustainability fit into Nuon's strategy?

Below, Nuon's strategic themes will be explored.

6.4.1 Being a multi-utility company

Nuon is a multi-utility company. Consumers are offered gas, water and electricity. There are historical reasons for this strategy: between 1850 and 1900, larger municipalities started their own public utility, covering gas and water and later also electricity. Nuon is rooted in a number of these municipal companies. Being a multi-utility company improves operational efficiency:

R1 : the advantage of gas and water is that both of them stream through pipelines. (...) you can even use the same material. (...) people who construct and maintain the pipeline network can work for water as well as gas. (...) One person to read the customers meters instead of three is of course much more efficient. So the advantages are in distribution and in customer processes. (73:23)

Billing systems and call centres can also be combined. Furthermore, a multi-utility structure enlarges investment possibilities:

R4 : The advantage of being linked to an energy company is that you can invest in new technology, you have enough money. (68:37)

Another strategic reason is caused by liberalization of the energy sector. This provides a chance to find new markets in Third World countries:

R4 : growth in the Netherlands is hardly possible anymore (...) If you want expansion in energy, you have to go to Third World countries. (68:25)

In Third World countries the demand for water supply is more urgent than for gas or electricity. This is why Nuon holds on to its multi-utility character:

R4 : every time we ran into that question, especially in Third World countries: can you also handle water? So then it was said: energy, fine, but if we want to expand abroad, we also need water knowledge. (68:27)

The link is sometimes also made backwards, namely that helping Third World countries is only possible when the sector is liberalized:

R3 : The World Bank says: you want to solve the water problems in the world? You can't leave that to governments, because they are all corrupted, so it's only possible with help of private initiative (80:40)

Unfortunately for Nuon, the water sector in the Netherlands will not be liberalized. This means that when energy is going through the end stages of the liberalization process, water may have to split off. This would be the end of Nuon's multi-utility strategy.

6.4.2 Expansion strategy

Liberalization of the European energy market forces Nuon to enlarge their scale:

R4 : the energy market is being liberalized (...) If you want to have a role in Europe and in the world, you'll need a certain size (...) so the company will have to grow. (68:25)

The growth strategy is mainly pursued by mergers and acquisitions. Nuon has grown fastly during the past decade. In 1994 the energy company of the provinces Gelderland and Flevoland merged with the company of Friesland, and Nuon became the corporation's new name. In 1999 another large merger followed with Energy North-West, EWR and Gamog. The water division is also a result of mergers during this period. Firstly a number of small water companies in the Province of Gelderland were merged, and in 1998 a merger with the company in the Province of Friesland followed. Mergers are seen as a strategic advantage at Nuon and its predecessors:

R1 : When I say I witnessed many mergers, I mean I have witnessed many mergers even before Nuon existed. Municipal companies were added several times (...) Because once you take that step you are ahead of the rest. That's why we hoped we would become a core for further mergers after the merger of Gelderland and Friesland. (73:16)

But after this last merger, the growth strategy became difficult in the Netherlands:

R1 : we always said: well, if companies want it, fine, if they don't, it's a pity, we think it's a pity, we would like to enlarge our scale in the Netherlands because of our ambitions abroad. But we can't force anyone. (73:35)

Nuon prefers to merge quickly:

R1 : we prefer to merge directly. That hurts sometimes and you have some unexpected things (...) Because if you want to have everything organized from the beginning, then you can be sure there are enough reasons not to merge (73:14)

A quick merger enforces the social construction of being one company, before people can really think and come up with competing world views. After each merger, Nuon makes structural adjustments in order to achieve efficiency goals:

R1 : Everything used to be geographically organized (...) And now processes are brought together more and more. Because all the distribution aspects are combined, and all customer relations go into another unit. (...) It has to become a lot more efficient than the old system (73:22)

However, at the speed with which Nuon operates, it is hard to work efficiently:

R2 : Reorganisations are going so fast with Nuon that they cannot build for it. The Bellevue (...) was too big before it was finished, so part of it was rented to Arcadis. But before Nuon had moved in, it was already too small. (66:62)

Nuon's internal networks are under stress because of the mergers and reorganizations:

R2 : after every reorganisation there is a kind of wound. (...) Some time is needed to calm down and to build new networks. (...) There have been so many repairs lately, that it has become rather critical. (...) Either we are brilliant and ahead of the rest in the Netherlands, but then we do need some rest, or it will go wrong. (102:18)

The growth of the company has made it hard for middle managers to make themselves heard:

R2 : there are more and more hierarchical layers above me. (...) I used to talk to the director on a daily basis, later I ran into him regularly, and now there is hardly any contact. When I hear something nowadays, it's all settled, it has already been decided. I used to participate in the decision making proces. (66:64)

After the reorganizations, Nuon business units have separate financial goals. Nuon Water sees Nuon Infra as a subcontractor, but lacks information on how Nuon Infra is performing:

R2 : This morning, I had a meeting with Infra. They asked me to sign a bill of 1,8 million. But they couldn't tell me what they had done for that amount of money. How many metres of pipeline have been laid? How many water meters are placed? How many defects have been put right? (66:61)

It seems that transaction costs are rising because Nuon has been split up in separate business units along functional lines. The upheaval from the fast mergers and the divided financial responsibilities reduce internal coordination and cooperation.

Friesland and Gelderland are in two different parts of the Netherlands so infrastructure cannot be shared. Nuon would like to share infrastructure with neighbouring companies but these companies resist the mergers:

R1 : The provincial government wants to reduce extractions on the Veluwe with 25%. That's why the merger with Gelderland is important, because then we can solve things more efficiently, water transport across the province, that kind of things. (102:8)

So increased efficiency is a goal for the medium term. Nuon's short term goal is reaching a certain size to compete on the global market:

R1 : A city like Buenos Aires wants a water supplier with a large home market (...) we can tell them a nice story, but then they will ask: yes, but (...) what experience do you have, how many customers do you have at home? (24:59)

Therefore, aiming for a larger scale and competing on the international market are related strategic goals. There may also be a difference in interest between the corporate and the business unit level. Maybe the corporate level wants to become an international player, and the internal needs have to wait. At the moment, primary processes have no priority at the corporate level:

R4 : But when you're talking about technology and a strategy for primary products and processes, then it proceeds, well... My impression is that the corporate management hardly looks at the content. As long as it works, as long as they don't get any bad news. (68:35)

What do all these organizational developments and problems mean for sustainability? Structural adjustments could provide room for renewal, especially now that sustainability is proclaimed as one of Nuon's most important goals. However, the reorganizations lead to loss of coordination and cooperation. These organizational problems make the achievement of strategic goals more difficult, including sustainability goals.

6.4.3 Leader in sustainability

For Nuon, sustainability is a part of its strategy. Its mission statement even says it wants to be a leader in sustainability. Sustainability is a hot issue at Nuon's energy business:

R5 : We feel responsible because we sell a product with significant negative consequences for the environment. We try to do as much as possible to reduce these negative consequences. We also think the government should work harder on it. That's why we plan to achieve the 10% target ten years earlier. (67:7)

At Nuon they believe in sustainable energy, and they want to be ahead of the governmental goal of 10% in 2020. For our case study it is interesting how this energy business influences the water business. In the paragraph on operational practices we'll see that they indeed share these ideas.

6.4.4 External image building

Because the energy sector will become liberalized, Nuon has to reform itself into a commercial firm. It immediately started to communicate about the new identity to the outside world. Nuon sponsored soccer club Vitesse for a while:

R5 : The step to sponsor Vitesse in order to make Nuon a well known name. That was really planning ahead for a liberalized market. (67:11)

But the sponsoring stopped when mismanagement of Vitesse threatened to do Nuon's reputation more bad than good. Nuon was also one of the first companies to start an advertising campaign on television and in newspapers. In this campaign, sustainability aspects are emphasized:

R1 : it also has something to do with creating a brand name for the free market (...) we want to show that we don't take any shortcuts, aim only for a low price. (...) those commercials about (...) solar energy which seem to be about something else (24:56)

Another strategy to improve Nuon's image is building alliances with nature organizations. The World Nature Fund has agreed that Nuon uses its name to promote sustainable energy. Another large Dutch nature organization gets help from Nuon with solar energy appliances in nature parks, and Nuon makes sure the press knows about this. Nuon chooses activities with a high visibility and symbolic value. Despite these efforts to get a green image, Nuon meets scepticism about their intentions at the water sector:

R1 : if we think of something, the others say: oh, that's Nuon again so we're not going to follow them. (...) we never raised the price for that, at the time we were merging Gelderland and Friesland, we said: the synergy advantages of the merger are not translated into a lower tariff, but in an environmental improvement. Then there was scornful laughter again, like: "ha, such starry-eyed idealists". Well, take it or leave it, I would say. (73:34)

Somehow, Nuon's effort to create a sustainable image is not succeeding. Other companies seem to have doubts about Nuon's integrity, or about the compatibility of Nuon's aggressive commercial strategy with sustainability goals. Nuon itself believes in this compatibility strongly. To Nuon it is a logical, future oriented differentiation strategy.

6.4.5 Technological innovation

Technological innovation is of strategic importance for Nuon. It is more important than saving costs:

R1 : At a number of companies you notice (...) a pressure on efficiency and lower costs, that things like research (...) are under pressure. (...) And I dare to say that we achieve to maintain that on a rather high level, given the changes that are taking place. (73:33)

Nuon has put water technology development into a separate business unit. The department is strengthened by the acquisition of technology suppliers like Norit.

Nuon hopes to win contracts on the international market with unique technology. To prepare for this, Nuon is working on a pilot project of local drinking water production with membrane technology in a Dutch city:

R3 : for a new development in Leeuwarden we (...) can make drinking water quality with new membrane technology. So we think it's better to try (...) and build a local purification station for local surface water with membrane technology. (80:25)

Innovations are also used in Nuon's publicity campaigns. During one of the interviews, a respondent shows an advertisement about the Nuna, a solar energy car that won a race in Australia and was sponsored by Nuon:

I : What are you going to do with this?

R2 : Advertise.

R1 : We advertise with it and we sponsored it. We are a Dutch company with a prominent position in sustainable energy. You can criticize Nuon about many things, everything that went wrong, but with this we were the first. And it...

R2 : Yes, and look, this way Nuon also helps to develop new technologies, because these are very good innovative technologies, I understand, which are used in the aerospace industry.

JK : So have you become partly the owner of this technology?

R2 : I don't know.

R1 : (...) we are mainly financial supporters (102:16)

This sponsoring activity mainly seems to have had a PR function. Apparently, it is also something to be proud of, uniting Nuon employees.

6.4.6 Aiming for low costs

Because of Nuon's background as a governmental monopolist, they need to restore the balance more towards efficiency. This is not only because of legitimacy in the Netherlands, but also because of international competition:

R2 : At the moment we have high norms, compared to Europe and even globally. When we are taken over by a large company, for example Vivendi, then it is likely that we will adopt the norms of that larger company, especially if we have to lower our costs. And that projection influences us already. To prevent that, Nuon wants to become big itself and that's why we are already lowering costs and quality somewhat. (76:26)

Although saving costs is on Nuon's list of goals, it is not their top priority:

R1 : we also do things that cost money, like the car in Australia (...) If we only looked at money, we would not do that. Membrane filtration (...) is always more expensive, because you need more energy, but you do it to promote a development and because you can produce a better water quality. (102:21)

So Nuon looks for a balance between saving costs and improving technology. The moderate low-cost strategy is sufficient because Nuon is not really aiming for the cost-sensitive industrial market, but for the consumer market.

6.4.7 EFQM quality model

Around 1996, when several smaller water companies were combined into Nuon water Gelderland, a quality care system was introduced:

R2 : When we were established as Nuon Water Gelderland, I got the assignment to lead us to a Total Quality certificate. Well, I did that, but not with the intention to just write down processes. (...) It's about leading the company properly, and to have proper control (66:51)

They chose the EFQM quality model to upgrade management processes:

R2 : the EFQM model is a kind of balanced scorecard which (...) divides your output across different stakeholders. So we have: customers, society, employees, shareholders (...) We said: society and the environment is the same for us. Environmental demands are societal demands. (66:48)

Sustainability issues can be placed in the 'societal' corner of this model. The model helps Nuon to balance all stakeholder interests and/or to defend their decisions to the outside world:

R1 : we try to maintain a balance which caters to the needs of all these different stakeholders. It's no use to say: the customer pays a little less and we'll underpay our employees. (...) Shareholders can expect some return on their capital but they must not think that we are WorldOnline (...) environmental organizations will say: well, what you do is not 100% good for the environment, consumer organizations say: you should improve things for the customers (...) if they all grumble a bit then you're near the right balance. (24:24, 24:25)

Client-orientedness is one of the most important goals of the model:

R2 : We used to say: we supply water and the water is good, meets the norms, costs this and that's all folks. Now we approach the large customers, and in a way also our individual customers, with surveys: what is it exactly that you want? And then we find out that they surely want good water, but they also want good service. (66:52)

The quality care system introduces more commercial values into Nuon's culture. The end goal is to become a commercial, customer-friendly company.

6.4.8 Strategy overview

The elements of Nuon's strategy are strongly interrelated. A main element in Nuon's strategy is that they want to become an international player on the energy market. This has a number of consequences, of which expansion is the most important. Through mergers and acquisitions Nuon wants to achieve the size that is necessary to be taken seriously on the global market. The energy business units drag the water units along, because Nuon is a multi-utility company. The effort to compete abroad, in turn, strengthens Nuon's identity as a multi-utility company because offering both energy and water is a competitive advantage.

After comparison with competitors abroad, Nuon wants to reduce costs. Low costs are not their first priority, because governments are still their most important business partners, and groundwater is a cheap resource. It is even possible that this aim is only mentioned by respondents for symbolic reasons: to be taken as a serious commercial firm.

Creating a modern, commercial image is important for Nuon. They advertize, sponsor and market more than any other energy or water company in the Netherlands. Sustainability and innovation are important aspects of this image. Possibly, sustainability is a strategic priority for image reasons. This strategy may be successful: when people can really choose between energy companies, they may simply choose a name they recognize.

Sustainable energy is a strategic element because Nuon expects a growth market for it. Consequences are investments in innovative technology and introduction of the EFQM stakeholder model to guide societal pressures on Nuon.

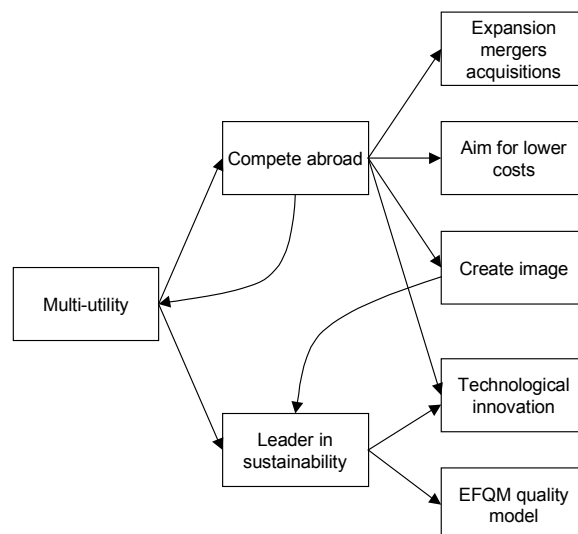


Figure 6.2: Nuon's strategy

The strategy elements 'leader in sustainability' and 'innovate technology' indicate that Nuon has a differentiation strategy (Porter, 1980). They do not want to be the cheapest, they want to be unique. Sustainability is used as a banner by Nuon but below the surface they are mostly interested in the technological development and market opportunities this will imply for the future (probably with the exception of the people at the division for sustainable energy). The image building part can become a weakness if this is not accompanied with internal change processes to actually implement and update the features presented to the outside world.

Nuon respondents express no fear for the future. They only talk about opportunities, successes and dreams. If they complain, it is about people who slow down liberalization, and about people who have doubts about Nuon's integrity. Nuon's strategy creates a lot of discussion and Nuon struggles with the consequences for its image. We'll take a closer look at this interaction process in the section on the network.

6.5 To what kind of 'sustainable practices' does this lead?

6.5.1 Sustainable energy

Nuon has indeed become the market leader in sustainable energy in the Netherlands. They limit sustainable energy production to wind, water and solar energy, and do not use biomass because they want to sell an undisputed product. With selling green energy, they are ahead of their competitors, because they are the only company that actively approaches customers from other energy companies. These other energy distributors are hesitant to acquire new customers because they have not enough sustainable energy to sell. Realization of sustainable production is slow in the Netherlands because of spatial planning procedures. Nuon planned ahead by investing in green energy production across the border.

Nuon's water business unit in Gelderland decided in 1998 to buy 100% green energy for their water production. With this Nuon wants to set an example, because they need other societal actors to behave responsibly too:

R2 : Our whole purchase of energy is sustainable energy. We do it to set an example. (...) We have a high stake in nature, so we ask other people: please be careful with nature, otherwise the drinking water gets spoiled. So we have to set an example. (66:13)

Green energy made Nuon's drinking water a bit more expensive, but the benefits are larger:

R1 : It causes production costs to rise two or three cents per cubic metre. And we said: we'll do it anyway because we think it's realistic, two cents for a cubic metre, so that's 1% compared to 100% environmental gain in the area of energy (24:22)

Nuon Sustainable Energy is their supplier, but did not initiate the deal:

R5 : At some point the water company came to us and said: we want to excel in sustainability. And one of the ways, next to all kinds of measures that I don't have anything to do with, let's try to make all of our energy use sustainable.

I : So the initiative came from the water business?

R5 : Yes. And then we worked it out together.

I : I see. Because I was thinking, if you want to develop a new technology, it is nice to have a kind of home market, where you can sell some of your product.

R5 : No, that's not how it went. (...) They came to us with that demand. (67:1)

Because of the use of green energy, Nuon Water Gelderland scored best on environmental issues in the benchmark.

6.5.2 Groundwater and desiccation

Nuon uses only groundwater for its production of drinking water. The advantage of groundwater is that its quality is stable:

R2 : We have twelve pumping stations in this supply area in Gelderland, and only one of them produces infiltrated river water. (...) All other pumping stations produce groundwater, pure groundwater. That water is between 10 and 4000 years old. Its quality is stable. (66:34)

In Friesland the company also uses deep groundwater:

R3 : below the entire province of Friesland lies an aquifer of (...) between 80 and 150 metres, and it actually is a very deep aquifer, which (...) stretches into the neighbouring province of Drenthe (80:8)

Groundwater of good quality is only available in the south-eastern part of Friesland, where Nuon has four relatively large pumping stations. In the north-west of Friesland groundwater is brackish. In general, Nuon respondents feel blessed with their resources, and they want to continue using them:

R4 : we want to continue the use of groundwater as a resource for drinking water supply, we have wonderful groundwater over here. We can pump a lot of that water right into the network, without purification (...) In some places we need to purify a littlebit, we use a sand filter and percolate the water through it to remove iron and mangane. And that's all to get excellent water. (68:32)

However, there are desiccation problems and therefore the provincial government wants Nuon to reduce extractions with 25%:

R2 : In the places where we extract water (...) natural drainage becomes less. That's what the anti-desiccation policy is aiming at. The provincial government finds it hard to translate, because then they have to measure it. (...) So they made a simplistic translation into: you have to extract 25% less. (66:1)

Switching to surface water is not an option for Nuon:

R2 : the nice water we have, we can let it go to nature and drink surface water ourselves (...) If you choose to do that, great, but we are not in favor of it. We think: you should drink the nice water and the less nice water can be used for nature (66:43)

The solution preferred by Nuon is stimulation of groundwater replenishment:

R2 : The important thing is the effect. So it should be possible to enlarge replenishment. (...) One of our efforts is to stimulate forest owners, and we pay them for it, to stimulate them to switch from pine wood to hardwood. That's meant to increase groundwater replenishment. (66:1)

R1 : drift sand is favourable for us, because little water evaporates form a bare surface compared to vegetation. (...) So we support that too. (24:12)

So Nuon sponsors nature organizations to change pine forest into hardwood, and to restore drift-sand areas. They also sponsor local governments to allow rain infiltration into the soil instead of fast drainage towards the sewer system:

R2 : By disconnecting paved surfaces from the sewerage system, I mean parking lots or roofs, you also get more groundwater replenishment. (66:8)

R2 : it actually is a task of municipalities. (...) The only thing we can do is to stimulate it (...) and to provide some financial support. (66:10)

Are these activities successful? Nuon does not measure the effects:

R4 : The experts say the effect is hardly measurable. (...) Our reasoning goes like this: we know the water is infiltrated and we also keep some people off our back. It generally also benefits nature values (...)

I : So they could be measured then.

R4 : Well, there are organizations who monitor if certain plant species have returned (...) we are highly interested in their results. But we don't do any monitoring ourselves. (68:12, 68:13)

The goodwill of stakeholders is a more important goal of the sponsoring activities than the effect on nature. Especially the provincial government is important because it intends to reduce groundwater extractions:

R2 : If we don't pay those organizations, the consequence is that we are not allowed to extract anymore, that we have to go to some other place with our water extraction. (...) or to switch to surface water, and be forced to spend a lot of money on that. (66:10)

Another solution for desiccation promoted by Nuon is a compensation water project:

R2 : There are a lot of brooks and rivulets here on the Veluwe. (...) water that is not used by the industry can be (...) transported back up the hill. Many people have problems with that, they say: that's just a kind of gardening. That's all too artificial. Well, that's true, but most of the Netherlands is becoming artificial. (66:9)

Although there is some opposition, the Provincial government agrees:

I : And does the provincial government find it a good idea?

R1 : Yes. It means that the nett extraction becomes less, so you have less desiccation. (102:12)

On the Wadden Islands an expensive solution for desiccation in the dunes is implemented by the water company of Friesland before its merger with Nuon:

R3 : the vegetation in the dune valleys was changing because of a lower groundwater table (...) At a certain moment we had to build two pipelines across the Wadden Sea to the islands Terschelling and Ameland, so we supply them from the mainland (...) it cost us a lot, something like 15 million guilders. (80:26)

When the same problem arises on two more islands, the Friesland company looks for a cheaper solution:

R3 : A few years later the same problem came up on Schiermonnikoog and Vlieland (...) So we moved the extraction (...) to the edge of the island (...) just before it would enter the sea (...) an investment of about three or four million (80:27)

Dune vegetations seem to mobilize more action than inland desiccation areas.

6.5.3 Nature relationships

Nuon Gelderland's most important groundwater resource is a large nature park:

R1 : In Gelderland we have the advantage that we extract a large part of the water from the Veluwe. The Veluwe is of course a nature park where protection of groundwater is secured very well (24:2)

The advantage of this park is that it is a relatively large infiltration area without much urbanization or agriculture. This means that the main causes of desiccation are absent. The effect of Nuon's extractions are large in the middle of the park, with a reduction of the groundwater table of one or two metres, but there the natural water table is 40 to 60 metres below the surface and the vegetation is independent of groundwater. Towards the borders of the Veluwe the effect levels off to 10 cm (Gehrels, 1999).

Low costs also play a role in Nuon's strategy towards nature:

R2 : We depend so strongly on nature, that we are involved in it very much. But we are not working on it so hard because of any moral reasons. It simply is a necessity to achieve a good product against low costs. (66:11)

Nuon Water Gelderland also has some personnel for nature tasks:

R2 : we decided to deal with it though it is not a core business (...) One person is doing it fulltime and the others have it as a side job. (...) My estimate is that in total, three people are working on it. (66:39)

But most of this work is done by professional nature organizations:

R1 : State Forest Management does it for us at the Veluwe National Park, and we pay them but not very much. I once said to those dune companies: I don't understand that you do it yourselves. It is not a core business, why don't you find a nature organization to do it for you. (24:67)

R1 : Maybe we would like to buy the Veluwe National Park, but it is not even allowed because the Park has regulations that they cannot sell any land, so the fact that they manage the area well and are not allowed to sell, has two advantages for us because we have a clean resource and we have few costs. (24:53)

For Nuon the cheapest solution is to leave nature management to nature organizations, as long as the license to extract groundwater is safeguarded.

6.5.4 Household water

Development of household water could also lower groundwater use, but Nuon respondents are not enthusiastic about this option. It is more expensive than drinking water:

R2 : our problem is that we cannot make it any cheaper. At the municipality Ede for example, we extract water from the aquifer. We don't do anything with it, it goes right into the network, it's perfect. (...) If we supply household water, we have to do more!

(...) We have to build a whole system and it's small scale, that's always more expensive than a large scale system. (66:16)

Secondly, they have doubts about the environmental benefits:

R2 : our impression until now, and also our experience, is that on the whole it is not rewarding. You have to build two systems. You have to put much more effort in purification. (...) all of that can also be translated to environmental effects (...) What's the use? We still have doubts about it. (66:5)

An LCA outcome is not the only argument to decide on. The beliefs of other societal actors can force Nuon to develop a household water project anyway:

R2 : of course we have to take other people's perceptions into account (...) So if society says: you simply have to do it and we find it very important, well, then we have to do it. (66:18)

When one municipality threatened to develop household water without Nuon, Nuon decided to cooperate:

R2 : The societal pressure became so high, that others were going to start with a household water project at the municipality of Ede. And then we said, we can't let that happen. (...) we are the specialists at water distribution, so we'll have to do it then. Even though we are not convinced that it's useful. (66:14)

Nuon acquired a European subsidy for the project at Ede. Because the municipal procedures went too slow, Nuon eventually developed one small project for 600 households at another municipality:

R1 : But because the municipality could not come to an agreement with the estate developer (...) it was never built (...) we had to spend the subsidy we got from Brussels in the municipality of Wageningen (73:30)

This pilot project is now used as an argument to hold off other municipalities:

R1 : a number of projects is being evaluated (...) the municipality of Ede wanted to have its own project, so I said: "why don't you wait a while, because if it turns out (...) to have no future, then we have only one project, and not two or three or four." (24:20)

This way, Nuon has the benefits of showing societal concern, and develops technical know-how, but avoids large investments in a doubtful solution.

6.5.5 Industry water

Nuon is preparing for an industry water project with Philips at Nijmegen:

R2 : At this moment we are dealing with a large industrial company, and it's about (...) 1.5 million cubic metres of drinking water. That's a waste, you know, because we haven't got that much licenses. So if it can be disconnected that would be great. (...) On the other hand, there is a possibility, that if we don't do it, some other party does it for them. (...) we have a marketing interest and a commercial interest. (66:20)

Nuon Gelderland is still looking for more industrial customers who want to innovate their water use. The business unit in Friesland is also involved in industrial projects:

R3 : We have a few projects now for laundries and one at a chicken slaughterhouse. (...) So they asked us to do a project. (...) Lately we have become more active to approach large companies (...) to see what we can do for their internal water management. (80:32)

Somehow this does not seem a high priority for Nuon. Maybe Nuon respondents do not really believe in switching to surface water resources and providing lower water qualities.

6.5.6 Overview of sustainable activities

Nuon has activities in almost all categories. This broadness reflects its interest in innovation. Its most significant activity is to buy 100% sustainable energy for water production. The resource groundwater requires less energy compared to surface water. A more important effect of groundwater use is desiccation, a problem Nuon tries to solve by influencing other actors and not by reducing extractions. Many activities have the character of sponsoring or pilot projects.

Activity type	Example quotation	Evaluation
reduce waste & emissions	"we want to reuse (...) our waste sludge (...) the national organization 'Reststoffenunie' was established for that" (66:8)	Sludge from drinking water production is reused via Reststoffen Unie
save energy/green energy	"Our whole purchase of energy is sustainable energy. We do it to set an example." (66:13)	Nuon Gelderland uses 100% green energy, Nuon Friesland 50% (Benchmark 2000)
protect nature	"It is a necessity to achieve a good product against low production cost" (66:11)	There is a strong relationship between nature and the quality of Nuon's product, so Nuon sponsors nature organizations.
prevent desiccation	"we are active in anti-desiccation, (...) that means we change the vegetation (...) By (...) disconnecting parking lots and roofs from the sewerage system groundwater replenishment is improved. (66:7)	Nuon sponsors projects of other actors to improve groundwater replenishment.
protect groundwater	"the fact that they manage the area well and are not allowed to sell it (...) we have clean water and few costs." (24:53)	Most of Nuon's resources are well protected, at the Veluwe because it is a nature park and in Friesland because of a protective layer of clay.
reallocate water production	"we have only one pumping station that needs a rather intensive purification (...) we are studying the option to close it down" (66:27)	Nuon is thinking about closing down one pumping station with low resource quality.
optimize water system	"we want to infiltrate canal water" (102:10)	Nuon is working on a compensation water project.
promote water saving	"water saving had the effect that our water purchase has become less" (76:14)	Nuon has promoted water saving by households.
develop household water	"Ede wanted it too, so I said: please wait for a while" (24:20)	Nuon has one pilot project with household water and awaits a national evaluation before it develops more projects.
develop industry water	"We have a few projects now at laundry companies and also at a chicken slaughterhouse." (80:32)	Nuon is doing a few industry water projects.
introduce individual metering	-	Probably not relevant in Nuon's region
choose materials	-	Materials are probably not discussed at Nuon

6.6 Nuon's network

For Nuon, three external respondents were interviewed: one from the Province of Gelderland (PROV), one from Vewin (VEW), and one from Kiwa (KIW). Additional data were used from an interview at the Ministry of Economic Affairs and a lecture from an official from this ministry (EC1 and EC2), and from an interview at the Ministry of Environment (VROM). In the following sections, we present the views of Nuon on external network partners as well as the external views on Nuon.

6.6.1 European Union and Ministry of Economic Affairs

Liberalization of the energy market is the most significant influence on Nuon's strategy. After large European countries agreed about liberalization, the Dutch Ministry of Economic Affairs became one of the promoters of liberalization:

R5 : In Europe the process accelerated when large member states changed their position in favor of liberalization. The legislation was made for the electricity market first, and then for gas. The Netherlands also turned around (...) this happened before Wijers became Minister, but Wijers gave it an extra push. (67:12)

As an energy distributor Nuon has always been in favor of this policy:

R5 : There actually was a difference in opinion within the electricity sector. The distributors were in favor and the producers were against it.

I : And is Nuon a distributor?

R5 : Yes. (67:12)

Unfortunately for Nuon, there is no European agreement on liberalization of the water sector:

R5 : there is no driving force, because Europe did not choose a position (...) When the EU says: there is legislation which says, it should at least meet these demands. Then there would be a driving force which gives some direction. (67:16)

The Dutch Ministry of Economic Affairs prefers a liberalized water sector. They expect a market mechanism will make the sector more efficient and client-friendly. Liberalization also facilitates export of water knowledge to foreign markets. An official from the export department of the Ministry lectures at a water company meeting on January 5, 2001:

EC2 : We have a nice cluster here, but we miss a few things. (...) Unfortunately we have no international operators, and they have a key position. It's not a simple task, because we have a small home market. And we also have a government that thinks the public structure should stay intact, which puts a spoke in the wheel of companies who want to develop something. Nuon is the only company that approaches it, but they have less than one million connections. That problem was identified in 1995 and it has not changed. We have so much to offer but we don't sell it and that's just strange. (61:1)

So at the national level, Nuon has an important ally. Because of the liberalization process, Nuon's economic context is enlarged to the European and even the global scale:

R4 : So when you look at Vivendi, a French water company (...) but also at RWE in Germany, they are giants compared to the energy companies overhere. So when you choose to stay independent, you'll have to do something. You have to become a player, or else you will be bought someday before you know it. (68:26)

A large company size is necessary to be able to compete with these foreign companies. Mergers between Dutch energy companies are expected to be limited by the Dutch Competition Authority (NMa). Nuon has a joint-venture with Biwater in the UK and bought utilities in the US, but the real expansion possibilities are in Third World countries. Third World governments often demand a combination of energy and water services:

R4 : the Market Competition Authority in the Netherlands would not accept it if we got ten million customers in the Netherlands, because then we would have a monopoly within the Netherlands (...) if you want to expand in energy, the general idea is you have to do it in the Third World. (...) a question that is even more acute than the demand for energy, is the demand for good drinking water. (...) That's why Nuon got involved in the water business some time ago. (68:25)

So liberalization leads to the strategy of expansion which leads to a multi-utility strategy. In this chain of strategic choices, the EU and the Ministry of Economic Affairs have a decisive influence.

Conclusion regarding influence on strategy: the European Union and the Dutch Ministry of Economic Affairs launched a liberalization process for energy production and distribution. Because offering water services is a competitive advantage for Nuon, they want the water sector to be liberalized as well. The Ministry of Economic Affairs is again an ally but without clear EU support it does not happen. This puts Nuon in a difficult position. When the last step towards liberalization is made, they will be forced to split off their water units.

The Ministry of Economic Affairs uses the term sustainability, for example in its mission statement:

EC1 : "The goals of Economic Affairs are a dynamic market mechanism, with a large adaptation and innovation capacity for citizens and companies, a further expansion of sustainable welfare and full employment. Economic policy aims at optimizing the conditions for these goals". (105:16)

The Ministry's respondent involved in liberalization of utility sectors never really thinks about the concept sustainability:

EC1 : I can think of something here and now, but I might as well say: no, I have no specific vision on that issue.

I : (...) Does that mean you never actually work on it yourself? (...)

EC1 : Not much, no. (105:17)

Although the Ministry is directly involved in the sustainable energy discussion, they do not influence sustainability aspects in the water sector.

Conclusion regarding influence on perceptions of sustainability and operations: for the water business units the EU and the Ministry of Economic Affairs do not have direct influence on sustainability issues.

6.6.2 Ministry of Environment

Opposition in the Dutch parliament against liberalization of the water sector resulted in a decree by the Ministry of Environment forbidding provincial governments and municipalities to sell shares of water companies to private parties. The Ministry's decision is a serious threat to Nuon's strategy. In 2000, Nuon's CEO still hoped to tip the balance in his favor:

In the Netherlands Minister Pronk blocked the selling of water companies. Does that influence local governors, for example to sell Water Company Gelderland (WG)?
"Mister Pronk is an influence. (...) We pay 500 million guilders for WG and next to that all kinds of other advantages are possible; so Pronk cannot touch the municipalities." (79:7)

(Interview with Nuon's CEO Tob Swelheim, 14 november 2000,
<http://www.nrc-handelsblad.nl/Economie/Nieuws/2000/11/14/03.html>)

Conclusion regarding influence on strategy: the Ministry of Environment has blocked liberalization of the water sector which seriously jeopardizes Nuon's strategy.

The Ministry of Environment 'specializes' in the concept sustainability and has a broad view:

VROM: I think in the past sustainability mainly had an ecological, environmental meaning. (...) and now the concept got the other, the economic and social context more strongly. (...) as a society we have to deal with each other. So you could say: we want to continue a society that meets the high standards that we chose. (49:13)

The Ministry uses two arguments not to allow liberalization of the water sector, namely protection of captive customers, and sustainability. Sustainability refers especially to the behaviour of water companies with respect to nature and the environment:

Water companies have a broad societal function. They need to promote an efficient water use, for example through water saving and providing other water qualities. Cooperation to protect resources, for example through stimulation of nature- and environment-friendly land use in water extraction areas, is also part of their task.

(Herziening Waterleidingwet, 2 februari 1998, Tweede Kamer, vergaderjaar 1997-1998, 25 869, nr. 1 / Revision of the Drinking Water Law, February 2nd, 1998, Dutch Parliament)

Conclusion regarding influence on perceptions of sustainability: sustainability is one of the arguments for the Ministry of Environment to block liberalization.

6.6.3 Provincial governments

The provincial governments and the city of Amsterdam are identified as the most important shareholders of Nuon:

I : Who are your most important shareholders?

R5 : The Province of Gelderland, but also the Province of North Holland, Amsterdam, the Province of Friesland. (67:19)

Shareholders are represented by a Board of Directors which appoints new CEO's. Shareholders also decide on mergers:

R1 : with Amsterdam and Limburg it did not succeed, because (...) the shareholders had all kinds of reasons not to do it. (...) the companies did want it. And in Gelderland it looks like the company does not want it, but we expect that the shareholders do. I witnessed a merger like that once. (...) so it looks like if the shareholders want it, it will go through. (73:15)

When mergers take place, provincial shareholders want to keep at least a part of the business in their own province because of employment:

R1 : we have a prominent role in the water profile of the Province of Friesland. (...) Nuon of course is owned in part by the province of Friesland, so it's not because we like each other so much, but because the provincial government has a say since they are the owners. (24:17)

So the Province of Friesland stimulated the formation of a separate Nuon Water Technology division with headquarters at Friesland. The province of Gelderland wants a merger between Water Company Gelderland (WG) and Nuon Water Gelderland:

PROV : Those companies are connected in many ways. (...) And in practice they cooperate a lot. (...) you can see that it slowly becomes more structured and we will steer it more clearly as well. (78:15)

The Province of Gelderland played an important role in the eventual outcome, a merger of Nuon Water (Gelderland and Friesland), Water Company Gelderland (WG) and WMO into Vitens (for their positions on the map see also Figure 2.1). This will lead to less influence of the Province of Gelderland on Nuon Water Gelderland. Provincial power over Nuon was already decreasing, because Nuon strives for a more business-like relationship with their Board of Directors compared to traditional water companies:

R5 : I think our Board of Directors works just like the Boards of Shell and Philips and Ahold. (...) They steer on the main aspects, control the main aspects. The usual role a Board has in commercial businesses. (67:19)

This is experienced as a big difference by the provincial respondent:

PROV : Nuon is a big company, a big holding. We are a shareholder of the holding, and the corporate level of Nuon (...) directs and is shareholder of their water company. So as a shareholder we are at a large distance. (...) We receive the annual reports and that's all the influence we have. (78:19)

Conclusion regarding influence on strategy: provincial shareholders have a decisive influence on mergers. Nuon strives for a 'control afterwards' relationship with shareholders. It is likely that provincial governments have little influence on Nuon's investment policy.

At the province of Gelderland the term 'sustainability' is frequently used:

PROV : The whole college is ... puts sustainability on nearly every page, it's simply very very important. (78:13)

For the respondent from the province of Gelderland sustainability means caring for nature and the agrarian landscape:

PROV : we need to cherish our green landscape. (...) there is the Veluwe, our national landscape park. (...) And we think agriculture is necessary for managing the landscape. (78:13, 78:14)

Next to that sustainability means reducing pollution of the environment:

PROV : we also talk about the environment, companies, emissions that are allowed or not allowed. It's about air quality, soil quality, water quality, all those things. (78:14)

At this provincial government, they never saw surface water as a more sustainable resource than groundwater:

PROV : we find it very important that drinking water has the quality of groundwater. So we always emphasized that. We never thought that surface water was more sustainable.

I : You never tried to make them switch to surface water? (...)

PROV : No... we would find that very grave, if that would happen. (78:25)

So the drinking water quality that is achieved with groundwater is valued highly by this respondent, and probably has a higher priority than desiccation.

Conclusion regarding influence on perceptions of sustainability: the provincial government encourages Nuon to use the term sustainability. The green aspects of sustainability have more emphasis at the provincial government compared to Nuon. The provincial government agrees with Nuon's position that use of groundwater is sustainable.

Nuon respondents perceive a clear provincial influence on environmental issues:

R1 : Provincial governments as well as municipalities are involved in environmental issues. The provincial government maybe more directly. (73:18)

The respondent from the Province of Gelderland considers desiccation a serious problem. For Nuon it is not so much the desiccation itself, but the pressure of the provincial government and nature organizations that is experienced as a problem:

R4 : so if you want to continue extraction of groundwater in a responsible way, then you'll have to do something about the sustainability, or else you'll have a societal problem. (...) then the provincial government and nature conservation groups and that kind of people will be after you. And we don't want that to happen. (68:6)

Nuon does not agree with the provincial solution to reduce extractions:

R2 : In places where we extract water, the run-off is influenced. (...) That's what anti-desiccation policy is aiming at. The provincial government finds it hard to translate that, because then you have to measure it: what is it you want to achieve? What has been there, when was it there, and so on. So they translated it in a simple way into: you just have to extract 25% less. (66:1)

Apparently it is not so easy for the provincial government to change extraction licenses, if the company does not cooperate:

R1 : we have licenses, so they can't touch us. (...) it's like when you say, the maximum speed is one hundred kilometres, and the advised speed is eighty (...) you can't give someone a ticket when he is driving ninety, because it is still below the hundred. (...) And they did not start to really reduce the licences yet. (102:9)

Instead of reducing extractions, Nuon sponsors other actors to improve groundwater replenishment. Of course, this tactic of subsidizing water retention only works if the provincial government buys it:

R2 : [we] are also in consultation with the provincial government (...) to make sure it has some effect on the provincial government, some understanding. Because if the provincial government would say: "Whatever. It will not influence your extraction licenses, they will be reduced anyway." Then it is doubtful if we will do it. (66:1)

According to a Nuon respondent, the Province of Gelderland agrees with the surface water infiltration project:

R1 : It means that the nett extraction is less, and that it's not just nature that keeps the cycle going, but that we add a small auxiliary engine (...)

I : And does the provincial government appreciate that?

R1 : Yes. It means the nett extraction becomes less, and so you have less desiccation. (102:11, 102:12)

Summarizing, Nuon does not see the 25% reduction goal of the provincial government as a hard target, but as a starting point for negotiations about alternative solutions. These alternative solutions preferably leave groundwater extractions intact. The provincial government finds it hard steer the company. Possibly the provincial government hopes to improve this with the merger between Nuon Water Gelderland and Water company Gelderland (WG).

Conclusion regarding influence on operations: the provincial government has some influence on sustainability issues at the operational level, but it is a difficult process.

6.6.4 Municipalities

The influence of municipal shareholders is small and getting smaller because of mergers:

R1 : For example at Gelderland (...) they have eighty municipalities. And when they merge with Overijssel, it becomes one hundred and sixty municipalities. (...) So these municipalities do not have the idea that they have a lot of influence anymore. (...) they hopefully receive some dividend, and they are a general watch dog. (...) So the scaling up leads also to less involved municipalities. (73:18)

Individual municipalities own a small percentage of the shares. With 25%, the province of Gelderland is the largest shareholder so they dominate the decision making process. Because municipal shareholders have such limited influence, they are more sensitive to the option to sell their shares than provincial shareholders:

R1 : Those municipalities also evaluate: (...) what's it worth and what can I do with it? And then it turns out that (...) they prefer the financial value over the influence value or the emotional value. And if they can be sure that the underlying interests, the public health, is managed properly (...) then why should they keep those shares? (73:19)

This probably played a role in the Province of Friesland, where all the shares were owned by 31 municipalities, and the provincial government owned none. In this province, Nuon could tip the balance towards selling the water company to them.

Conclusion regarding influence on strategy: as small shareholders, municipalities have little influence on Nuon's strategy. Their interest in selling their shares may help Nuon to move towards a liberalized future.

For municipalities, the main sustainability topic is household water:

R2 : The tendency was: (...) you don't flush your toilet with mineral water. (...) So the perception was: we should not do that anymore, we should use household water, and suddenly everyone was in favor of that. And all of the municipalities said: that's what we should do. (66:16)

According to Nuon, the forces behind household water were not rational but political:

R1 : During the latest municipality elections (...) they had somehow embraced the idea of household water. (...) So then we got the idea that the purpose of it was to support the green image of certain political parties, who needed that temporarily to attract votes. (73:29)

Nuon respondents do not believe in household water, because it means worse quality for more money, and the environmental gain is doubtful. Municipalities see it differently, and when the municipality of Ede prepares to develop a household water project, with or without Nuon, Nuon decides to cooperate:

R2 : we decided to do it, not because we were convinced of the advantages, but because societal pressure became so high. And then we said, if we don't do it, someone else will, and then we'll have even more people messing in the earth with drinking water, that's no good. (102:2)

Ede never got its household water project, because the project was delayed, and Nuon decided to spend the EU subsidy at another municipality. This pilot project was used as an argument to postpone other household water projects:

R1 : we said (...) to other municipalities: "we have one pilot project now at Wageningen (...) So not at Ede for the moment and not at Apeldoorn and after that we'll see what we can do." (73:29)

To summarize Nuon's attitude towards municipalities: Nuon suspects they have a hidden political agenda behind demanding household water, and ignore rational arguments. To prevent disinvestments in the future, Nuon limits household water to one pilot-project.

Conclusion regarding influence on operations: municipalities want household water but Nuon does not believe in it and has the power to mostly ignore municipalities' wishes.

6.6.5 Customers

Nuon considers itself a retailer:

I : Are Shell and Philips sources of inspiration for you?

R5 : I'd sooner think Ahold. (...) That's a retailer. (67:17)

The advertisement campaigns of Nuon are meant to win the trust of Dutch consumers. Nuon also shows sensitivity to consumers wishes, because when they experience a quality problem, Nuon responds with membrane technology to improve it:

R1 : In a part of Friesland the water has too much color, it's a bit yellow-brownish. (...) it's no problem for public health, but it does look bad. So we introduce membrane filtration with which you can soften and decolorize all at once. It costs money, but you get a better, that is, more appreciated product for the customer. (102:23)

However, the fast mergers endanger customer relations:

R1 : you're not getting anywhere if you don't change things now and then, but if you change too many things at the same time, you also have a problem. For example, we have a worse score on client friendliness in the benchmark. (102:19)

Nuon works on one large industrial project in Gelderland. Desiccation seems a more important reason to do the project than commercial advantages. At Friesland industrial customers are not considered of major importance either:

R3 : I think it's a few million cubic metres, the drinking water we sell to large customers. So in itself it's not impressive (80:23)

Industrial customers do not seem extremely important for Nuon. Actual water sales of the two business units are shown in table 6.2. The billing problems also affect industrial customers.

Table 6.2: Data on water sales by Nuon business units (Waterstatistiek 2000)

Drinking water sales 2000	Total sales	Sales to large customers (above 10.000 m³ per year).	Percentage of sales to industrial customers
Nuon Gelderland	53 million m ³	12 million m ³	23%
Nuon Friesland	44 million m ³	7,5 million m ³	17%

Conclusion regarding influence on strategy: Nuon is especially interested in customer wishes, when they provide an opportunity for technology development. Although customers are considered of strategic importance by Nuon's marketing department, operational relations with customers are not improving.

Industrial customers sometimes ask Nuon to develop internal water recycling:

R3 : It can be (...) the industry that approached us to (...) work on the internal recycling of water. We have a few projects now at laundry companies and also at a chicken slaughterhouse. (...) So there the demand comes from the outside (...) And we have become more active lately to approach large companies (...) very consciously and very selectively, to see what we can do for their internal water management. (80:32)

Conclusion regarding influence on operations: industries inspire Nuon to develop new sustainable technology and to explore new markets.

6.6.6 Water boards

Structural relations with the water chain are built in Friesland but not yet in Gelderland:

R1 : that's also happening in Friesland (...) they try to get a water chain company off the ground, together with the municipalities, the provincial government and the water board. We leave it to Friesland to go on ahead, because of all the problems in Gelderland (24:73)

Before they merged with Nuon, the water company of Friesland asked all municipalities in their region if they wanted to outsource their sewerage activities:

R3 : we visited literally all of them (...) based on that survey, we concluded that there was a diversity among the 31 municipalities. (80:18)

R3 : at a certain point in time, one of the municipalities, be it a small one, well, there were people there who liked the idea. (80:16)

So the effort has led to one small water chain project. In the same year, the company at Friesland merged with Nuon. Nuon Friesland and the waterboard of Friesland started a

separate 'water chain company' together. Its main goal is to take over sewerage activities from municipalities:

R3 : together with (...) the water board of Friesland (...) we came to the conclusion that we should establish a new company together which we call 'Water Chain Company Friesland'. Each of us participates for 50% (...) and our intention is to relieve municipalities from tasks they themselves see as problematic too, because they (...) often are too small. (80:17)

Because the outsourcing by municipalities develops more slowly than expected, the water company and the water board decided not to merge into the 'water chain company' yet, but maybe they will in the future:

R3 : we also have to acknowledge that at municipalities the political climate is not always ready for it. (...) and therefore we made the deliberate choice to aim for sewerage activities first. (...) the drinking water supply and the waste water treatment stay outside the scope of the water chain company for the moment, but the goals are formulated broadly enough to allow for their assimilation. (80:20)

This water chain company is a result of traditionally close institutional relationships in the province of Friesland. It is one of the most concrete initiatives in the Netherlands, but it is not a central strategy for Nuon. It is just one more experiment to be ready for the future.

Conclusion regarding influence on strategy: Nuon Friesland cooperates closely with a water board at a 'water chain company' but there is little influence on Nuon's strategy because it develops too slowly.

In Gelderland, the water board is cooperating with Nuon and Water company Gelderland in an infiltration project:

WB : The water companies got the assignment from the province of Gelderland that they have to reduce extractions with 20% in four years. We are working on an infiltration project with them, in which we will pump water from the brooks downhill upwards again, where a very nice lake has been made. That means a gain of 1 million cubic metres of water. (40:4)

This cooperation may explain why Nuon's compensation water plan is received with more approval than in other provincial governments.

Conclusion regarding influence on operations: the support of a Water board may help Nuon to realize a water compensation project at the Veluwe nature park.

6.6.7 Nature organizations

Both water business units have a general sponsoring relationship with nature organizations, motivated by Nuons concern for groundwater quality:

R1 : we have a kind of coalition with nature organizations such as Gelders Landschap or State Forestry (...) and often we can value that financially, because if we (...) did not supply groundwater to our customers they would have to pay a lot more for surface water (...) so we feel it's allowed to give some money to these organizations for their maintenance. (24:52)

The ideas of nature organizations influence Nuon's business unit in Gelderland to adapt their activities in nature:

R2 : For example, we used to tidy up our terrains neatly (...) every tree that fell was cleared. And neat firm paths everywhere, right across the forest. That policy has been abandoned lately. (...) a little messier, more variation. So these things we pick up from them, it is attuned together. (66:40)

Nature organizations form a coalition with the provincial government against desiccation. Nuon feels this pressure and reacts with subsidizing specific groundwater replenishment activities of nature organizations and municipalities. Nuon does not reduce groundwater extraction.

Conclusion regarding influence on operations: nature organizations have some influence on how Nuon acts in nature areas but not on how much groundwater they extract.

6.6.8 Vewin, Kiwa and colleague companies

Nuon cooperates with the Vewin benchmark. Nuon also participates in Kiwa and Reststoffenuie (Reuse Union):

R3 : we want to participate in Kiwa research. We have always invested human capital and energy in it (80:15)

R3 : And in exactly the same way we have been working intensively on (...) the reuse of our waste. (...) we separated our iron sludge entirely from our system. (...) through the Reststoffenuie it is used, mainly as a colorant in the brick industry. (80:28)

Despite this collegial attitude, other water companies do not want to merge with Nuon:

PWN : Nuon is becoming a really commercial company. (...) Nuon will enter the free market in 2002. (...) Foreign companies will be licking their lips, eager to take over parts of Nuon, or to buy shares. So they are really heading in another direction. And that is a direction we don't want for water (56:14)

In May 2001 a merger of Nuon, WG and WMO finally became possible, leading to a new company named "Vitens".

Conclusion regarding influence on strategy: although Nuon has a cooperative attitude towards colleague companies, Nuon is experienced as a threat. Many colleague companies block Nuon's growth strategy by refusing to merge.

Even though Vewin's practices would justify it, the term sustainability is not used much at Vewin:

I : Is the term sustainability used at Vewin?

VEW : Not intensively, not really, actually. (laughs) But at the same time you see that many of our projects have something to do with it. (...) so all of our lobby work aims at securing sustainable resource availability. (75:19)

Here he refers to the national Vewin lobby against use of pesticides that threaten production of drinking water.

At Kiwa the term sustainability is used frequently, especially when a choice has to be made between alternatives:

I : Is the term sustainability used at Kiwa?

KIW : Yes, absolutely. (...) It is often used in discussions on... optimisation of extractions of water companies. And it is often used in discussions on household water. (74:4)

The respondent from Kiwa has a professional interest in the concept sustainability, so his ideas are more elaborate than usual. Not only the green and grey environment are included, but also public health:

KIW : internally we often debate on: what is sustainability? I mean, the Brundtland definition is nice, but how do you operationalise it. (...) In general we draw a boundary at: sustainable is minimal grey environmental effects. (...) Minimal damage or maximal contribution to biodiversity, and that includes desiccation. (...) And meeting the standards for public health. Those are the three pillars on which sustainability is based. (74:5)

The division in green and grey aspects is often heard in the Dutch water sector. Grey means waste, material and energy aspects, and green means nature, biodiversity and desiccation aspects. These views are also part of Kiwa's LCA methodology:

I : And the grey environment, is that about minimal damage or...?

KIW : Minimal effect, and we usually calculate it with LCA's. So then it's about minimal energy use, and if it's relevant, minimal chemical use. (74:6)

The Kiwa respondent sees bad geographic circumstances as inherently unsustainable. This means that water production is more sustainable in some areas than in others:

KIW : Flevoland is the best water production area of the Netherlands I would say. (...) Because every cubic metre you don't get out of a pump, disappears into a ditch or into the IJsselmeer (...) So they can really extract in a super sustainable way (74:32)

KIW : Water Company Gelderland is going to have (...) relatively many costs because they extract calcium rich water in the Achterhoek. Calcium rich water is a consequence of, let's say, the emissions of agriculture and of extracting water from a shallow system. That automatically leads to high desiccation. So I think that's a less sustainable system. (74:33)

Production of drinking water from dirty resources is not sustainable. And what about the use of deep groundwater resources?

KIW : you can argue about that, but at least it is easy to produce drinking water out of it. If you leave the aspect of mining, exhaustion of resources, out of consideration, then extraction of deep groundwater is sustainable. Because you usually have little effect at the surface. Or because these effects are levelled off and can be mitigated with good surface water management. (74:33)

So he considers the use of deep groundwater as sustainable, because then the production process causes only a small environmental burden. The argument that deep groundwater is not really a renewable is less important to him:

KIW : about groundwater of 10,000 years old with a flawless quality you could say: That's similar to mining copper ore, it will never return. Because the water that is infiltrating

now does not have the same quality. (...) So in that sense you still are exhausting the good water. But that's not a very (...) widespread opinion (74:33)

Finally he thinks that economic aspects should not be a criterium for judging the sustainability of a solution:

KIW : When we make a tool to measure sustainability, it never directly includes a key for money. (...) because I think sustainability and environmental return on investment are two different things. You first need to get a view on: hey, can this initiative help me towards a sustainable world? And then you can say: so what would it cost me? (...) if you include that right away, then you cannot see the difference between the importance of the contribution and the costs that come with it. And so you dismiss it because of the costs (74:37)

We see many similarities between views of Nuon and Kiwa: the green and the grey environment, the LCA, and the exclusion of economic aspects from the concept. The view that geographic circumstances define sustainability is comparable with Nuon's view that sustainability is locally defined. A difference is that the Kiwa respondent thinks companies should prevent desiccation actively. At Nuon, they seem to find desiccation a less urgent problem.

Conclusion regarding influence on perceptions of sustainability: the use of the term at Nuon's water business units is comparable to the use at Vewin: not using it but describing your actions as sustainable anyway. Vewin, Kiwa and Nuon all interpret the term mostly in the environmental sense. At Kiwa elaborate ideas on sustainability have been developed. Several are also found at Nuon: an affinity with the LCA method and the conviction that sustainability is locally defined. The only difference is that the Kiwa respondent thinks water companies should be active in prevention of desiccation, and Nuon has doubts about this.

The Vewin benchmark, a product of the liberalization discussion, leads to a focus on the short term:

R2 : The benchmark also has an influence. (...) The directors want to show a good result on the short term. (...) So what did you cost this year and what have we achieved. But the benchmark does not judge: how long will your distribution grid last? (76:29)

Short term goals may reduce investments in sustainability. The Vewin respondent thinks the drinking water sector only has minor problems with sustainability:

VEW : Water has two environmental effects: energy use and desiccation. Of desiccation it was recently shown that, well, the contribution is limited. And the energy use is relatively limited. And otherwise, we don't pollute that much. Some sludge and... it's all very limited. (75:24)

In the eyes of Vewin it is not necessary to invest a lot of time in sustainability issues, because the water sector has done enough.

Kiwa has an influence on perceptions of sustainability by formulating solutions to sustainability problems, based on their research:

KIW : the importance of a local approach for desiccation was invented by us. The view that household water is not always environmentally friendly because it has other effects, was also invented by us. (...) the water companies run into problems, and the solutions usually come from us. (74:35)

This respondent thinks water companies are more sustainable when they are more active in desiccation prevention and nature management:

BM : the dune companies [are more sustainable] because of their efforts not to extract natural groundwater anymore and (...) because they put a lot of effort in desiccation management and nature management. (74:32)

Kiwa and Nuon share the negative judgement of household water, but Kiwa's opinion that a water company should be active in prevention of desiccation is not shared by Nuon.

Conclusion regarding influence on operations: Vewin and Kiwa both have an influence on Nuon by providing it with arguments about the sustainability of solutions. Nuon selects the ideas that fit with its strategy.

6.6.9 Overview of network influences

In the Nuon case it becomes clear how different contexts of influence can lead to external (and probably also internal) conflicts. For Nuon the most relevant context of influence is the European level, because of the liberalization policy. At the national level, liberalization leads to a coalition with the Ministry of Economic Affairs, but to a conflict with the Ministry of Environmental Affairs. The next context of influence, the provincial and municipal shareholders and the colleague companies, contains a rather unpredictable mixture of allies and enemies. It is a risky strategy to start with mergers and international expansion, before national discussions have settled. The strategy is probably chosen because of Nuon's own history of mergers.

Nuon has an image of a rather aggressive player with little allies. The company itself prefers to cooperate, because Nuon's main intention is to *merge* with other water companies. Mergers are impossible if others distrust Nuon. So Nuon always emphasizes their good intentions (sustainable energy), their integrity (coalitions with nature organizations) and their cooperativeness (the benchmark). Unfortunately, the fact that Nuon is a multi-utility company already implies such a threat to most other water companies, that they avoid merging with Nuon.

Nuon picks up signals about sustainability from many sources: national government, provincial governments, municipalities, industries, nature organizations, Vewin and Kiwa. This sensitivity is probably due to Nuon's strategic interest in sustainability. The activities it connects to stakeholder signals is partly based on environmental arguments (groundwater quality, LCA) and partly on commercial arguments (image building, a future market, nobody wants to pay the real cost of household water, you have to help industries with water recycling or you'll lose a customer). Nuon does not agree with 25% reduction of groundwater extraction, because this would lead to large investments in alternative production facilities. As we can see in these examples, a commercial strategy can sometimes lead to initiative by Nuon, and sometimes to avoidance and postponement. A final quotation supporting this conclusion:

R4 : we are no charity, so there are economic aspects behind it too. (...) The idea is that sustainability has advantages for the development of the company in the future. We think it will help us survive. (68:16)

Table 6.3: Overview of influences from Nuon's network

	Influence on strategy		Ideas about sustainability		Influence on sustainability activities	
European Union and Ministry of Economic Affairs	liberalization of energy: strong influence	++	sustainable energy, otherwise not	+	targets for sustainable energy, not enough support	+
Ministry of Environment	blocks liberalization of water	+	public utility is more sustainable	-	no influence	-
Provincial governments	important influence on mergers, little influence on investments	+	green and grey environment, groundwater is sustainable	+	25% reduction of groundwater refused, sponsoring of recharge	+
Municipalities	little shares, no influence	-	- *)		householdwater not realized	-
Customers	no influence	-	- *)		technological innovation	+
Water boards	cooperation established but business develops too slowly	-	- *)		helps with compensation water project	+
Nature organizations	no influence	-	- *)		no influence	-
Vewin, Kiwa, Reststoffen-unie	colleagues refuse to merge	+	environmental performance of water companies is OK, deep groundwater is sustainable, desiccation is local, household water is dubious	+	ideas positive for Nuon are picked up	+

Table 6.3 shows that relatively few organizations have an influence of Nuon's strategy. The real influence comes from the EU and the Ministry of Economic Affairs, because they launched Nuon into the commercial realm. The Ministry of Environment, provincial governments and colleague companies have power in the sense that they can block Nuon's plans, but they do not change Nuon's ideas. Powerless actors tend to have no influence at all.

Looking at the overview of internal and external views on sustainability it becomes clear why Nuon sees groundwater as a sustainable resource: their network partners agree on this. The tendency to limit the concept of sustainability to ecological aspects is also mirrored in the external views. The discussion on renewables is absent in the external interviews. This discussion was introduced into the water division by Nuons energy business unit.

External actors have little influence on Nuon's sustainability activities too. Whereever external ideas promise benefits for Nuon, they are picked up; other ideas are ignored or postponed.

It looks like Nuon is a very powerfull actor, more powerful than the average water company. This is probably due to their size and to institutional structures that weaken the influence of outsiders.

6.7 Case specific conclusions

The sustainable profile of the Nuon corporation is largely based on sustainable energy, where it has achieved market leadership. Nuons marketing strategy is certainly innovative within the Dutch context, though it is sometimes called 'agressive'. The water business units

share the corporate idea that sustainable energy is the most important environmental issue. Nuon Water Gelderland decided to use 100% sustainable energy. This action led to a ranking of Nuon Water Gelderland as one of the best Dutch company in the Vewin benchmarks (Vewin, 1999, 2001).

Another strength of Nuon is its investment in new technology. Nuon invests in solar energy, membrane filtration techniques, and small scale drinking water production. It tries to cover the whole field of water innovations by developing at least one pilot project for every promising technology. This approach is chosen to improve Nuons chances on the international water market.

For improvement of other sustainability aspects, Nuon Water Gelderland has a management system for quality, safety and environment. It was among the first water companies to become certified. These changes do not take place under the heading 'sustainability' and at the water units there is no internal debate to define what sustainability means. Management of nature is not seen as an operational task for Nuon itself. Nuon continues groundwater extractions at the same level and tries to reduce desiccation by providing financial support to other organizations. The effects of the financial support on desiccation and nature are not monitored by Nuon.

Nuon invests much time and energy in relationships with national and European governments. Next to that relationships with its shareholders from provincial governments and municipalities remain important. Nuon intends to have good relations with colleague companies too, but these relations are impaired by Nuon's multi-utility character. Nuon has little exchange of ideas with water boards, apart from the more or less commercial initiative in Friesland. Nuons relations with nature organizations seem mostly financial (sponsoring); sometimes a coalition is sought with them to protect groundwater.

Nuon chose ambitious goals of sustainability and client-friendliness, and presented them to the outside world before they were implemented internally. This may lead to a misunderstanding by the outside world that it is only greenwashing, but the goals are genuinely meant to steer internal management.

The division into functional units threatens internal coordination and cooperation. It looks like Nuon is getting into problems which are typical for a diversified company. According to management theory, a diversified company consists of a head office and a number of more or less independent divisions. The head office delegates most management tasks to division managers, because it is impossible for the corporate management to understand all the different markets and production technologies (Mintzberg, 1989). Corporate top management restricts itself to 'minimal management': buying and selling business units, and managing divisions with financial instruments. Divisions have to show profits every quarter, people are motivated with money and promising divisions are upgraded with extra funding for investments.

The theoretical consequences of the financial steering at a diversified company are firstly that innovation is limited, because division managers have short term financial goals and cannot take on any long term risks. Secondly, the division manager will prioritize financial goals and neglect social goals such as product quality, pride in the company's work, and serving customers well. For the corporate management it is not possible to compensate for this, even if it has staff specialized in social goals, because it does not understand its divisions. Another consequence of a diversified company is that its Board of Directors receives little information about what is going on at the divisions. It becomes almost impossible for such a Board to steer the company. Diversified companies can become a closed system that is insensitive to external influences.

Going back from theory to the findings at Nuon, we recognize many of these aspects. Forced by the liberalization process, Nuon has to work on a market position. Corporate management became highly interested in new acquisitions. Internal financial goals are not as strict as for the commercial companies in the US that Mintzberg usually describes, but costs on infrastructure maintenance are reduced. Water quality is still valued highly at Nuon, but happen to cost it little effort because of the clean resources. Technological innovation still takes place, but application is limited to pilot projects. The technology is mostly meant for new markets. Customer service is not improving. This may be a temporary effect due to internal reorganizations. External actors such as municipalities and nature organizations are sponsored, without discussion or negotiation on improvement of the water system. The Board of Directors is struggling with its control and in general, external influences on Nuon are limited.

This is not to say that Nuon is doomed: their size, financial power and agressiveness alone may suffice to become a success on the market. The merger of their water units with WMO and Water Company Gelderland into Vitens is a step in the desired direction.