

Responsibilities of the water-supply and distribution companies

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Abstract

Water-supply and distribution companies are characterized through a high need of energy. The challenges of a sustainable development and the climate change as well as the necessity to reduce climate relevant emissions and develop adaptation strategies are aimed at a drastic reduction of energy costs and the development of intelligent sustainability-oriented infrastructure and management systems. In order to be able to meet the requirements of a sustainable development and look after their social responsibility water-supply and distribution companies should develop strategic options and integrate sustainability instruments continuously. In this context, the central research question is how water companies implement sustainability and CSR requirements in their management. This study investigates to what extent water supply companies implement sustainability management tools and norms (e.g. ISO 14001, ISO 9001, Balanced Scorecard etc.) as well as confirm ISO 26000. However, by analyzing 65 German WSE and their energy strategies, environmental management and CSR aspects we found that the triggers for a sustainable energy use and a sustainable management (e.g. avoiding and minimizing risks in purchasing energy, ensure environmental standards by energy suppliers) were just marginally determined. Moreover, there is a lack in CSR communication and making CSR credible to public. Our results make obvious that there are differences between municipal and private WSE facing sustainability requirements.

1 Introduction

Water-supply and distribution companies (WSC) are characterized through a high need of energy (Pieper, 2008). The challenges of a sustainable development and the climate change as well as the necessity to reduce climate relevant emissions and develop adaptation strategies are aimed at a drastic reduction of energy costs and the development of intelligent sustainability-oriented infrastructure and management systems (Kemfert/Müller 2007). In the energy sector, the climate change will influence the transportation ways and risks, change the availability of resources and raw material supply as well as restructure the value chains, cooperation and specific division of labor (Niehues 2001; Pieper 2008). In order to be able to meet the requirements of a sustainable development and look after their social responsibility WSC should develop strategic options because of the coupling from energy demand and a high quality of water treatment and wastewater disposal (Arnold 2007).

The special challenge can be seen in the high path dependency of the infrastructure of sanitary environmental engineering (Loske/Schaeffer 2005). The system is built on mass throughput and consumption growth and is therefore only partly adaptable to changed conditions. Against this background, the ongoing changing situations and conditions cause high instability at the actors. The central task has to be seen in the necessary conformity to the changed facts, like a strategy for resource conservation and an efficient resource use (Kluge 2005). In the last two decades, considerable innovations could be developed in the fields of alternative water-supply technologies in Germany. However, they were mainly realized in some, small-scale pilot projects (fbr 2002; Hiessl 2001). To these challenges WSC often react with cost efficiency strategies (Walter et al. 2009; Zschille et al. 2009).

Looked at ISO 26000 social responsibility, however, includes much more. ISO 26000 defines corporate social responsibility (CSR) and how it can be implemented into the companies (ISO 26000 2010). In this study 65 representative German WSC are analysed concerning their management instruments and CSR contribution as well as their representation of a visible and credible social

responsibility. Criteria for the CSR sector are the seven core subjects of ISO 26000 like organizational governance, human rights, labour practice, the environment, fair operating practices, consumer issues, community involvement and development. Active integration of sustainable development requirements will be evaluated by sustainability reports, balanced scorecard, ISO 17025, EMAS II, ISO 9001, ISO 14001, TSM (technical security management). The article is structured like following: in chapter 2 the characteristics of the water industry will be described, chapter 3 deals with sustainable water management. In the 4th chapter the empirical design is presented. Chapter 5 shows the results of the study followed by the discussion in chapter 6. The final conclusions are shown in chapter 7.

2 Characteristics of the WSC

Using water sustainably is a great social challenge with regard to economic and demographic changes in society (Donner 2005). WSC show characteristics of natural monopoly (Ewers et al. 2001: 37; Wackerbauer 2008). Because of economies of scale and density as well as subadditive cost functions a company can provide the market more economically than every greater number of companies (Scheele 2006). Technical-economic structures are subtly differentiated regarded within the liberalization and privatization of networks (UBA 2000, 2001; Ewers et al. 2001; Niehues 2001; Teichert 2000). Beyond that in the water industry different structures of the companies like pure WSC and multi-utility/public services or private-law or municipal companies and mixed legal forms can be found (Loske/Schaeffer 2005). There have been private-law and municipal companies in the water industry for decades (BDEW 2011). According to BDEW (2011) there are 6.211 WSC operating in Germany. Municipal and private-law companies have different values referring to the number of companies and the volume of water. With a view to the number of companies there are 56 % municipal institutions and 44 % private-law ones. Referring to the volume of water private-law companies have 64 % interest and the municipal ones a 36 % share.

The modern municipal water supply and distribution is based on a central system which has evolved over many decades (water-supply and waste-water disposal facilities, Kluge/Libbe 2006). Till now there was the rule of centrality and consistency of the systems with middle and high-density settlement having decisive technical and economic advantages over de- or semi-centralized systems (Zschille et al. 2009; Donner 2005). Economic-technical advantages like economies of scale, economies of scope and economies of reach could develop especially well because of the permanent extension of the networks and connecting new users. Based on this, the system has expanded over many years without realizing and valuing the economic and technical limits of use critically with regard to a sustainable development and the climate change. The guidelines within the WSC change partly dramatically and will have an influence on the future conceptions of the infrastructure more or less directly (Felmeden et al. 2010; Merkel 2008).

The successful infrastructure model studied of its social and distributional objectives as well as the reached environmental and hygienic standards is faced with the following central challenges:

- Decreasing population numbers and falling specific need of water of the households and businesses (Lux/Hummel 2007; Hummel 2008; Koziol et al. 2006; UBA 2010)
- Price margin between increasing water sewage prices and decreasing consumption (fixed costs lock-in effect, Koziol et al. 2006)
- New requirements of resource regulation, especially matters of cost coverage and economic efficiency (EU Water Framework Directive; Kluge 2005)
- Shortage of resources and the rise of prices for energy and raw materials (BMU 2008, 2009; Kemfert/Müller 2007)

- Climate change with its global and regional consequences to the water economy (Howard et al. 2010; Charlton/Arnell 2011; Krebs et al. 2011; LUBW et al. 2010)
- Cost of adaptation to the climate change (Gebhardt et al. 2011)
- A changed energy policy framework because of objectives and legal developments at the European and national levels

The network-related infrastructure and sectors of supply systems, like power, gas, oil, and water) are in transition (Kemfert/Müller 2007; Koziol et al. 2006; Rothenberger 2003). The 1998 introduced market liberalization is aimed at more competition in the energy sector. On the one hand, big energy companies can develop a big leverage on the diffusion of renewables like diversification of energy portfolio and expansion of renewables in the electricity mix. On the other hand municipal networks and cooperation in the energy sector (local energy supply networks) gain more and more importance in the context of a sustainable development. This is caused by the increasing significance of local value-added processes and especially the renewable energy production (hydro or water power, wind energy, photovoltaics, biomass). The political conditions and scope of action for utility companies are determined decisively by the market incentive programme and the Renewable Energy Sources Act – EEG, which are especially evident for the feed-in tariff for electricity from renewable energy.

The demands on adaptability and flexibility of technical and social-economical elements, patterns and systems are heightened by the criteria of a sustainable development and the climate change and make them urgent at the same time. Being able to react very quickly and adequately to the challenges of a sustainable development and climate change it is necessary to strengthen the flexibility and reactions of the companies as well as the implementation of appropriate instruments next to the adaptation to technical base system, material flows, regional economic systems and intelligent infrastructures (Walter et al. 2009). As a result of the enormous energy demand of water utilities (supply and disposal) it is necessary to apply instruments for proper and eco accounting in order to reduce negative environmental externalities (Koziol et al. 2006; Kluge/Libbe 2006). Most of the existing infrastructures have to be transformed into innovative ones with regard to the economic valuation of system and transformation alternatives. In this context the WSC have to have to make considerable investments regarding resource and environmental efficiency.

3 Sustainable water management and social responsibility

The discussion on how sustainability can be fostered by firm internal initiatives and processes was highlighted and summarized by Arnold and Hockerts (2011). The literature suggests diverse factors of success concerning the emergence and integration of sustainability requirements (Dearing, 2000; Beard and Hartmann, 1999; Gray, 1989; Rennings, 2000; Siebenhüner and Arnold, 2007). Quite often the firm internal implementation of sustainability-related tools and strategies is dependent on a dynamic interaction of several factors. However, the concept of ecopreneurship is always highlighted in the context of sustainability (Schaltegger and Wagner, 2008; Kivimaa and Mickwitz, 2006; Schaper, 2003; Pastakia, 1998). By demonstrating the economic benefits from being greener ecopreneurs become pull factor statues for pioneer and proactive work.

Hockerts and Wüstenhagen (2010) identified ecopreneurship empirically labeled ‘emerging Davids and greening Goliaths’. According to the authors emerging Davids are firms bringing their business model in line with sustainability whereas greening Goliaths represent firms striving to improve their environmental performance gradually. The empirical results are accompanied by Schaltegger and Wagner’s (2008) research on corporate sustainability. They describe one type optimizing existing business models by means of sustainability management and communication systems (Seuring, 2004; Burritt and Saka, 2006; Morsing and Schultz, 2006; Perrini, 2006). The introduction of sustainability

management systems often increases the efficiency of existing business models and reduces the damage done to social and natural capital per unit produced at the same time. Consequently, corporate learning processes can be initiated (Arnold and Siebenhüner, 2007). The creation of new products, market opportunities and business models characterizes the second type (Schaltegger and Wagner, 2008; Cohen and Winn, 2007; Dean and McMullen, 2007). Proactive environmental initiatives (Porter and van der Linde, 1995a, 1995b) can cause cost reductions as well.

Moreover, there are concepts of organizational learning stressing the influence of corporate responsiveness towards the concerns of stakeholders for fostering sustainability (Arnold, 2010; Hopkins, 1999; Mitchell et al., 1997). Altogether, technological development, structural and institutional considerations play an important role in moving towards more sustainability. However, firm internal factors for fostering sustainability in the light of the above discussed and special structural conditions are seldom discussed. Organizational sustainable learning processes in ecological and social topics (especially eco-efficiency and corporate social responsibility) are rather rudimentary in the water supply at present. (Tilman 2001; Mayer-Spohn 2004; Pieper 2008). From this the central questions arise: First, how do WSC implement sustainability and social responsibility into their management processes. Second, which differences can be seen? In addition, it should be found out to what extent social and environmental aspects have an influence on the sustainability performance, e.g. sustainability reports, tools and CSR issues.

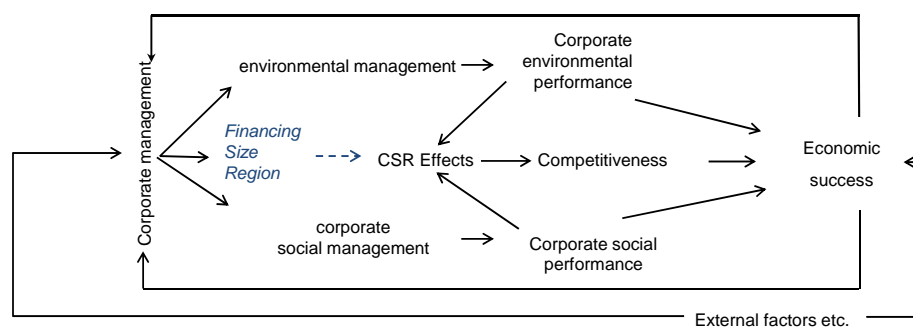
3.1 Sustainable water management

In the last decades the WSC were deeply under economical pressure because of the structural debate with regard to their service as fundamental part of the services for the public (e.g. by deregulation, liberalization, and privatization; Kluge et al. 2003; Rothenberger 2003). In this connection it could be seen that not all aims of a sustainable water economy could be achieved like resource efficiency, water quality, responsibility issues, and transparent pricing policy for all customers (Zschille et al. 2009). Especially the necessity of using innovative, system-oriented approaches of the resource economy like material flow management, eco-accounting, sustainable supply management was taken up insufficiently (Pieper 2008). Paradigm change from cost efficiency to eco-efficiency is imperative. Here, the WSC can play an active role in structural policy and make a decisive contribution to forward-looking, sustainable industrial water ecology.

In this connection it is necessary to think about possible transformation paths of the existing water systems, also in the municipalities. Taking the perspective of transformation, it makes some starting points and instruments to manage disruptions and discontinuities obviously. It can be also seen as a 'thinking in options and possibilities' and further steps and activities in order to actively manage regime alternatives and transformation paths. A subtly diversified debate between the actors involved (municipalities, companies, networks, etc.) is necessary to be able to demonstrate conclusions and consequences of plans and implementations. Subtly diversified systems gain importance in this context (Hiessl 2005; Donner 2005). These systems can only be successfully when existing systems are adopted and rearranged gradually from today (Koziol et al. 2006). At the same time it is necessary to ensure the specific functions, to fulfill the conditions of corporate management and to shape the transformation process socially and environmentally. Innovative service, distribution and disposal strategies have to be developed and implemented in decreasing as well as in rapidly growing regions (Bieker 2009). Municipalities and der WSC are equally challenged. There are a lot of indications of existing systems based on centralized network structures with inadequate sustainability (de Graf/van de Ven 2005; Scheele 2008; Kärmann 2001; Palme et al. 2005). Obviously are the high energy and resource consumption, path dependency as well as limited adaptability of the existing systems.

To realize system changes economic and ecological as well as social value chain processes have to be managed in an integrative way to generate a measurable contribution to the increase of the eco- and social-efficiency in the sense of corporate social responsibility. The main focus of a sustainable change should not only be directed towards the final goods and services of a company, however, above all result in an increase in the value of companies and society. The sustainability management is challenged to identify ecological value indicators and to integrate them into strategic management (Günther 2008). The influence mechanisms of environmental and social aspects on the economic corporate success may not be underestimated because environmental and social issues have a marketable and a non-marketable character, whose effectiveness can have an effect on the company's success with the help of market, social and political processes (Schaltegger/Wagner 2006, see figure 1).

Figure 1. Impact of environmental and social management on sustainability performance



In this context, ecology and economy work as pushing elements towards social sustainability. Here, companies are especially challenged to develop a social-ecological appreciation of the difficulties and sustainability challenges as well as to take proactively influence on structural and political processes. The sustainability achievement of a company decisively depends on how ecological and social challenges are met conceptually, institutionally and instrumentally. Learning processes have a high impact on a successful implementation. Thus, depending on how these learning processes are initiated and integrated into management, sustainability goals can be achieved easier and earlier. From that perspective, sustainability is a special challenge for organizational learning in the three management dimensions to facilitate the sustainability performance of a company. Lux et al. (2005) emphasize the evidence of environmental and social management responsibility for supporting transformation processes in the WSC. Even the influence of the location, the governance background and the size of a company may not be neglected. Their specific influence will be examined furthermore. The following hypothesis are the basis: The region, where a company is operating, has no influence on social and environmental performance. The bigger a company, the stronger environmental and social management are developed. Sustainability related management tools and CSR measures will be found more often in private financed WSC than in municipal ones.

3.2 Social responsibility

Sustainability, corporate social responsibility (CSR), corporate responsibility (CR) and social responsibility (SR) are connected strongly; however, there are fundamental differences as well (Arnold 2011; Munoz-Torrez et al. 2009; Frynas 2009; Dahlsrud 2008). Sustainability is a principle or a way to manage economic activities by integrating social and ecological aspects in a long-term perspective. CSR can be described as a concept where companies integrate social and ecological issues as well as interactions with stakeholders in their business activities on a voluntary basis (Carroll 2008). To act social responsibly does not only mean to fulfill the legislative expectations, but also to be active

beyond compliance (EU 2001). CSR activities can refer to various phenomenon, above all social-ecological problems are addressed. CR is regarded wider and integrates business aspects, business ethics or corporate governance in special (Beltratti 2005). Using CR companies have special reasons, e.g. image, risk management or cooperation with stakeholders. CR primary points at the basic challenges of the prevalent business model when realizing sustainable and social-ecological standards in companies (Carbonaro 2007; Sandberg/Lederer 2011).

Social responsibility addresses not only entrepreneurial activities but also social-ecological and economical standards as well as principles, patterns and models of all different organizations (Frynas 2009; Dahlsrud 2008). Therefore, the aim of ISO 26000 was to consolidate existing standards and give all forms of organization recommendation with regard to the implementation and realization. ISO 26000 does not solve the fundamental question concerning the connection of responsibility and core competencies finally (Porter/Kramer 2006), however, points out clearly socially responsible conduct in the core activity areas (ISO 26000, 3.3.4). The ISO standard positions clearly CSR engagement and social behavior in the core business cannot be replaced by philanthropic activities (as often spread in the CSR area). All in all it gives instructions for increasing the credibility of social-ecological activities. Corporate Governance, ethical management as well as the social and environmental responsibility of companies with regard to sustainability require the integration of ecological and social challenges into corporate sustainability management like eco-efficiency by using EMAS, ISO 14001 or 50001; socio-efficiency with the help of HRD, SA 8000 or ISO 26000; combining eco- and socio-efficiency by means of ISO 9001, ISO 17025 and 50001, eco-controlling, sustainability marketing, SBSC (see table 1). The following questions – integrated in table 1 – clarify the challenges of a sustainable development in the water sector. Table 1 shows the management approaches and instruments to be looked at.

Table 1. Relevant management approaches

Sustainability challenges	Relevant queries	Criteria of success and Management approaches/ instruments
Ecological	How can a company reduce its absolute environmental impact caused by value creation processes?	Increase of Eco-efficiency (eco accounting, life cycle assessment, material flow management, material and energy flows, etc.) → eco-efficiency measures the degree of absolute environmental compatibility (ISO 14001, EMAS, energy management – ISO 50001)
Social	How can socially undesirable effects of the business processes be minimized?	Increase of Socio-efficiency Stakeholder dialogues, proactive social management, SA 8000, ISO 26000, Social standards at suppliers, supply chain management, CSR, etc.
Economical	How can environmental protection and social engagement be realized in a reasonable way by maintaining or increasing profitability and company value?	Increase of eco- and socio-efficiency <u>eco-efficiency</u> : ratio of value to ecological environmental damage <u>socio-efficiency</u> : ration of value creation and social harm caused by business processes (ISO 9001, ISO 17025, Energy management)
Integration	Meeting environmental, social and economic demands simultaneously: How can environmental and social aspects be integrated into economical decision processes permanently?	The integration of ecological, social, economic perspectives: Eco-controlling, sustainability marketing, sustainability reporting, Sustainability Balanced Scorecard (SBSC)

4 Empirical design

From January until November 2011 selected instruments of the sustainability management and the seven core themes of ISO 26000 in the CSR field have been examined in 65 representative German WSC. The following issues were included within the field of management approaches: sustainable reporting, balanced scorecard, ISO 1702, EMAS II, ISO 9001, TSM (technical security management). The seven core elements of ISO 26000 and its sub-issues are:

- Organizational Governance
- Human rights (Due diligence, Human rights risk situations, Avoidance of complicity, Resolving grievances, Discrimination and vulnerable groups, Civil and political rights, Economic, social and cultural rights, Fundamental principles and rights at work)
- Labour practices (Employment and employment relationships, Conditions of work and social protection, Social dialogue, Health and safety at work, Human development and training in the workplace)
- The environment (Prevention of pollution, Sustainable resource use, Climate change mitigation and adaptation, Protection of the environment, biodiversity and restoration of natural habitats)
- Fair operating practices (Anti-corruption, Responsible political involvement, Fair competition, Promoting social responsibility in the value chain, Respect for property rights)
- Consumer issues (Fair marketing, factual and unbiased information and fair contractual practices, Protecting consumers' health and safety, Sustainable consumption, Consumer service, support, and complaint and dispute resolution, Consumer data protection and privacy, Access to essential services, Education and awareness)
- Community involvement and development (Community involvement, Education and culture, Employment creation and skills development, Technology development and access, Wealth and income creation, Health, Social investment)

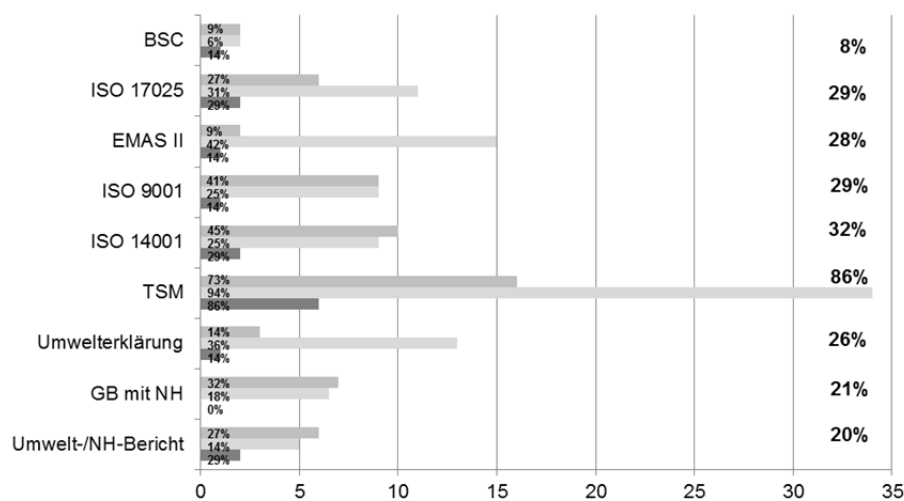
The selection of the companies was based on a random selection. With regard to the amount of data and the organizational structure of the German WSC, an extensive general analysis cannot be presented here. Rather segmentation for region, financing form, size, and turnover resulted by chance. The WSC were segmented with regard to size (turnover, service area and population density) and region (local, national, international, municipal utilities or groups) and classified into private-law, municipal and mixed-financed organizations. As the legal form does not allow any conclusions of the financing form all shares were analyzed and thus categorized respectively. In this sample WSC from all 16 federal states are represented (19 south, 21 west, 15 north, 10 east). 55 % of them are municipal companies, 34 % are private ones and 11 % are mixed financed companies. In accordance with the recommendation of the European Commission regarding the classification of the size of firms this sample shows the following distribution: With regard to the given annual income and organizational members there are one small company, nine middle sized company and 47 firms. Eight companies cannot be classified definitely; however, they can be seen as small- and medium-sized companies in a broader sense.

With the help of literature studies and web analysis with about 200 pdf files and over 500 webpages as well as a secondary data analysis relevant data was collected. For this the companies' webpages, annual reports, sustainability reports, further webpages and searching machines, pdf files, data bases, like DVGW, and literature studies were analyzed. The data was prepared with the help of categories, e.g. given by ISO 26000 or headlines like climate, climate protection, environment, project, engagement, transparency, core business, social, etc., and by keywords (Bryman and Bell 2009; Yin 2009). The corresponding management concepts and instruments as well as the CSR criteria were interpreted on the basis of qualitative and quantitative content analysis and by means of contingency analysis (Bühl 2010).

5 Results

Within the sample of 65 WSC the TSM is dominant within the implementation of management systems (see figure 2). The horizontal line shows the number of values meaning how many companies show respective management tools subdivided into the financing form. Along the vertical line the respective management tools can be seen. On the right hand side you can see the percentage of distribution per management tool with regard to all WSC. On the left hand side you find the percentage of distribution of the management tool with regard to the organizational form. 94 % (34 from 36 municipal WSC) of all municipal WSC and all small- and medium-sized companies (16 from 18 WSC) use TSM. However, the TSM certificate only acts on low levels of environmental management.

Figure 2: Level of implementation of management approaches, $N=65$ (upper line = private companies, middle line = municipal companies, lower line = mixed financed companies)



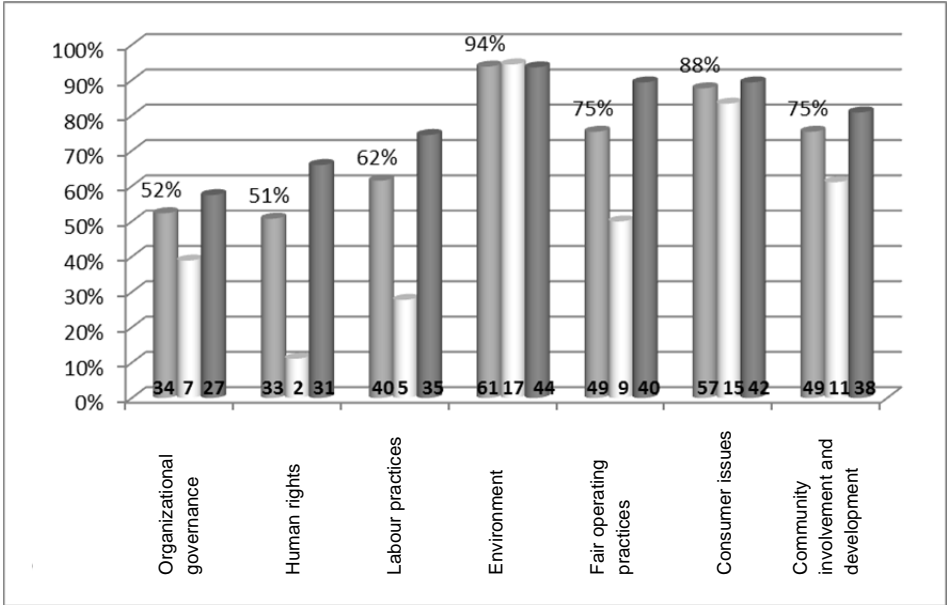
Merely 32 % of the companies have the accredited environmental management system ISO 14001. A quarter of all municipal companies implements ISO 14001 and 45 % of the private WSC. Only 17 % of the SME reveals ISO 14001. EMAS II can be found in only 28 % of all examined companies; 28 % of that (that means 5 from 18 WSC) in the SME and 38 % of all firms. A slight connection could exist between EMAS and the financing form of WSC. 15 of the 18 WSC are municipals ones. Corresponding to the contingency analysis the following measures result in: Cramer's V .350, contingency coefficient 0.330 with an approximate significance of 0.019.

Environmental and sustainability reports are provided publicly by 20 % of the WSC that means one SME and 12 firms. 21 % of the WSC integrate sustainability aspects in their annual reports and 26 % have a publicly supplied environmental statement. It is conspicuous that mixed financed companies do not provide an annual report integrating sustainability aspects. For that, these companies, seen relatively, have the highest percentage of 29 % in the field of environmental and sustainability reports. 47 % of all WSC do not have public available sustainability report due to multiple assignments in the three categories environmental/sustainability report, annual report containing sustainability issues and environmental statements. Only 10 % of all businesses offer a respective combination of two reports. Two municipal companies, declaring EMAS II, do not have any environmental statement. However, on private WSC declares an environmental statement without referring to EMAS II. All eastern companies do not have an environmental statement. In opposite to this, in this sample, the western WSC show many on average environmental statements (Cramer's V .325, contingency coefficient

0.309 with an approximate significance of 0.076). The more economical lined up management instruments ISO 9001 and ISO 17025 can be found in 29 % of the WSC. Here, SME have a 20 % interest and the firms have a 30 % share.

A similar picture emerges from the CSR elements, see figure 3. Figure 3 shows the distribution of the main categories of CSR elements of ISO 26000. The first column of each CSR category shows the overall distribution of all water utilities, the second and third columns represent the proportionate distribution of SMEs and large companies. The absolute numbers are also shown in figure 3. It is obvious that the category of environment is most strongly pronounced. Here, SME and large companies are on par. Climate protection, emission reduction and sustainable resource development take each one of great importance, while the fourth subsection biodiversity and nature protection only mentioned to 2/3. SME are the major companies in this aspect with 10% points ahead (72% vs. 62%). Regarding the three other sub-aspects the large companies have better communication skills.

Figure 3: Identification of CSR elements



Some companies describe their involvement in the CSR field rather prescriptive than with respect to specific areas: "Our CR strategy addresses the challenges of our core business. It covers ten areas for action, bringing themes and issues together, where we are most required at CR aspects. These include climate change, energy efficiency, security of supply, but also supply and demographics. For each of these fields we have set ourselves a binding and measurable goal. Learn more about this on these pages and in our CR Report 2010." Whether the performance factor, reputation index 'and the target size, the highest reputation among comparable companies in the industry' in the section on Corporate Social Responsibility describes in a sufficient way is questionable. Positive to stress is the FWA mbH's solid support in Sri Lanka in the core business provided on site: "... Together with six local volunteers, they purified an important part of the sewer system. With shovels, rakes, pitchforks and of course with great force the canal was cleared, at least in part."

6 Discussion

Based on the key question to what extent water companies implement sustainability and responsibility in their management processes, the investigation showed very clearly that the economic performance (cost) in comparison to the ecological performance (eco-efficiency) is in the foreground. The TSM is

dominant. Innovative, system-oriented approaches regarding economic resources (material flow management, life cycle assessment, ecology-oriented procurement strategies and management, etc.) are not sufficiently used by WSC and transformed into the strategic management - which also shows the low rate of the Balanced Scorecard. Environmental policy instruments and management approaches, such as EMAS II must be implemented by municipal companies stronger. Sustainability reporting is "to develop local businesses in width only" in the spirit of Gebauer (2011, p. 421). This study shows that it is to develop widely for WSC in the entire sector - private companies included.

Furthermore, the CSR representation at the WSC is insufficient. The dominance of the environmental considerations can be understood against the history of environmental policy and the current climate discussions as well as its characteristics of a natural resource. The underexposure of information about organizational leadership, human rights and labor practices is to balance in the external communication in the future. The companies should make organizational processes and structures more transparent. Specific references and descriptions of what CSR means in the core area of the respective companies are almost not given. Only one municipal company describes its responsibility in project-based assistance in foreign water companies. Those companies that publish GRI guidelines have even the highest value in the field of CSR (Brandl, 2011) - 36 of 37 indicators are addressed adequately and publicly presented.

According to Walter (2010) CSR requires the implementation of responsibility into the entire value chain. This comprehensive integration, communication and public presentation is insufficient in the sample. A credible commitment to CSR does hardly any WSC have, as the qualitative content analysis shows. But the communication of ISO 26000 keywords does not indicate core activities within its own or the total value added chain. Here the visibility of social responsibility is showed by specific supply chain-related activities. The actual use and communication of the respective management tools would be a first step. Whether the lack of visibility of CSR activities is primarily grown in the existing structures or in the fear of greenwashing accusations has to be clarified further.

A differentiated discussion between stakeholders (local government, business, consumers, union) is necessary to accurately reflect conclusions and implications for planning and implementations, as well as to increase the visibility and credibility of CSR. In this context, differentiated systems are gaining in importance (Hiessl 2005, Donner 2005). In order to enforce such systems, the existing systems should already being improved and gradually changed (Koziol et al., 2006).

7 Conclusions

The ecological and social responsibility of a WSC depends crucially on how environmental and social challenges are addressed conceptually, institutionally and instrumentally, i.e. social learning processes are initiated and integrated into the long-term economic management. From this perspective, sustainability is a challenge for organizational learning in the three management dimensions (ecological, economic, social) to enable the sustainable management of a company. Good approaches provide WSC having own power generation and a strategic approaches concerning sustainability management. This can also be found in the municipal area. The energy management of water utilities, in this context, is of fundamental importance (including the application of ISO 16001) and addresses strategic decisions on a local, decentralized power grids and a central power supply decoupling processes.

Corporate governance and ethical business leadership in the sustainability context requires explicit integration of environmental and social challenges in the corporate sustainability management of water utilities by improving the eco-efficiency (e.g. through implementation of EMAS, ISO 14001 or a targeted energy management) and the socio-effectiveness (Human Resources Development , SA 8000

or ISO 26000; of ecological and socio-efficiency, such as ISO 9001, ISO 17025 Energy Management, sustainability marketing, sustainability reporting, sustainability balanced scorecard as well as management tools that are increasing the credibility and visibility of social responsibility of WSC. In particular, climate change and sustainability are major challenges for WSC, but are still insufficiently integrated into management processes and external communications. However, a paradigm shift from cost to eco-efficiency and sustainability is necessary. This includes integrated strategic management approaches. These are available, although they have not been adapted yet in the WSC comprehensively.

A solid contribution of social responsibility of water companies, which is transparent and credible, is the implementation of the "Water Safety Plan" (WHO 2005). The so-called "drinking water" approach was published in the technical safety management as DVGW worksheet W 1001 in 2008 by the DVGW in cooperation with the Federal Environmental Agency in Germany. In contrast to the European water law the "Water Safety Plan" was implemented by the WHO in Germany and with the new drinking water regulations implemented in German law by law. In addition to this multi-barrier system such as the extension of the existing filtration systems on ultra-and nanofiltration would ensure organic micropollutants (pharmaceutical residues, X-ray contrast agent) to be able to more efficiently eliminated from the surface waters and of "self-responsibility principle of the WSC" - without amendment of the West German Drinking Water Regulation - in keeping with the Charter of the World Health Organization. The necessary costs should be internalized in accordance with the polluter pays principle from the affected industries, the pharmaceutical industry.

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