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VOLUNTARY INITIATIVES AND PRIVATE
COOPERATION FOR SUSTAINABLE
WATER MANAGEMENT
A CASE STUDY OF COMPANIES IN COUNTRIES OF
LATIN AMERICA

“Businesses, government, and civil society share an interest in reducing water-related risks through common solutions”.

CEO Water Mandate (2010:12)

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Abstract

The purpose of this case study is to identify the driving forces that motivated various companies to implement sustainable water management (SWM) voluntary initiatives in four Latin American countries: Panama, Colombia, Ecuador and Brazil. Additionally, the case study explores opportunities on how strategic stakeholders, such as government institutions, NGOs, IGOs, financing institutions, and the companies themselves, can motivate the private sector to cooperate on water governance issues. The main data collection methods were semi-structured interviews and written questionnaires, which were used to consult with companies and strategic stakeholders. Both internal and external factors influenced the companies in this sample to participate in voluntary SWM initiatives. The most important driving forces included: upholding corporate values and commitments related to sustainable development; ensuring adequate availability, supply and quality of water for their operations; developing competitive advantage; reducing operational and production costs; preparing for stricter regulations; reducing potential conflicts with the communities where they operate and to communicate their environmentally responsible behavior to consumers, investors and other stakeholders. Strategic stakeholders can motivate companies to engage in SWM and governance issues by engaging them in multi-stakeholder platforms to support and oversee watershed stewardship, involving them in water related policy development and implementation, through incentive-based policies and mechanisms related to sustainable production, through lobbying campaigns, and by exchanging information about good SWM practices and tools.

Keywords: Sustainable water management, private sector, voluntary environmental initiatives, water governance, multi-stakeholder cooperation, Latin America

Foreword

Writing this thesis was a very interesting and enlightening experience, which allowed me to evolve my interests in this topic to realize that I would genuinely like to continue working with these issues in my professional career. Although I acknowledge that the learning aspect of writing this thesis was highly inspiring, I have to say that the most valuable part was all the interesting people I got to know and converse with. I would like to start by thanking the representatives of the companies that participated in my thesis, for your time and openness in sharing valuable information and personal insights about the SWM voluntary initiatives. Also to Elisa Tonda from UNEP-ROLAC for being a very supportive mentor during my internship and providing me with “momentum” for my data collection phase. To the representatives of the different Water Funds, NGOs, IGOs and government institutions, for the genuine interest you showed in my research and for linking me with other professionals who are working in this field. To my thesis supervisor, Elsa Coimbra, who gave me priceless advice on how to start thinking like a social researcher and to actually nail down my blurry ideas into concrete words. To my LUMID peers, for providing me with excellent feedback during the writing process – as well as many exciting moments during these two years. And last but not least, to my family, for their unconditional support during all the different stages of my life.

List of Acronyms

| | |
|-------------------|---|
| ACP | Autoridad del Canal de Panamá |
| AWS-LAC | Water Stewardship Alliance in Latin America and the Caribbean |
| BNDES | Banco Nacional do Desenvolvimento do Brasil |
| CICH | Comisión Interinstitucional de la Cuenca Hidrográfica del Canal |
| SCP | Sustainable Consumption and Production |
| CSER | Corporate Social and Environmental Responsibility |
| FFA | Force Field Analysis |
| FONAG | Fondo para la Protección del Agua de Ecuador |
| GRI | The Global Reporting Initiative |
| GTZ | The German Cooperation Agency |
| IADB | Inter-American Development Bank, |
| IGOs | International Organizations |
| ISO | International Standards Organization |
| IWSS | International Water Stewardship Standard |
| LUMID | Lund University Master in International Development and Management |
| MMA | Ministerio de Medio Ambiente |
| NCPCs | National Cleaner Production Centers |
| NGOs | Non-governmental organizations |
| SDC | Swiss Agency for Development and Cooperation |
| SMEs | Small and Medium Enterprises |
| SPP | Sustainable Public Procurement |
| SWM | Sustainable Water Management |
| TNC | The Nature Conservancy |
| TSPs | Tri-sector partnerships |
| UNEP-DTIE | United Nations Environment Programme - Division of Technology, Industry, and Economics |
| UNEP-ROLAC | United Nations Environment Programme – Regional Office of Latin America and the Caribbean |
| UNGC | United Nations Global Compact |
| UNIDO | United Nations Industrial Development Organization |
| USAID | United States Agency for International Development |
| VEI | Voluntary Environmental Initiatives |
| WDM | Water Demand Management |

1 Introduction

1.1 Research problem

Population growth and a rapidly expanding economy are fueling an exponential increase of water use in Latin America as well as the loss of its main freshwater ecosystems (Bucher, Castro & Floris, 1997), causing major environmental, economic, social, and political repercussions. The expansion of agricultural frontiers, deforestation, mining, industrial production, and unplanned urban and rural development are among the most visible causes exerting pressure both in the quantity and quality of this resource (Bucher, Castro & Floris, 1997:1). Furthermore, climate change can intensify these existing pressures by increasing risk, vulnerability, and uncertainty in populations that are prone to suffer the impacts of extreme hydrologic events (UNESCO, 2009: 73). Unfortunately, lack of public-private cooperation strategies at local, sub-national, and national levels for the efficient use and regulation of water (UNEP & Red Mercosur, 2011b:47) as well as insufficient coordination between government institutions and other stakeholders at the watershed level, have perpetuated the fragmented management of this resource in the region.

Since water scarcity is widely perceived to be an important constraint on sustainable economic development, the availability of water resources and their management have been considered as “determinants of a country’s growth strategy” by the World Water Report 3 (UNESCO, 2009:7). Problems related to this life-sustaining resource not only pose serious challenges to societies and ecosystems, but also threaten many companies from industrial sectors highly dependent on water and will dramatically affect many more if current trends continue (Morrison & Gleick, 2004: 11). Understanding business risks related to water is critical not only for water intensive sectors, but for our entire global economy, since other businesses which rely heavily on the above sectors in their supply chain will be affected as well (Ibidem).

For the above reasons, the world’s major water users, from industry to cities and agriculture, are recognizing the acute need to manage the water resources they depend on more sustainably (TNC, 2012a). Moreover, shareholders, government institutions, and consumers are increasingly demanding at a global level that companies use natural resources in ways that are environmentally and socially sustainable (Ibidem). Companies are also realizing that improving water management can result not only in significant savings, but also in increased non-monetary benefits. The companies in the Latin American region are not the exception and some examples of corporate sustainable water management (SWM) that were found in Panama, Colombia, Ecuador, and Brazil, constituted the main focus of this case study.

To advance SWM and mitigate water-related business risks, these companies are implementing voluntary initiatives such as: watershed replenishment projects in their areas of influence, participating in Tri-sector partnerships (TSPs) like Water Funds, calculating their water footprint and improving water efficiency in their productive processes, promoting responsible water use with their suppliers and consumers, or are implementing international standards/commitments related to water. On the other hand, considerable efforts have been expended by government institutions, non-governmental organizations (NGOs), international organizations (IGOs),

financing institutions and other third parties in the region to promote business participation in SWM voluntary initiatives and water governance processes.

To understand the factors that encouraged these companies to take an active role in the management and governance of their water resources and provide some insights in how to motivate other companies to adopt similar practices, is what drove the development of this study.

1.2 Purpose and research questions

The purpose of this case study is to identify the factors that motivated some companies from different sectors¹ to implement SWM voluntary initiatives in some countries of Latin America: Panama, Colombia, Ecuador and Brazil. Also, to explore opportunities on how strategic stakeholders such as government institutions, NGOs, IGOs, financing institutions, and the companies themselves can motivate the private sector to cooperate on water governance issues in these countries.

Therefore, the *research question (RQ)* that I aim to answer in this thesis is the following:

- *What are the driving forces that encourage the private sector to get involved in voluntary initiatives and to cooperate for SWM in these countries of Latin America?*

The research question is composed of two parts that differ but are closely interrelated. The first part aims to understand why some companies are participating in specific SWM voluntary initiatives and which factors drove them to take that decision. These factors can be external (regulatory, economic, social and environmental) or internal (related more to the existence of managerial incentives within the company as well as its culture, identity and will of self-monitoring). The second part of the question refers more to the interaction of these companies with other business and non-business actors, not only to cooperate for the implementation of these voluntary initiatives, but also to have an active role in water governance issues. Hence, in order to answer the primary research question, the following *sub-questions* need to be addressed:

- **SBQ1:** *Which internal and external factors are contributing to the involvement of these companies in SWM voluntary initiatives?*
- **SBQ2:** *How can relevant stakeholders motivate the private sector to cooperate for SWM?*

To answer SBQ1, some companies operating in these countries that are implementing SWM voluntary initiatives were interviewed. These companies are either local or subsidiaries of multinationals, and most of them are large (not small or medium enterprises - SMEs). The perspective of additional stakeholders that are involved in the implementation of some of the voluntary initiatives, or that deal with water issues, were also included to be able to answer SBQ2.

¹ Beverages, food, agriculture, chemical, mining and oil&gas companies were included in the thesis.

The ultimate aim of this thesis is to have a “practical” contribution to this topic by:

- Understanding the potential benefits for companies when getting involved in SWM voluntary initiatives;
- Providing insights to strategic stakeholders, in how can they motivate companies to cooperate for SWM.

2 Background information

2.1 Water generalities in Panama, Colombia, Ecuador, and Brazil

Although the main characteristics related to water availability, water quality, and water use in the four countries studied are presented briefly in **Appendix 1**, in general, it can be said that Panama, Colombia, Ecuador, and Brazil have plenty of water resources to cover their internal demand. Some of them (Brazil and Colombia) are even considered to have the greatest freshwater endowments in the world. However, due to the unequal distribution of precipitation and population in their territories, there are some regions and months of the year (dry seasons) where they can face water availability problems. Conversely, in very rainy years these countries can suffer severe flooding or landslides caused by the excess of water, generating serious economic and social repercussions in certain areas. The primary uses of water in these Latin American countries (varying in percentages and level of importance in each country) are agriculture, domestic use for urban and rural areas, industrial production, hydroelectric generation, and navigation. In the same way, water quality deterioration is usually caused by domestic wastewater discharges, inadequate solid waste disposition, industrial discharges, erosion, and diffuse contamination coming from agricultural areas.

The SWM voluntary initiatives implemented by these companies seek to address issues with quantity, quality, and governance of this resource, and they can be grouped in 5 main categories: watershed replenishments projects, participation in TSPs (Water Funds), water efficiency programmes within their facilities, and promotion of responsible water management with their suppliers and consumers. Although it is not the aim of this thesis to evaluate the overall effectiveness or impacts of these initiatives, their implementation suggests an interesting approach to integrate the sustainable use of water within the business perspective.

2.2 Voluntary initiatives in which the selected companies are involved

2.2.1 Watershed replenishment projects

To improve the conditions and management of the watersheds that provide their production facilities with water, some companies are currently implementing watershed replenishment projects. For example, as part of its “Watersheds Programme”, one of the companies in Brazil is carrying out a (pilot) conservation project in partnership with an international NGO, which involves the local community to participate in reforestation activities where the most degraded

river margins were identified and by training them to conduct basic on-site analyses to monitor any improvements in water quality compared to the baseline levels. If this pilot project succeeds, the idea is to replicate it in other watersheds where the company has operations (Company 6).

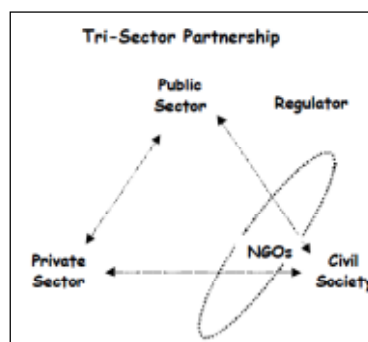
A similar watershed reforestation programme called “Water from the Forests” has been implemented by another company in Brazil in partnership with local and international NGOs and with active community participation, reforesting 65 hectares with native species in the region of Pirai and has already made arrangements to reforest additional 200 hectares in the region of Guandu (Company 4). This same company is also developing a plan to collect and use rain water as an alternative source for their industrial processes, reducing the use of water coming directly from watersheds.

In Panama, for example, one of the watershed conservation projects that is being implemented by a brewery has relied more in helping the local people to better manage their solid waste and wastewater through educational campaigns and by building affordable and simple wastewater treatment facilities with the communities. Similar projects involving reforestation, water, and waste management education campaigns have been implemented by companies in Colombia and Ecuador as well.

2.2.2 Water Funds

TSPs are arrangements that bring together the skills and resources of diverse partners (across the public, private and civil society sectors) in joint activities to address the pressing problems of global environmental change (Dellas, 2011; Jones, 2002). The underlying assumption of the success of TSP is that in leveraging their own resources all actors are able to achieve more than by working on their own and that partners can rely on their core competencies and have other actors fill in gaps in their skills, abilities, or mandates (Jones, 2002: 2-3). The participation of NGOs helps to include civil society participation within the public-private arrangements. See Figure 1.

Figure 1. Tri-sector partnerships illustration



Source: Jones (2002:2)

The Water Funds are TSPs to promote watershed conservation in order to provide enough water (in terms of quantity and quality) to the major cities of Latin America. This initiative has been mainly supported by the international NGO, The Nature Conservancy (TNC) and they are currently replicating this model in several parts of the world. Water Funds allow private and public users to finance high impact conservation projects in strategic areas of the watersheds to

supply them with clean and sufficient water (TNC, 2011a). The first Water Funds were implemented in Quito (Ecuador) and São Paulo (Brazil) and later Valle del Cauca (Colombia) and Bogota (Colombia) established their own Water Funds. Currently, there are other cities in the region implementing their Water Funds or planning to do so (See **Appendix 2**).

In general terms, a Water Fund is a trust fund which is set up for a determined time. Resources that are invested in the “patrimonial fund” cannot be directly spent, only the interests generated every year. Public and private businesses, government institutions and NGOs have provided funds (as founders) and they are part of their Directive Board. However, other donors such as IGOs or private companies² can also contribute to the “extinguishable fund”, which can be spent directly in specific projects (FONAG, 2011; Agua Somos, 2011). The Water Funds in Quito and Bogotá are managed by NGOs, which supervise the day-to-day operations, provide technical assistance, and assure the participation of all the stakeholders involved. They also look for additional sources of funding.

The most common type of watershed protection activities carried out by the Water Funds are environmental education campaigns, conservation of water sources, reforestation or natural regeneration projects, or to promote a change of certain production activities to more eco-friendly ones (agro-forestry systems, sustainable agriculture, or cattle ranching). Some of the companies that were interviewed are participating either as initial partners or are contributing to specific projects in the following Water Funds:

- The **Quito Water Fund - FONAG**, protects watersheds supplying the capital’s 2 million people with 80 percent of their freshwater. The project began in 2000 and it has served as a model for other Water Fund projects across the region (FONAG, 2011).
- The **Valle del Cauca Water Fund – Fondo de Agua por la Vida**, was an initiative launched by the sugar cane producers and mills in 2008 who got together in associations with other users (community water suppliers, municipalities, environmental authorities, other companies) to finance watershed restoration and conservation projects in the watersheds that were most affected (Asocaña, 2011).
- The **Bogotá Water Fund – Agua Somos**, was launched in 2008 and is expected to raise \$60 million over the next ten years through voluntary contributions that will finance conservation of watersheds that supply 8 million people in Bogotá with their drinking water. Citizens can donate to this fund through the webpage (Agua Somos, 2011).

² For example, the United States Agency for International Development (USAID) and the EcoFondo are funding the “Movil Educational programme” developed by FONAG, which objective is to visit various schools from the watersheds surrounding Quito, to educate children in how to take care of their water resources (OCP, 2012). EcoFondo is a private ecological trust fund that arose from the voluntary decision of a heavy crude oil pipeline operator and a gas company, and constitutes one of the largest conservation funds in this country (Ecofondo, 2012).

2.2.3 Water Efficiency Programmes

Most of the companies which were interviewed are actually implementing water efficiency programmes in their production facilities (and offices) or have carried out a Water Footprint Assessment³ for some of their products along their full supply chain. In fact, investing in resource efficiency programmes was found to be one of the most common practices among the companies and some of them have managed to reduce significantly their water consumption per unit of product during the past 5-10 years (some of them even up to 60%, as mentioned by Company 4).

Some of the common practices that were found among the water efficiency programmes are:

- Measuring and calculating the amount of water used in every process and identifying opportunities for improvement.
- For companies using the Water Footprint methodology, they are also calculating the amount of water used and impact generated (indirectly) by suppliers and consumers of a specific product, and identifying opportunities for improvement.
- Introducing water efficient machines and implementing proper maintenance schemes (to avoid leakages or dysfunctions).
- Recycling water that was used already in certain operations, but which is still in good conditions to be used in other parts of the processes.
- Improving the efficiency of wastewater treatment plants and in some cases, reutilizing this treated water to flush the toilets.
- Raising awareness to change certain habits within the industrial facilities (closing taps and hoses when not using them and stopping the cleaning of floors with water streams).
- Raising awareness in the offices to save water and introducing water efficient toilets and taps.

Whereas using the Water Footprint methodology or not, some of these companies are also implementing programmes to raise awareness for the responsible management of water with their suppliers and consumers, as it will be explained next.

2.2.4 Promoting responsible water management with suppliers

Three breweries in Panama, Colombia, and Ecuador (subsidiaries of a multinational) are actually implementing a programme called “Incentivizing development in our value chain”, which includes eight sustainable development criteria that suppliers need to comply with if they want to get certified as “responsible providers” of these breweries. However, the idea is to work together with the suppliers and to develop affordable compliance programmes over a time frame with

³ According to Water Footprint Network, “the water footprint of a product is the volume of freshwater used to produce the product, measured over the full supply chain” (Hoekstra et al , 2011:2). A Water Footprint Assessment refers to the “full range of activities to: (i) quantify and locate the water footprint of a process, product, producer or consumer or to quantify in space and time the water footprint in a specified geographic area; (ii) assess the environmental, social and economic sustainability of this water footprint; and (iii) formulate a response strategy” (Hoekstra et al, 2011:3-4).

support of these breweries. Among the eight criterion of sustainability there is one related to environment, which includes having good performance regarding water and energy efficiency, waste management, and atmospheric emissions. In alignment with this, the breweries have been transmitting to their suppliers examples of good environmental practices that they have implemented already in their production facilities.

Another company that produces food and soap commented that along its supply chain (at a global level), 70% of water is needed by the cultivators who provide them with agricultural inputs for their products, 25% of water is used in the productive processes within the plants, and only 5% was used by consumers when using their products. Given the great amount of water used in the supply part of the value chain this company is working together with its agricultural suppliers to improve water efficiency in different crops (soy, potatoes, etc), mainly focusing in the application of sustainable agricultural practices (Company 8).

Since the Water Footprint methodology encourages the companies to calculate the amount of water used and impact generated (indirectly) by suppliers and consumers, some companies are trying to reduce their water footprint by working with certain suppliers from abroad. However, it was found complicated to encourage international suppliers to be more responsible with water and to actually have an influence on their decisions due to the distance existing with them and many other factors involved in international trade (Company 13). More can be done with local suppliers as it was commented before with the cultivators.

2.2.5 Promoting responsible water management with consumers

In 2010 one of the companies in Brazil launched a programme with the objective of raising awareness and mobilizing society towards SWM. Among some of the most important activities of this programme there is the development of a website with plenty of information about how consumers can reduce their water impact (reports, documentaries, informative texts, videos, and pictures) and the development of a “Water Bank”. The Water Bank was launched a year ago in partnership with several water service providers of different municipalities in Brazil and in that period people who have participated have already saved 80.000 liters of water. Through a Water Bank account, citizens can access information about the average water consumption of their residences and if they decrease (and maintain this consumption at a low level), they will accumulate points that can be later exchanged in online purchase sites⁴.

Another company that provides agricultural supplies has been working in Colombia with the main consumers of their products: cultivators. They have been implementing “demonstrative land plots” where small-scale potato farmers have been trained to apply sustainable agricultural practices including efficient water use, minimum ploughing, adequate solid waste disposal, and applying the necessary amounts of fertilizers without wasting water and product (Company 12). Farmers are therefore able to compare the results obtained in the demonstrative land plots with the rest of the land cultivated under traditional techniques and see how improved environmental management brings benefits to their crops (Company 12).

⁴ To see more information please visit: www.bancocyan.com.br

The same company developed another project to provide water-related environmental services to large-scale farmers (mainly banana and African palm oil plantations) with the communities that live in those areas. They have developed a local “environmental services market” in which people from those communities can reforest degraded areas within the plantation’s land lots (e.g. river margins, water sources), and monitor them over established periods of time.

3 Methodology

3.1 Design of the study

Since research in this topic is quite recent and seldom in countries of Latin America, doing a case study seemed appropriate to analyze in depth the factors affecting the companies’ decisions to join SWM voluntary initiatives in this particular context. Case studies are usually the preferred strategy when “how” or “why” questions are being posed and when the focus is on a contemporary phenomenon within some real-life context (Yin, 2003:1). And they are also useful to illuminate why a set of decisions were taken, how they were implemented, and with what result (Schramm, 1971, as cited in Yin, 2003: 12).

The design used is the **embedded single case study**, because despite the fact that the companies included held contrasting characteristics such as type of industry or country where they were operating, they all were involved in SWM voluntary initiatives. Hence, they could not be taken as “contrasting cases”, but as “units of analysis” through which I could investigate my phenomena, “the case”. These units of analysis were selected to add significant opportunities for extensive analysis, enhancing the insights into the single case (Yin, 2003: 46). In a study with this design, the researcher has to compare the information obtained with each unit of analysis and try to look for commonalities, deviations, trends, or patterns in order to refine the established theoretical framework.

Based on theory there are some “propositions” that might hold true in my research and which will allow me to look for the correct evidence within my data (Yin, 2003:22):

- There are internal and external environmental, social, economic, and regulatory factors that affected the companies’ decisions to get involved in SWM voluntary initiatives; while bringing potential benefits to the business.
- Since water management and governance require measures of coordination, collaboration and cooperation between actors, strategic stakeholders have a great stake to motivate the private sector to cooperate in this regard.

With the research question, the propositions and the units of analysis identified, specific criteria for interpreting the empirical data were established in the model of analysis. The logic linking the empirical data to the propositions was “pattern matching”, which will be explained in more detail in numeral 3.4 (Data Analysis).

3.2 Research approach and epistemological considerations

When analyzing social phenomena it is quite ambitious to say that one is using only one research approach and an epistemological and ontological standpoint, because in practice these differences are almost never clear-cut. However, for the type of thesis that I conducted, I would say that I used a more deductive approach, since based on the theory I elaborated some theoretical propositions that were aimed to be examined with empirical data (Bryman, 2008:10). Regarding epistemology, I would argue that I am more in the lines of critical realism, which philosophical position is to recognize the reality of the natural order and the events and discourses of the social world and holds that we “will be only able to understand – and so change – the social world if we identify the structures at work that generate those events and discourses” (Bhaskar, 1982:2 in Bryman, 2008:14). On one hand, I want to focus in the objective realms of the phenomena by acknowledging that the companies represent a “social order” for their employees whilst requiring them to comply with certain rules; but also, the company is pressured by external factors that make it conform to the rules of the “outside world”. Critical realists also recognize into their explanations theoretical terms that are not directly amenable to observation, but which effects can be observed (Bryman, 2008:15). Therefore, I endeavor to understand the subjective realms of the phenomena by acknowledging that companies are also affected by internal factors which shape their behavior towards sustainability, which basically reflects their interpretation of and interaction with the “outside world”. This includes the personal values and commitments from their employees, the organizational culture, and identity to mention some.

I would add also that this thesis has a more confirmatory intention in the part of understanding the driving forces (since research in this topic has been conducted already in developed countries, but not in Latin America). But it has a more exploratory approach in the parts that sought to gather information about the voluntary initiatives and in what strategic stakeholders are doing to motivate the private sector to join them.

3.3 Data collection methods

3.3.1 Selection of the sample

To select the companies that were relevant to answer my RQ, I used purposive sampling. First, I did a preliminary exploration about the industrial sectors that are more vulnerable to water-related risks and from those, the companies that were involved in voluntary initiatives. Five groups of companies appeared to be more frequent within the preliminary sample: 1) beverages; 2) agricultural/food processing, 3) mining and oil & gas companies, 4) hydroelectrics/hydroways and 5) water services providers. I excluded deliberately the water service providers from my sample since they are usually public or mixed companies and I was only interested in investigating private companies which decisions are taken under a business perspective and do not have any type of public mandate or command.

Having done this, I selected my final units of analysis based on the following criteria: a) the company is private (not a public or mixed); b) it is involved in voluntary initiatives or

cooperation strategies for SWM; c) it is operating in Panama, Colombia, Ecuador, or Brazil⁵; d) there is “acceptable” access to contacts and data. In addition to the companies, I decided to also collect qualitative data from other categories of respondents that were also involved in the implementation of these initiatives or in water governance processes. This was done not only with the aim of getting complementary information, but to triangulate my data. The list of companies and other relevant stakeholders with whom I carried out interviews and written consultations is presented in **Enclosure 1**.

3.3.2 Approach to the my interviewees

One of the greatest challenges of this thesis was to contact the companies and to arrange the dates to carry out the interviews (especially because some of them had to be carried out by telephone). A great opportunity for me to start establishing key contacts was the internship that I did in Panama between June-December (2011) in the United Nations Environment Programme – Regional Office of Latin America and the Caribbean (UNEP-ROLAC). Since I was interning in the Resource Efficiency, Sustainable Production, and Consumption Unit, I had the opportunity to meet several professionals who were working on relevant issues for my thesis through the different projects and regional workshops that were being implemented. Moreover, colleagues from UNEP-ROLAC were very collaborative in introducing me to the first companies directly, or to representatives of NGOs/IGOs who were implementing voluntary initiatives in the countries that I selected.

Some of these initial contacts, especially NGOs/IGOs ended up acting as my “gatekeepers” and were key for my thesis not only because I had the opportunity to interview them, but also because they introduced me with representatives from other companies and NGOs in which I was interested to converse with. With other companies however, I got in touch directly or through personal contacts. Approaching my interviewees was an intense and exciting networking process that gave “momentum” to the interviewing phase.

3.3.3 Interviewing

Using semi-structured interviews is advantageous for qualitative research because they provide a sequence of themes to be covered as well as suggested questions, but flexibility in sequence in order to follow up the answers given (Kvale, 1996: 122). The main interview guide was designed with 11 questions which helped me to identify driving forces and motivation strategies to encourage the private sector to engage in responsible water management practices (see **Enclosure 2**).

In total, ten companies were interviewed; two companies answered the questions in written form and one company gave a conference related to this topic so I could extract the information relevant to my thesis. In addition to this, I carried out six interviews with representatives from

⁵ These countries were selected since they showed to have various examples of SWM voluntary initiatives or water governance processes with active involvement of the private sector. Also, because I was physically present in Panama and Colombia where I could do personal interviews.

NGOs and IGOs. During my internship with UNEP-ROLAC I could also gather valuable information through the implementation of related regional initiatives and the interaction with different stakeholders who are working in these topics. Communication with government representatives was mostly through e-mail, although I did one interview with a government authority in Panama. The majority of the interviews were carried out between the last days of November 2011 and February 2012.

I did face-to-face interviews in the countries where I was physically present (Panama during November-December 2011; and Colombia from January 2012 to February 2012). The interviews from Brazil and Ecuador were carried out through Skype or telephone due to geographic limitations. While some of the first interviews that I did face-to-face were recorded (after receiving informed consent from the interviewees), I decided to take notes in the rest of the interviews in order to encourage more “natural” conversations and avoid discomforting the respondents. This applies especially to telephonic interviews in which I had to overcome the barrier of distance, and the fact of recording would have constrained a good flow of information exchange.

3.3.4 Review of secondary sources

In addition to the interviews I consulted a wide range of secondary sources, not only to triangulate my data, but to review complementary information that added to the descriptions and supporting arguments for the findings and analyses of this thesis.

3.4 Data Analysis

All of the empirical data that was gathered through the interviews was grouped (coded) in different categories as suggested in the model of analysis: internal and external factors. Another category was all the information related to the motivation of the private sector by strategic stakeholders. When all the evidence was organized according to these categories I was able to view general trends, commonalities, and differences among the answers. Afterwards I used the approach of “pattern matching” whereby several pieces of the empirical information could be related to the predicted theoretical proposition (Donald Campbell, 1975 in Yin 2003:26).

3.5 Limitations and criticism of sources

Although I acknowledge that face-to-face interviews are more appropriate for qualitative research; conducting telephonic interviews ended up being a useful tool for my study considering that I had a geographically dispersed sample. However, I am also aware that telephonic interviews present several limitations like preventing me to engage in observation (Bryman, 2008:198) and having to overcome the barrier of distance (especially when the interviewee does not know you). However, the fact that I was introduced to my interviewees by persons who they already knew facilitated a lot the approach to them and the interviewing process as a whole.

On the other hand, I acknowledge that the representatives of companies and other organizations that I interviewed actually determined quite a lot my results, since most of my interviewees were working on sustainability issues (within the companies, environmental authorities or NGOs/IGOs), therefore my data can represent a “too optimistic” perspective to the problematique. Although I did want to highlight the positive aspects of these initiatives, to talk about the challenges was a more difficult task, especially with the companies. It is also important to note that lots of the information provided represent personal opinions and cannot be taken as representative of a certain organization.

3.6 Ethical considerations

To get informed consent from the participants, I followed the recommendations made by Kvale for the interviewing process, which included: informing them about the overall purpose and design of the research; offering confidentiality and anonymity if requested; informing practical issues such as the use of a tape recorder; asking if they have questions before starting the interview; and providing further explanations about the analysis and treatment of the information of the thesis (1996: 112-114, 128). Flexibility was provided to the participants to answer the questions through an interview or in written form and special requests of confidentiality and anonymity were taken into account. For that reason and to present the information homogeneously, I decided to keep anonymity in the names of all the persons and companies that collaborated with my thesis. Also, considering that I was still doing my internship in UNEP-ROLAC when I started contacting and interviewing participants, I was very clear to explain to them that this thesis was done for purely academic purposes and not related to any work carried out or financed by my host organization.

3.7 Reliability and validity

One of the standard criticisms of case studies is that the findings cannot be generalized. However, various authors such as Mitchell (1983) and Yin (2003) expose that the crucial question in case studies is not whether the findings can be generalized to a wider universe, but how well the researcher generates theory out of the findings or tests theory (in Bryman, 2008:57). Although I acknowledge that I won't be able to generalize the findings beyond the companies that were analyzed in this case study, the observations should be taken as characteristic of a certain reality, but not strictly representative of that reality.

To strengthen the validity of the case study, I used the “pattern matching technique” (Yin, 2003) and triangulated the data with other sources of information. Also, I corroborated with the participants, or summarized every certain moment during the interviews if I understood correctly what they were expressing to me. These helped me address if there is a good match between the empirical data and the ideas I developed.

To increase reliability, I ensured to keep complete records of all phases of the research process (e.g. problem formulation, selection of research participants, field work notes, interview transcripts, data analysis decisions) in an accessible manner (Lincoln & Gub, 1985 in Bryman,

2008: 378). Moreover, I believe that being Latin American, knowing the context of the study and the idiosyncrasies of people facilitated understanding of the phenomena in a better way.

4 Theoretical Framework

4.1 Sustainable Water Resources Management Approach

As defined by Kondouri & Kountouris (2008) water scarcity can be a result of decreased water quantity following growing demand, decreased quality resulting from degradation from water resources, or both (in Desai and Potter, 2008: 309). However, different scholars have different perceptions of what scarcity is and of how it can or should be solved. Since the private sector is usually a water user I have focused in the concept of Water Demand Management (WDM) as my main approach to link the concepts of sustainability and water resources management.

Understanding water scarcity as a demand problem stresses that water availability is limited and demand cannot continue to increase (Hoekstra, 1998:610). Likewise, quality deterioration has to be solved by treating wastewater production and also by reducing it (Ibidem). Therefore, some authors refer to WDM as the alternative to the “supply-side” water management approach and define this concept with three guiding principles: “any practice or policy implementation which results in water being used in a more efficient, equitable and sustainable way” (Arafa et al., 2007b: 2, in Zeitoun et al, 2012: 55). Authors like Allan add to these three principles an additional one: water policy and governance (2004:49; 2011).

From an economic perspective, efficiency is a property through which society uses and assigns its limited resources in the best possible way (Mankiw, 2004:4) and equity means that the benefits generated by these resources are distributed fairly among society’s members (Mankiw, 2004:4). Productive/technical efficiency of water use relates therefore to producing more products and services per unit of water. Allocative/economic efficiency relates to the equitable access to water and distribution of benefits among society’s members. The use of water in an environmentally sustainable way relates then to the improvement of biodiversity and ecological processes at the watershed level (TNC, 2010) and in reducing the environmental impacts caused by each unit of water consumption. Finally, water governance encompasses not only the legal and regulatory dimensions (defined by water policy), but also the planning around water allocation and the implementation practices by water managers and other stakeholders in support of the management system (CEO Water Mandate, 2010:12).

Having explained the previous, it is assumed that the private sector can contribute to SWM in three main ways:

Investing in water producer ecosystems

By recognizing, valuing, and paying for the role of water in both maintaining biodiversity and ecosystem services (UNEP, 2011: 121). Therefore, the private sector can invest in protecting the water producer ecosystems such as forests, wetlands, and floodplains, or restoring degraded watershed areas in coordination with other stakeholders.

Investing in resource efficiency

Resource efficiency is defined as using the least possible amount of resources and generating the lowest environmental impacts to produce a product or service (UNEP & Red Mercosur 2011a: 19). Therefore, companies should use water within sustainable limits and promote the use of technologies that encourage efficient forms of reduction, recycling, and reuse of this resource (UNEP, 2011: 121). Resource efficiency assessments must consider all the impacts and needs throughout the life cycle⁶ of the products or services (UNEP & Red Mercosur 2011a: 20).

Corporate engagement in water governance processes

When working on solutions related to water management, policies and governance practices should encourage extraordinary measures of co-ordination, collaboration, and co-operation between stakeholders (Söderbaum & Tortajada, 2011: 821). According to the CEO Water Mandate (2010: 14-15) companies can engage with different stakeholders to advance SWM and policies at different levels:

- Local: working with municipalities, communities, and other stakeholders to make operational improvements to preserve environmental quality and ensure local water supplies and sanitation.
- Watershed: working with water management authorities and other stakeholders to support effective planning, water allocation, pollution control and environmental protection. Also by participating in or initiating multi-stakeholder platforms to support watershed stewardship.
- National: getting involved with other stakeholders in water related policy development, implementation, and oversight to ensure that appropriate legislative and institutional arrangements are in place and functional.
- Global: engaging with governments, IGOs, financing institutions, and NGOs on international advocacy, research and development toward best practice in water management.

4.2 Voluntary Environmental Initiatives as a complement to regulation

Voluntary Environmental Initiatives (VEIs)⁷ are defined as programs, codes, agreements, and commitments that encourage organizations to voluntarily reduce their environmental impacts beyond the requirements established by the environmental regulatory system (Carmin, Darnall, & Mil-Homens, 2003; in Darnall & Sides, 2008: 96). Many different names and tools are used to define voluntary initiatives for environmental management, such as: 1) codes of conduct and responsible care programmes; 2) self declarations or commitments; 3) implementation of environmental management systems; 4) voluntary auditing; 5) eco-labelling; 6) voluntary

⁶ That is, to consider the use of resources and the generated impacts, from the procurement of raw materials and inputs, through production, consumption and final disposal of a product or service, including environmental impacts that will be caused in the future.

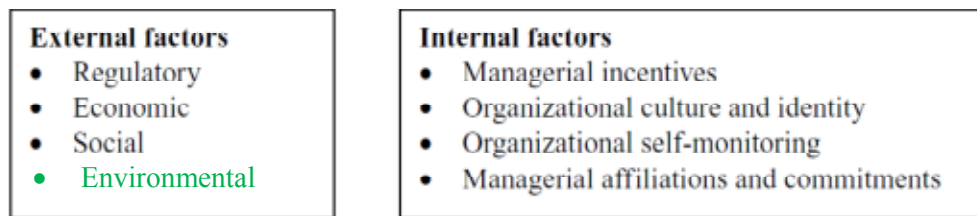
⁷ Also known in the related literature as Voluntary Environmental Programmes (VEPs) or Voluntary Environmental Agreements (VEAs) – but I will refer to this term throughout this document just as “voluntary initiatives”.

environmental reporting; 7) green purchasing and ethical investment; 8) public voluntary and technology support programmes; 9) multilateral environmental agreements; 10) gentlemen’s agreements; 11) covenants (Žičkienė, 2007: 45).

One of the advantages of voluntary initiatives is that there is no need to create enforcement techniques and that they can actually expand regulation limits by employing business potentialities to participate in environmental conservation (Žičkienė, 2007: 43). This is particularly important in developing countries where the degree to which environmental quality can be improved by regulations depends not only on the wisdom inherent in policy design, but also on the effectiveness of policy enforcement (Ibidem).

Gunningham et al (2004) proposed three categories of general motivations for companies to engage in voluntary environmental action: (a) economic or competitive factors, (b) regulatory factors, and (c) social or community factors. I would like to add (d) environmental factors, since companies are also prone to lack of primary resources required for their production or to environmental phenomena such as floods, droughts or fires. However, another study by Howard-Grenville et al. (2008) established that there is also an “internal license” that, like external (regulatory, economic, social, and environmental) factors, can affect the companies’ decisions about participating in voluntary initiatives. This internal license comprises managers’ attitudes and incentives, the organization’s identity and culture, its will to self-monitor, and the employees’ own affiliations and commitments; each which may independently affect business behavior and also serve to filter external pressures (Ibidem). See Figure 2.

Figure 2. Factors affecting business to engage in voluntary environmental action



Source: Borck & Cognaliese (2009: 314), modified by the Author.

Although authors such as Blackman question if voluntary initiatives can be successful in developing countries where both regulatory and non-regulatory pressures for improved environmental performance are lacking (2008: 137), he also agrees that their likelihood for success depends on their design and deployment. This author also suggests that further research in what leads some companies to take actions that go beyond compliance in the countries of Latin America is required.

4.3 Force Field Analysis

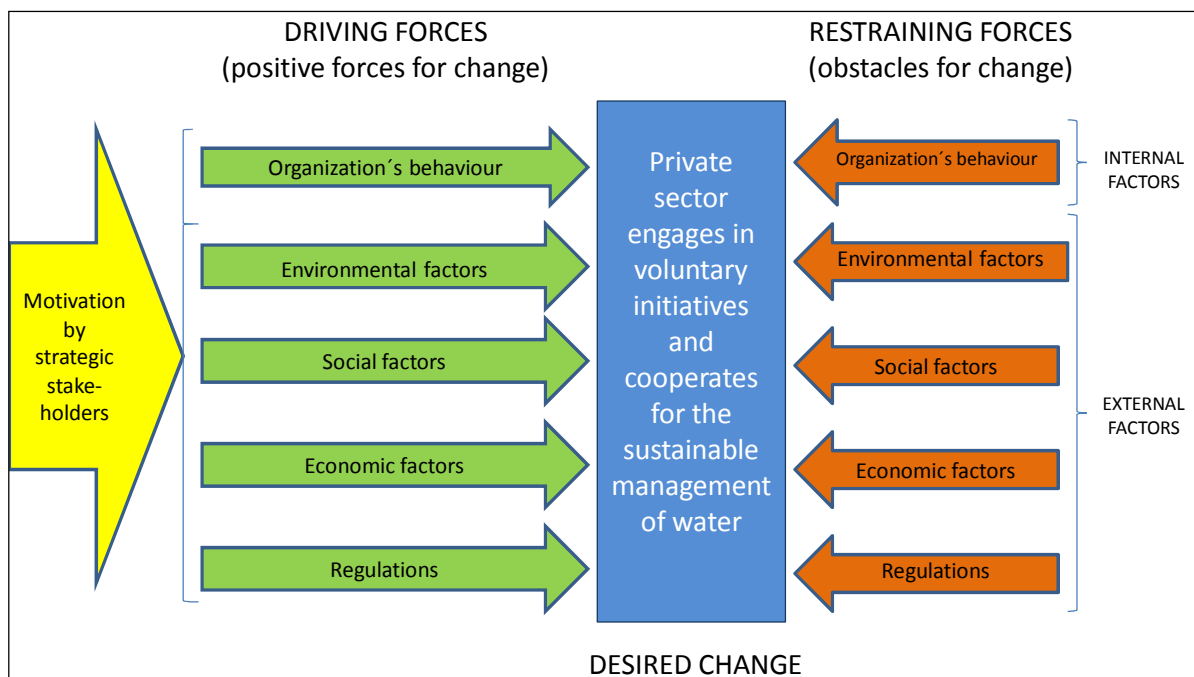
The Force Field Analysis (FFA) is a management technique for diagnosing situations which are in the process of change (Lewin, 1969). This author assumes that in any situation there are both driving and restraining forces that influence any change that may occur. Driving forces are those

forces affecting a situation that are pushing in a particular direction; they tend to initiate a change and keep it going. Restraining forces are forces acting to restrain the intended change. Lewin spoke about the existence of a quasi-stationary social equilibrium, and for change to happen, the equilibrium must be upset: either by adding conditions favourable to the change or by reducing resisting forces. According to the FFA, the companies that joined or implemented SWM voluntary initiatives must have had more driving (or important) forces than restraining forces, to take the decision of managing their water resources more sustainably.

5 Model of Analysis

This model of analysis was inspired by the previous three theoretical frameworks and builds on the concepts that are believed to better answer my research question. The primary premise of the model lies in the fact that the companies that I am studying are already involved in voluntary initiatives or are cooperating for SWM. Therefore, the amount (or importance) of the driving forces that encouraged them to take this decision must have outweighed the restraining forces that discourage them to make the change happen. In addition to this, motivation of the private sector by strategic stakeholders can increase the strength of the driving forces favorable to the change. See Figure 3.

Figure 3. Model of Analysis



Source: Lewin's FFA (1969), modified by the Author.

The five green arrows represent the internal and external factors that might have motivated the selected companies to implement SWM voluntary initiatives (which results are presented in section 6.1.). It does not mean that the five factors have to be present to produce the change: the presence of one or two of them (if they are important enough), may constitute strong driving

forces for the company to get involved in these initiatives (e.g. corporate self declarations or commitments or stricter regulations). The yellow arrow represents the actions that particular stakeholders can do to motivate companies to cooperate for SMW and which results are presented in section 6.2. Although I want to focus on identifying the positive forces that drove businesses towards an augmented responsibility with water resources (to see how these opportunities could be enhanced), the restraining forces will be mentioned also since they represent the challenges that need to be minimized in order to favour the desired change.

Organization's internal behaviour towards sustainability

The work of Howard- Grenville et al (2008) suggests that there are internal factors which can affect the companies' decisions about engaging in voluntary environmental action are:

- **Managerial incentives** are the opportunities for managerial initiatives and actions, stemming from the structure, rules, and routines of an organization, and the informal patterns of influence and control (Howard- Grenville et al., 2008: 80).
- An **organization's culture** is regarded as a system of meanings that operate within an organization and that shape its members' daily actions (Gregory 1983; Smircich 1983; Meyerson & Martin 1987; Schein 1992 in Howard- Grenville et al., 2008: 81-82). Culture is something that an organization "is" rather than something that it "has" and is often difficult to change (Smircich 1983: 342 in Howard- Grenville et al., 2008: 82).
- **Organizational identity** is defined as that which is central, enduring, and distinctive about an organization as perceived by its members (Albert & Whetten, 1985, in Howard- Grenville et al., 2008:82). Identity stems from the company's interaction with the outside world (Hatch & Schulz 2002 in Howard- Grenville et al., 2008: 82).
- **Organizational self-monitoring** represents how an organization portrays its image to external groups (including regulatory agencies, communities, activist organizations, and others), its response to their impressions, and the value it places on adhering to socially appropriate portrayals (Howard- Grenville et al., 2008: 83).
- Finally, individuals' **own affiliations and commitments** matter to how they set and solve environmental problems. This includes not only the level of professional education, experience and affiliations, but purely personal, individual values (Van Maanen & Barley 1984; Morrison 1991, in Howard- Grenville et al., 2008: 84).

Environmental factors

On the other hand, Morrison & Gleick (2004: 5-6), explain that there are a number of risks and challenges that water problems pose to business, which include:

- **Decreasing water availability and reliability of supply:** water shortages are already constraining industrial uses of water especially in places with limited water resources.
- **Declining water quality:** contamination of water sources reflect in higher pretreatment costs for many industrial processes. Stricter regulations can also lead to new and costly requirements on a company's wastewater treatment processes.

- **Supply chain interruptions:** water is required to produce key upstream inputs that many companies use in their production. Therefore, water-related risks related to a company involve assessing factors also in its supply chain.

Social factors

Although the social factors that can affect business performance can be of a different nature (e.g. laboral issues, industrial health and safety, community relations) I will only focus on two aspects that particularly relate to water:

- Especially in developing countries, **conflicts** between a company and communities can be generated either because companies use substantial amounts of water in regions where the population has limited or no access to basic water services, or more related to the quality of their wastewater discharges (Morrison & Gleick, 2004: 7).
- **Social pressure** (exerted by consumers, NGOs, and the local communities), for companies to use natural resources in a more sustainable way.

Economic factors

Authors such as Porter & Van der Linde, 1995; Segerson & Li, 1999; and Barnea, Heinkel & Kraus, 2004 (in Borck & Cognaliese, 2009:313) mention some economic benefits that companies seek when involving in voluntary environmental actions:

- Reduce their production or operating costs by using resources more efficiently or by reducing their environmental impacts.
- Some customers are willing to buy more or to pay more for the goods and services that are perceived to be sustainably produced
- Companies may find it easier or less costly to raise capital from investors who value the environment. Also to obtain resources from IGOs and financing institutions that fund projects contributing to sustainable development.

Regulations

Government institutions can influence the private sector to improve their water management performance through:

- Water related laws and regulations manifesting themselves through direct or economic compulsion on businesses.
- Market-based mechanisms as an alternative approach to incentivize businesses to internalize their water-related externalities through taxes and subsidies (Mankiw, 2004:133).
- Incentive-based policies seek to promote a more rational use of resources in businesses, along with the promotion of clean technologies and the availability of funding for innovation (UNEP & Red Mercosur 2011b:39). These policies usually integrate the management of other natural resources apart from water (e.g. energy, land, biodiversity).

Motivation by Strategic Stakeholders

The actions that strategic stakeholders such as government institutions, NGOs, IGOs and financing institutions can perform are not only crucial to provide viability and sustainability to some of these SWM voluntary initiatives, but also to motivate the private sector to engage and cooperate in water governance processes as a whole.

6 Findings and Analysis

6.1 Internal and external factors contributing to the involvement of the companies in SWM voluntary initiatives

There is a strong relationship between the internal and external factors affecting a company's decision towards the management of its water resources, since the existence of one set of factors may contribute to the appearance of the others (or viceversa). For example, due to the existence of water scarcity problems, stricter regulations imposed by the government institutions or increased social pressure to improve corporate environmental performance (external factors); a company might start to pay more attention to the generation and implementation of corporate sustainability policies and plans. However, without internal awareness, commitment, and the necessary resources to implement these corporate sustainability strategies, it will be very unlikely that the organization will be able to address (or cope) with these external pressures. Since internal and external factors are closely interrelated and in practice both affect companies, it is very difficult to determine which are stronger than the others. It is also acknowledged that some of the topics within the internal and external factors can overlap (e.g. both lack of water and certain regulations can affect costs; and consumer demand is both a social and a competitive pressure), however, they were divided in this thesis to be able to treat theory and present findings in a systematic and comprehensible manner. Having commented on these realities, the findings are presented in the following section.

6.1.1 Organization's internal behaviour towards sustainability

“When implementing sustainability actions within a business, the first thing one should evaluate is if the commitment is real and if it is endorsed by the shareholders and high managers, then transmitted to all the employees and appropriated by everyone...otherwise, any efforts are going to work” (Company 5).

In relation to the **managerial incentives** within the companies, one example is that when some of the national breweries operating in Panama, Colombia, and Ecuador were acquired by a multinational, the environmental and social management issues became stricter and mandatory for all these subsidiaries (Companies 1, 2 ,3). Consequently, the internal structures within these subsidiaries were created in order to implement explicit sustainability strategies, which had specific goals, indicators, and evaluation processes every 6 months. With this evaluation system in place, additional internal incentives started to come up, since every year the subsidiaries are ranked (globally) according to their national sustainability performance indexes. This fact

motivates each brewery to do benchmarking within their own plants (at a national level) and to learn from other breweries (in other countries) that have better sustainability performance indexes (Companies 1, 2, 3).

Nevertheless, other companies that are 100% national (in Colombia, Ecuador) have also developed well defined sustainability policies and are implementing them, which shows that the concern towards environmental and social issues is starting to emerge in national businesses as well.

Additionally, most of the companies that were interviewed have currently well established Corporate Social and Environmental Responsibility (CSER) Departments with professionals who are accountable to monitor performance in this regard. Some companies are already signatories of international agreements or standards such as the UN Global Compact (UNGC), The Global Reporting Initiative (GRI), Vision 2050, ISO 14000, or are evaluated by the Dow Jones Sustainability Indexes (see **Appendix 4** for their description). In general, it can be said that these companies have integrated within their mission and vision the sustainability aspects and have placed the necessary structures, rules, and routines to be able to implement them.

Organizational culture was identified as something more difficult to change within the companies, especially in relation to environmental aspects. For example, a company expressed that when they joined the GRI, this leveraged the environmental relevance within the company at least at the managerial level (Company 10). However, that it still remained a great challenge to raise awareness within all the employees of the company and make them understand that their day-to-day actions is what gives viability to the sustainability strategy of the company (Company 10).

Raising awareness campaigns have been carried out by several of these companies to generate a gradual cultural change with their employees, to explain to them that being more responsible with water is “not only to save costs to the company”, but because maybe the nearby communities will not receive enough water if they continue using this resource irrationally. As one of the interviewees expressed, “you can never stop the awareness raising campaigns: you need to motivate the employees to be responsible with water all the time, and make them feel appropriated of their actions” (Company 2).

In terms of **organizational identity** all the companies showed to have clearness on what is distinctive about their business and in the role sustainability plays when they interact with other stakeholders. At the discursive level, they expressed concern in giving back to society (and the environment) what has been given to their companies, as a pre-requisite for entrepreneurial success. However, by implementing programmes to help develop (economically, socially, and environmentally) others who participate in their business (suppliers, intermediaries, and final consumers), they seem to be transferring the sustainability discourse to concrete actions.

Self-monitoring was one of the most prominent internal factors among respondents. In fact, most of the companies that were interviewed are some of the biggest companies in the countries where they operate and feel that “everyone has the eyes on them”. Therefore, they consider very important to be an example to other companies in their countries (to the private sector in general

or to specific industries). This shows that their shareholders and managers place great importance on portraying to other stakeholders that the company is adhering to socially and environmentally appropriate actions. For these reasons, some of the companies mentioned to have participated (and received) several recognitions at a national level due to their CSER Programmes.

In addition to this, it is interesting to see how these recognitions actually work to internally motivate the employees to have a more responsible behavior towards water (and other environmental aspects), since they have the challenge of improving their performance to win a certain prize. A member of a company actually expressed that when a prize was brought back to the company, the employees felt proud to be recognized at a national level and started valuing these topics more than before (Company 2).

Finally, some representatives said that it was easy to motivate their companies to join a certain initiative if the persons who take the decisions within it are already sensitive and committed with environmental issues. This shows the importance of the employees' **own affiliations and commitments**. Since it is increasingly being accepted that employees will bring their personal commitments and values to work (Morrison, 1991 in Howard- Grenville et al., 2008:84), one of the companies explicitly expressed how important it is that its employees feel identified with what the business does and how it does it: "employees must feel that they can contribute with sustainable development through their work" (Company 8). Awareness raising campaigns to change the organizational culture are also designed to motivate a change in the employees' perception and commitment towards sustainability.

6.1.2 Environmental factors

"When water is the primary resource of a business, concerns about its sustainable use becomes part of its DNA, and in actions relying more in practical than rhetorical drivers" (Company 4).

Considering that these Latin American countries have relatively abundant water resources, water scarcity was not considered to be a major problem in general. Water quality was found to be a more prominent concern in the companies operating in Panama, Colombia, and Ecuador; while the companies in Brazil expressed concern with both since this country has some areas that suffer from severe water scarcity (Parnaíba, Atlántico Noroeste Oriental and Atlántico Oeste).

Since all the companies analyzed in this study are water intensive industries, water scarcity represents a major risk for their businesses. For example, one of the brewery companies stated that the conservation and good use of water resources is essential for the operation, given that water represents 95% of their principal product (beer) (Company 6). Two other breweries highlighted that the sources where they were taking water were presenting quality problems (e.g. sediments or heavy metals) and therefore conducting them to an important increase in pre-treatment costs (Companies 2,3). In the case of a mineral water bottling company, taking care of the water sources that provide them with clean water was crucial, since it is their main business line (Company 5).

In addition to this, all the companies expressed concern with the treatment of their wastewater discharges and to not damage the freshwater bodies that were close by, in order to comply with environmental regulations and to minimize the risk of generating conflicts with the communities where they operate.

Despite that water availability was not considered a main issue for the majority of these companies, it was actually found to be very important for agricultural businesses or businesses which rely on agricultural products within their supply chain (Companies 7, 8). For example, the principal factor that drove the sugar cane producers in Colombia to establish a Water Fund in the Valle del Cauca region was the hydrological cycle instability in the area causing insufficient water supply in the dry season and inundations in the winter season (Company 7).

Finally, some companies showed concern about future challenges, such as the impact of climate change in water resources and want to prepare ahead for them. Since climate change might make water-related problems even more serious in the upcoming years and countries that nowadays are rich in water resources will probably have water scarcity issues in the future, a company representative expressed that, “by doing preventive investments in these watersheds they are assuring the sustainability of their business in the long run” (Company 4).

6.1.3 Social factors

“It is not only the government, but the consumers, NGOs, and the communities where we operate who are requiring us to show what is being done in terms of environmental and social responsibility” (Company 3).

In developing countries the relationships around water between the private sector and the communities is a very sensitive issue. On one hand, because some of the activities that the companies do can produce negative effects on the environment or can be perceived by the communities to be as such (e.g. wastewater discharges, water catchments, river deviations or channelizations). To manage this situation, some of the companies explained that whenever there have been complaints by the communities, their strategy has been to communicate to them, with transparency and accountability, about their environmental and social performance. In fact, many companies are showing their performance through information and report systems that are developed on their own, have joined international agreements such as the GRI, or have participated in initiatives like the CDP Water Disclosure Project (see **Appendix 4**). This helps to increase the trust other stakeholders have in their businesses.

On the other hand, in Latin America it is common to find municipalities that cannot provide full coverage for water and sanitation services to their populations and therefore the companies end up providing much of these services. For example, some companies through their CSER Departments or through specific water-related Foundations are working together with the communities in aspects related to water such as: building and maintaining existing boreholes, building water reservoirs, adopting simple technologies to purify water, improving solid waste management, increasing water efficiency in their crops, and water-related education (Company 9). Since “there cannot be successful companies in unsuccessful societies” (Company 7) – as one

of the interviewees expressed, companies try to build trust relationships with the communities of their areas of influence through constant work. Whether companies should provide some of the water services to local populations as part of their CSER investments, or if these services should be provided by municipalities (especially in areas where royalties are paid by companies), is a “hot topic” that deserves further debate but that is out of the scope of this paper.

On the other hand, this case study suggests that the companies that were more visible (at a national level), or whose products have direct contact with the final consumers (e.g. beverages, food) tended to get more involved in these type of voluntary initiatives because they receive more social pressure. At the international level, the role that information technologies (such as the internet) play to make people more connected, informed, and aware of their power as consumers is crucial. As expressed by one of the companies: “if lots of consumers get together and decide not to buy products that are made in a sustainable way, this could change the market drastically” (Company 8). The increasing utilization of social networks is also being used by the companies as an important contribution for their innovation processes. For example, a company is using Facebook and Twitter to interact with their consumers and receive feedback on how their products can be more sustainable (we are talking about chatting with approximately 1000 million consumers every day at a global level) (Company 8). In the same lines, other companies are using internet and social networks to help raise awareness within society regarding the responsible use of water, as mentioned before with the Water Banking initiative (Company 6). These examples show that the interaction between business and civil society is actually going in two ways: society has the power to demand sustainability in their products and business can raise awareness within society to have sustainable consumption habits.

6.1.4 Economic factors

“We can really assure that a cent spent in sustainable development is a cent that returns not only in a monetary form, but in many other ways that are beneficial for our business” (Company 2).

In this sample of companies, the most important benefit from the economic perspective was the reduction in operating and production costs. For example, a company expressed that if they had insufficient water, like in some arid countries, their processes would become so much more expensive that it would reduce their competitiveness in the external markets (Company 9). Another company for instance showed more concern with the cost of treating their wastewater, since the quality parameters for industrial discharges are becoming stricter and there is major control from the environmental authorities in the country where it operates. Therefore, they are already considering other technologies to treat their wastewater, which may be more expensive nowadays, but could become a better option in the future if the regulation continues getting stricter (Company 10).

While some companies showed to be more altruistic in relation to these voluntary initiatives, others showed more commercial interests, like developing new environmental competencies ahead of competition. However, what was common in all of them is that their participation in voluntary initiatives was bringing not only tangible benefits (like saving money), but also additional intangible benefits (like portraying a responsible image to consumers, a better relationship with the communities and the government institutions, and the sustainability of their

operations in the long run). One of the companies even said that they have been able to prove that every investment made in resource efficiency and in reducing their environmental impacts has been recovered in some form (Company 2).

But there are many challenges in relation to the economic aspects. Although several respondents pointed out that consumers are increasingly demanding more sustainable products at an international level, it was also recognized that in the region of Latin America, final consumers are still widely unaware of this and do not demand, value, or pay for products that are made more sustainably. This constitutes an important disincentive for business to become “greener”. It was also said on repeated occasions that the CSER Departments within the companies had to struggle to show that joining certain initiatives was cost-effective and if they joined, they had to show “results” to their superiors in very short periods of time. Usually, most of the projects entailing investments in watersheds, especially if partnering with other stakeholders (like in the Water Funds), demand more coordination efforts and show results in the long term. It is an evident challenge to be able within the companies to calculate and show the aggregated value of implementing certain environmental initiatives in order to get the budget for these Departments (Companies 3, 10). Overall, the common perception among the interviewees was that the private sector in Latin America still faces the great challenge of changing the [erroneous] idea that environmental issues are expenditures instead of investments for a company.

Finally, there is an important economic factor related to the consumption of water in the different countries: the cost of water set by municipal water providers (if the company operates in urban areas), or the fees that need to be paid to environmental authorities for water concessions (in rural areas). Higher costs for the use of water lead to a more conscious behavior towards the resource, as expressed by one company: “If we pay less for water by increasing our efficiency, we will be able to grow our business with lower costs” (Company 4).

6.1.5 Regulations

“In simple words: water-related regulations in this country are very modern and complete, but there are no mechanisms to effectively implement them” (Company 1).

All the countries included in this thesis (Panama, Colombia, Ecuador, and Brazil) have existing regulations regarding water concessions, water discharges, protection of water producer areas, and water market prices (see **Appendix 3**). However, the intention of this section is not to compare the regulations’ characteristics, but to elucidate some general patterns that were found among the respondents regarding the interaction between the public and the private sector. I decided to focus, therefore, on the practical aspects of implementing these regulations, since their mere existence does not say much about the challenges of their execution, follow-up, and overall effectiveness. What is more, the interviewees could provide me with first hand perceptions about the challenges of regulatory implementation. As a final point, I have to clarify that I will be focusing mainly on commenting about water regulations at a national level.

In general, there were three main topics upon which respondents made explicit references when asked about water-related regulations:

- The effectiveness of command and control regulations
- The characteristics of water market prices and water fees
- The existence of incentive-based regulations

Regarding the **effectiveness of the regulations implementation**, the common perception (at least in Panama, Colombia and Ecuador where explicit references were made) was that there is a lack of control mechanisms in order to implement these regulations. Laws exist, but there is limited capacity by environmental authorities to actually enforce, control, and follow-up these measures. Some of the companies also commented that since their companies are large and exposed to society, environmental authorities follow their actions more closely. However, regulators are leaving many other companies without supervision and compliance (which aggregated environmental impact can be considerable or much higher).

The other point is that there is a lack of clearness on the way some regulations are formulated. Even though in these countries it is mandatory to involve the interested stakeholders in the regulations' formulation processes, sometimes the private sector is not completely involved (just informed) or the consultation period is too short to actually provide good feedback on a certain rule (Companies 2, 5, 10). This results in laws that do not always consider the affected parties along the value chain of a service or product, in a lack of clearness among the private sector on how some taxes/fees were calculated, in which conservation projects those collected funds are reinvested, or in laws that are just not adapted to the countries' realities.

Market prices of water are another determinant to foster SWM especially in the urban areas served by municipal water providers: where water is expensive, users tend to be more measured with this resource and avoid overusing it. Nevertheless, it was commented that in some countries (Panama, Ecuador, and Colombia) the prices of water were very low and that they did not reflect the real value of the resource. For example, in Colombia, water prices only represent the water service provider's operation and administrative costs (in urban areas), but they do not include the cost of maintaining the ecosystems that produce water and other hydrological services. On the other hand, although environmental authorities charge **water use fees** by every water concession and **retributive fees** for wastewater discharge permits, there is no clearness in where the collected money is being reinvested (explicit comments were made for Ecuador, Colombia). This is a main problem when trying to motivate companies (or even rural water service providers) to join conservation projects, because they argue that they already paid fees to the environmental authorities and should not pay again to conserve a certain watershed (Company 7).

There are some incentive-based policies in these countries, which reduce the tax burden of companies that import cleaner technologies or methods to reduce their impact in the environment. Some large companies who actually import these types of technologies can take advantage of it, but others prefer not to use it since the procedures to get the tax reduction are "very complicated and bureaucratic" (Companies 3, 10). Usually, SMEs do not have the money to buy cleaner technologies, so this tax exemption does not apply to them either. The general perception among respondents was that the incentive-based policies for water efficiency are still

very incipient in these countries and that the role of the environmental authorities is pretty much focused on enforcing command and control regulations, rather than in supporting companies to comply with them (Companies 1, 2, 3, 5, 10 and 13). As an exception, a company did remember that the Government of Brazil through the national Bank of Economic and Social Development (BNDES – for its acronyms in Portuguese), provided funding mechanisms to large, medium, and small companies that wanted to improve resource efficiency and reduce their environmental impact at a very low interest rate (Company 4; BNDES, 2012a; 2012b).

It can be said, that there is a lot to do to improve the interaction between the private and the public sector in terms of water regulation, not only to encourage compliance, but also to motivate business to voluntarily go beyond it.

6.2 How can strategic stakeholders motivate the private sector to cooperate for SWM

Some examples of good practices that have been carried out by the government institutions, NGOs, IGOs, financing institutions, and the private sector itself to motivate companies to improve their water management and participate in water governance issues more actively are presented in the following section.

6.2.1 Government institutions

When a company wants to implement a project to improve the social or environmental conditions in a watershed of its area of influence, it can usually encounter itself with local communities that are “tired” of the overlapping efforts that different stakeholders are doing to identify and address their needs (Company 2). Moreover, insufficient coordination between stakeholders generates a lack of coherence and continuity over the actions required to address different problems at the watershed level. To represent a good example of successful multi-stakeholder coordination for watershed management, two cases lead by authorities in Panama and Brazil will be commented.

The first example is the water resources management approach used by the Panama Canal Authority (ACP – for its acronyms in Spanish). The ACP is a government institution created through the Panamanian Constitution (Title XIV), which “has the right to exclusively operate, administer, conserve, maintain, and improve the conditions of the Panama Canal watershed, as well as other activities and related services” (ACP, 2011). The Panamanian constitution, through an Organic Law, entitled the ACP to administer the territory of this watershed with access to financial resources which are independent to other government budgets. The ACP not only operates the inter-oceanic hydroway, but it has water treatment plants and hydroelectrics which production is sold to municipal water and electric providers, therefore, good quality and quantity of water is crucial for its entire operation (ACP representative).

To coordinate the efforts between the ACP and other entities⁸ for the management of this watershed, the Interinstitutional Commission for the Hydrographic Basin of the Canal was created (CICH – for its acronyms in Spanish). The CICH supervises and evaluates the programmes, projects, and policies to be implemented in the watershed in order to avoid incongruence and possible duplication of efforts between actors (CICH, 2012b). This means that the private conservation projects have to be aligned with the priority areas of actions identified by the CICH. At a local level, the watershed was subdivided in different areas and thirty Local Watershed Committees were created (including different communities). These were grouped in larger Consultive Committees (five), including community leaders, small, and medium producers, industries, and local authorities, to decide on a management plan for each part of the watershed (ACP representative). The Consultive Committees are spaces of consultation and coordination, where their members assume co-responsibility with the government institutions, to promote the protection of watersheds and the sustainable development of the communities that live there (CICH, 2011). In addition to this, the fact that the ACP is independent and its personnel do not change with the government in turn strengthens the continuity of the established institutional arrangements and the works carried in the watershed (ACP representative).

A similar case can be found with the Watershed Committees in Brazil, which were created in the main watersheds of the country, including representatives from the federal government, the different federal authorities, municipalities, businesses, and the communities (represented by user associations). These Watershed Committees are responsible for the maintenance, management, and good use of every watershed and entitles them to charge water fees, permit certain water uses, determine which companies can operate, and reinvest in conservation projects in the areas that are collectively identified as strategic (Company 4). In other words, the Watershed Committees are the bodies in charge of the resolution of conflicts related to water quality and availability, and decisions are expected to reflect the general interest of all involved, including of course, the private sector (UNEP and Red Mercosur, 2011c: 26-27).

On the other hand, a key for the success of the Water Funds that have been functioning in Latin America for more years (Ecuador, Brazil, and Colombia) is that “they have been endorsed by recognized public partners” as one of the Water Fund representatives expressed. In the case of Ecuador, the public companies that signed the agreement are the Metropolitan Company for Water and Sewer System of Quito (EMAAP-Q) and the Electric Company Quito SA (which is mixed) (FONAG, 2011). Similarly, it was the Bogota Water and Sewer System Company (AMB) (public company) and the National Natural Parks Administration Authority (PNN) which endorsed the fund in Bogotá (Agua Somos, 2011). In the “Water Producer Programme” of Brazil, it has been mainly the National Water Authority (ANA) and the municipalities which have been endorsing the implementation of various Water Funds in the country (ANA, 2009). All the Water Funds representatives expressed that with the endorsement of these TSPs by government institutions and public enterprises these initiatives proved to increase their credibility and sustainability in the long run and as a result, other stakeholders might feel more encouraged to join them. Also, municipalities and public water providers can contribute with a percentage of the collected taxes or water fees to these trusts.

⁸ Members of the CICH are the ACP, the National Environmental Authority (ANAM), the Ministries of Housing (MIVI); Rural Development (MIDA); Government and Justice (MINGO); Economy and Finances (MEF); and two NGOs (CICH, 2012a).

Finally, government institutions can motivate the private sector with incentive-based policies, mechanisms, and voluntary programmes. Apart from the policies focusing in the reduction of the tax burden for the implementation of cleaner technologies that were mentioned before, the government institutions from these countries are also starting to work on the elaboration and implementation of national policies for sustainable consumption and production (SCP), cleaner production, and resource efficiency. Among the different government initiatives in Panama, Colombia, Ecuador, and Brazil, there were found: national eco-labeling schemes, green markets promotion, sustainable public procurement (SPP)⁹ programmes, the creation of funds to finance specific cleaner production projects, voluntary auditing processes, and flexible adaptation/management programmes to comply with regulations (see **Appendix 3** for further information). Nevertheless, the perception of the interviewed companies is that more communication about these initiatives should be promoted and that the government institutions should create the favorable conditions in these countries to motivate more companies to join them (e.g. fair competition between businesses and aware consumers which value and pay for sustainable products).

6.2.2 Non-Governmental Organizations

The role of NGOs and other groups from civil society in demanding more sustainable products to the private sector is not the only motivating action worth mentioning. NGOs are also important partners for business when it comes to implementing projects at the watershed level, since they have a close interaction with the communities, grassroots organizations, and the local and regional authorities. They have ‘social mapping’ skills that the private sector may lack – bringing knowledge of local conditions of the watersheds and the communities to the table (Jones, 2002: 5). On the other hand, they can bring the technical expertise on environmental aspects to these processes. For example, the representative of the Valle del Cauca Water Fund (Colombia) expressed that the work that was being carried out by the sugar cane sector and the local Community Committees became more “procedural” when TNC joined the process: “the watersheds were mapped, modeled, and the priority areas of action identified [...] they also brought the lessons learned from the Water Fund in Ecuador that was established some years before”.

NGOs have also started to be very active in the ways they motivate companies to join these initiatives by carrying out strong public relationships and lobbying strategies. To mention some of them, they carry out thorough studies of the companies to determine what are their business-risks related to water, if they already participate in similar initiatives, how environmentally-aware are the persons who take the decisions and which are the most effective channels to reach these persons (Water Fund representative). These lobbying campaigns to raise additional funds from the private and the public sector are crucial for the success of many watershed conservation projects.

Another example, is that NGOs and think-tanks can promote international dialogue platforms like the Water Stewardship Alliance (AWS), which provides the scenario to develop an

⁹ SPP is a tool which allows governments to leverage public spending in order to promote a country’s social, environmental and economic policies. SPP contributes to create markets for appropriate technologies and innovative solutions (UNEP-DTIE, 2011).

international voluntary certification program for sustainable water stewardship, called International Water Stewardship Standard (IWSS) (TNC, 2010). There are regional AWS initiatives to get contributions to the construction of the IWSS. Through the AWS in Latin America and the Caribbean (AWS-LAC), five roundtables have been held and a pilot project implemented. As noted by the representative of AWS-LAC, among the private sector representatives who attended to different roundtables, some belonged to companies which had well developed water management programmes, while others wanted to learn about tools and actions that are carried out in this regard. He also stressed that these dialogue spaces are extremely valuable for the companies to exchange information about good water management practices, but also for the government institutions to start direct dialogues with business on how to improve water management in different productive sectors. Other initiatives promoted by NGOs are the GRI or the CDP Water Disclosure Project, as mentioned before.

6.2.3 International Organizations and Financing Institutions

Financial support provided by multilateral and bilateral donors as well as development banks is crucial not only to promote water efficiency in businesses, but also to enhance public-private cooperation for the management of water resources. As mentioned before, there are international initiatives of wide-world recognition promoted by the UN (such as the UNGC or the CEO Water Mandate), which some of the interviewed companies are already endorsing. The Water Funds in these countries have also received funding and collaboration by multilateral/bilateral donors such as USAID, the Inter-American Development Bank (IADB), the Swiss Agency for Development and Cooperation (SDC), and the German Cooperation Agency (GTZ), as their official web pages show.

On the other hand, UNEP has been co-funding the implementation of pilot projects in some countries of Latin America on SPP (Colombia, Chile, Uruguay, and Costa Rica); as well as pilot projects on sustainable resources management using the water footprint and the life cycle assessment approaches for different productive sectors (mining, tourism, fisheries and agroindustry) (UNEP-ROLAC, 2012). Another instance is the SuizAgua project launched by SDC, which focused on determining the water footprint in four companies from different sectors in Colombia and is planning to replicate it in other countries of Latin America (SDC representative; SDC, 2012).

Additionally, UNEP and the United Nations Organization for Industrial Development (UNIDO) have also been working over the years to promote the establishment of National Cleaner Production Centers (NCPCs) and by developing cleaner production tools and techniques that industries can customize and implement across Latin America (UNEP-DTIE, 2009; UNIDO, 2012) – in fact, the four countries included in this thesis have their NCPC. Much of this work is focused on providing technical assistance to improve resource efficiency in SMEs in developing countries as well (UNEP, CSCP & WI, 2006; UNEP-DTIE, 2009).

Other financing mechanisms for regional development (IADB, Andean Corporation for Promotion, among others) in the Latin American region have slowly incorporated environmental sustainability into their analyses, investments and loans; however it will be essential to include

the resource efficiency perspective in their policies and practices to ensure that financial resources achieve greater sustainability goals (UNEP & Red Mercosur, 2011b: 56).

6.2.4 The Private Sector

As mentioned before, there are still many companies and investors that are unaware of both water-related risks and the management approaches and tools available to reduce them (Morrison & Gleick, 2004: 11). Not all companies have a clear approach to responsible business engagement with water policy and management either (CEO Water Mandate, 2010:14). For this reason, companies that have more experience in this regard expressed that they can motivate other companies to have an increased responsibility with the use of water by providing an example with their actions and by sharing information about the use of certain approaches or management tools (e.g. best practices and lessons learned).

Also, one of the Water Funds representatives expressed that just as it happens when public institutions endorse these TSPs, other companies might find it attractive and “safe” to put their financial resources in the fund if they see other companies doing it. He also expressed that since companies are good at public relations and marketing they can apply this “good will” to brand these initiatives, showing the benefits of joining them to other businesses, and carrying out strong motivation strategies to recruit more companies. Social gatherings, workshops, and fairs (related to sustainability or business-related topics) are excellent opportunities for this.

Companies 1, 2, 3, 6, 8 and 12, expressed that the promotion and support of responsible water management programmes with suppliers and consumers are great strategies to engage other businesses, especially SMEs (as described in numerals 2.2.4. and 2.2.5). While other companies focus more on showing their projects to others that operate in the same area of influence to see if they can co-fund similar activities and actually achieve greater results than working separately, as Company 13 expressed.

6.3 Summary of findings

Since the ultimate purpose of this thesis is to have a “practical” contribution to this topic, a summary of the most prominent driving and restraining forces affecting the companies’ decisions to get involved in SWM voluntary initiatives, as well as insights in how these driving forces can be strengthened by strategic stakeholders, are provided as follows.

6.3.1 Driving Forces

- Leadership by high managers, providing the necessary resources and incentives to promote SWM within the companies.
- Sustainability is integrated within the business strategy and water is recognized as a crucial resource. This is reflected in corporate sustainability policies and management plans, with specific targets which are periodically evaluated.
- Declining water quality was a major concern because it increases pre-treatment costs, especially for companies in which water constitutes the main product (e.g. beverages).

- In this sample, water availability was more a concern for companies related to agriculture.
- To ensure the sustainability of the business in the long term (e.g. considering risks such as climate change), some companies invest in watersheds as a preventive measure.
- To minimize potential conflicts with the communities within their areas of influence; this is a major driver especially for mining or oil & gas companies.
- Providing some water and sanitation services is also a way to build up trust relationships with the communities, especially where municipalities fail to fully provide them.
- Companies that have direct contact with their consumers or that were very visible in their country were more concerned about communicating their environmentally responsible behaviour.
- Being water efficient generates savings in operational costs.
- At the international level consumers are demanding more sustainable products; therefore, they can develop competitive advantages.
- To prepare ahead for stricter water-related regulations, especially regarding wastewater discharges.
- If the current penalties are sufficiently high and enforcement of regulations effective, liability for damage in water resources can provide incentives for taking preventive action in companies.
- Reasonable water market prices and use/retributive fees also encourage the companies to use this resource more rationally.
- Incentive-based policies and programmes can motivate companies to improve their water management and self-regulate.
- Having access to financial resources (e.g. loans, co-funding) enables some companies to implement cleaner and more water-efficient technologies.

6.3.2 Restraining Forces

- Insufficient leadership and managerial incentives endorsed by shareholders and managers.
- Lack of awareness (at all the levels of the organizations) regarding sustainability issues represents a challenge for cultural change.
- Investment in watershed conservation projects is usually a long-term investment and companies want to see quick results.
- In Latin America consumers are still widely unaware and do not demand or pay for sustainable products.
- Many companies still have the idea that environmental issues are expenditures instead of investments.
- Environmental authorities often lack control and monitoring mechanisms to make water-related regulations fully effective.
- Insufficient involvement of the private sector in the formulation of environmental regulations.
- Insufficient clarity about where the resources collected from water use/retributive fees is reinvested.

- Insufficient promotion and support by the government institutions of existing incentive-based policies, programmes or mechanisms, to motivate the private sector to get involved.

6.3.3 Strengthening the Driving Forces

- The role of the government institutions should be reassessed, not only to minimize mismanagement of natural resources with the existing regulations, but also to become a facilitator and supporter for companies to improve their water management.
- Exchange of information between the private and the public sector is important in order to produce water-related regulations and incentive-based mechanisms that are adapted to the reality of each productive sector and country in question.
- Government institutions can encourage the private sector to actively participate in long-term planning and management processes at the watershed level (e.g. Watershed Comitees).
- The endorsement by government institutions of initiatives such as the Water Funds provides more credibility and accountability to them.
- NGOs can provide dialogue platforms where various stakeholders can discuss and exchange information related to SWM tools and approaches.
- Charging the full costs of water to the users, so they also include the payment for environmental services as well.
- NGOs are crucial stakeholders' articulators and administrators of financial resources when implementing projects at the watershed level. With their social and environmental expertise, they can work with companies to develop a broad portfolio of projects in their areas of influence.
- NGOs are also essential to carry out lobbying campaigns to raise additional funds with both the public and the private sector.
- Co-funding by IGOs and financing institutions is essential for the implementation of some projects at the watershed level. Also, to scale up at a national or regional level some of the initiatives related to SCP, SPP, and resource efficiency in SMEs.
- Existence of international voluntary initiatives and standards that promote SWM is also vital, as they directly represent the moral authority of international commitments and globally accepted values related to the management of this resource.
- Companies can provide an example to the private sector in general, co-fund projects with other companies or stakeholders, share information about water management tools and good practices, and brand initiatives such as the Water Funds.

7 Concluding remarks

This thesis explored the internal and external factors that encouraged some companies operating in Panama, Colombia, Ecuador, and Brazil to get involved in SWM voluntary initiatives and to cooperate with other stakeholders in water governance processes. The type of activities that these SMW voluntary initiatives entail as well as some insights in how to motivate other companies to appropriate similar practices were also analyzed in this study.

In general, the SWM voluntary initiatives that are being implemented by these companies aim to address the efficiency, equity, and sustainability aspects of water: by investing in water efficiency programmes in their processes or by promoting them with suppliers and consumers; by investing directly in watershed conservation projects and improving the livelihoods of the communities living there; or by partnering with other stakeholders to implement joint actions like in the Water Funds.

The companies showed to be influenced by both internal and external factors that affected their decisions to get involved in these SWM voluntary initiatives. However, since the business risks related to water are so different according to each company, productive sector, and country, it becomes difficult to assert which driving forces are stronger than the others. What can be said is that these driving forces are stronger than the restraining forces, meaning that these companies perceived the benefits to be greater than the costs of joining them. It was homogeneously expressed by all the companies that implementing these initiatives was not only bringing economic benefits (e.g. savings, gaining competitive advantage), but also additional “intangible” benefits related to social, environmental, and reputational aspects.

Along the same lines, it is not possible to generalize and suggest a “magic formula” on how to motivate companies to cooperate with other stakeholders in water governance processes (at any level). Some insights, however, were provided in this thesis. Government institutions can encourage the private sector to participate actively in the planning and management processes at the watershed level and coordinate actions between stakeholders to reduce fragmentation or overlapping of projects. Public and private cooperation is also crucial not only to design adequate and effective water-related regulations, but to incorporate innovative approaches in incentive-based policies that link competitiveness and water protection. When implementing projects at the watershed level, NGOs are essential to coordinate stakeholders and administer financial resources when these come from different (public or private) entities. Not to mention their key role to raise additional funds through lobbying campaigns and to create dialogue spaces where exchange of information and public-private cooperation can be enhanced. IGOs and financing institutions are also crucial to support and co-fund several of these initiatives, so the public and private efforts to advance in SWM can become effective and even scaled up at a national or regional level. The private sector can naturally also contribute to the motivation of other companies by providing an example, finding other companies to co-fund projects of mutual interest, and by exchanging information about tools and good practices to improve SWM in different productive sectors.

Further research is required to understand the overall effects and impacts that these SWM voluntary initiatives are generating and whether they are adequate mechanisms to contribute for the sustainable management of water resources in these countries. Also, further investigation at the SMEs level would be required since some of the driving and restraining forces identified in the companies of this study (which were mostly large) might not apply to smaller and more informal businesses operating in these countries.

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9 Enclosures

Enclosure 1. List of representatives consulted in the thesis

| Representative | Country | Medium | Date |
|---|----------|-----------------------|---------------------------|
| Companies | | | |
| Brewery company | Panama | Interview | 06-12-2011 |
| Brewery company | Ecuador | Interview | 02-12-2011 |
| Crude oil transporter company | Ecuador | Written communication | 13-04-2012 |
| Mineral water and soft drink producer company | Ecuador | Interview | 09-12-2011 |
| Brewery company | Colombia | Interview | 30-01-2012 |
| Sugar cane producers association | Colombia | Interview | 07-12-2011 |
| Soap and food producer company | Colombia | Conference | 15-02-2012 |
| Mining company | Colombia | Interview | 25-01-2012 |
| Oil & gas company | Colombia | Interview | 17-02-2012 |
| Agricultural supplies producer | Colombia | Interview | 12-04-2012 |
| Chemical supplies producer | Colombia | Interview | 13-04-2012 |
| Mineral water and soft drink producer company | Brazil | Interview | 08-12-2011 |
| Brewery company | Brazil | Written communication | 05-03-2012 |
| Government Institutions | | | |
| Panama Canal Authority (ACP) | Panama | Interview | 06-12-2011 |
| Environmental Authority of Panama (ANAM) | Panama | Written communication | 23-02-2012 |
| Environmental Ministry of Ecuador (MMA) | Ecuador | Written communication | 17-02-2012 |
| Environmental Ministry of Brazil (MMA) | Brazil | Written communication | 01-03-2012; 08-05-2012 |
| Non-Governmental Organizations | | | |
| FONAG | Ecuador | Interview | 02-12-2011 |

| | | | |
|---|--------------------------|---|---------------------------|
| Agua Somos | Colombia | Interview | 03-02-2012 |
| The Nature Conservancy (Water Funds division) | Colombia | Interview | 03-02-2012 |
| The Nature Conservancy (Water stewardship initiative) | Regional (Latin America) | Interview | 09-12-2011; 18-02-2012 |
| EcoFondo de Ecuador | Ecuador | Interview | 29-02-2012 |
| Fundación GrupoOBoticario | Brazil | Written communication | 09-03-2012 |
| International Organizations | | | |
| Swiss Agency for Development and Cooperation | Colombia | Interview | 08-02-2012 |
| Various representatives from UNEP-ROLAC | Regional (Latin America) | Work interaction during internship period | 27-06-2011 to 09-12-2011 |

Note: The dates that appear in “written communication” represent when the information was sent by the respondents.

Enclosure 2. Semi-structured interview guide

The purpose of this thesis is to investigate which are the driving forces that encourage the private sector in countries of Latin America, to engage in sustainable water management (SWM) voluntary initiatives. Since [Company] is involved in several of these initiatives, I would like to discuss with you the following questions:

Questions:

1. Which are the business risks related to water and how do they affect [Company's] production?
2. In which type of SWM voluntary initiatives is [Company] involved? Can you tell me more about the existing programmes?
3. Are there regulatory and non-regulatory requirements for [Company's] improved management of water?
4. Does the legislative framework in [Country] incentivize the private sector to implement SWM voluntary initiatives?
5. Which would be, in your opinion, the three main benefits that [Company] obtains by getting involved in these voluntary initiatives?
6. Could you describe how are the relationships of [Company] with other stakeholders regarding water? (government institutions, NGOs, communities, IGOs).
7. Who (persons or units) within [Company] have supported more the idea of implementing these voluntary initiatives?
8. Does [Company] evaluate if the SWM voluntary initiatives are meeting their objectives?
9. How does [Company] evaluate if the adhesion to these voluntary initiatives is bringing benefits to the business?
10. Which have been the main challenges of being engaged in these voluntary initiatives?
11. How can [Company] with its experience contribute to motivate other companies to participate in similar initiatives? (Especially SMEs, small agricultural producers, etc).

Note: This main interview guide was used to consult the companies. Only the applicable questions were used when interviewing other stakeholders.

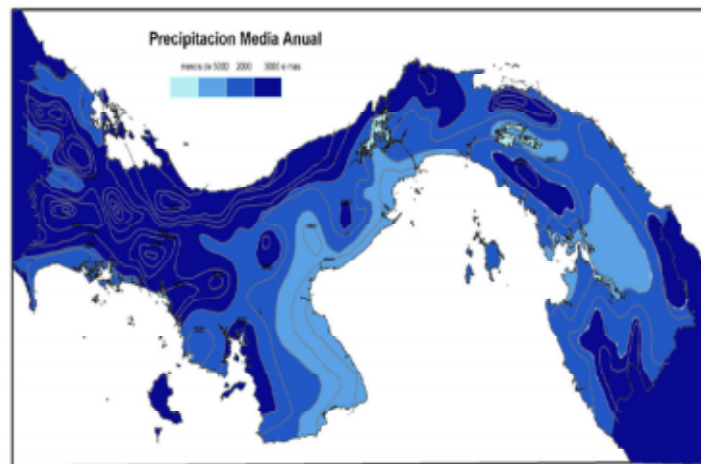
10 Appendixes

Appendix 1. Water contexts in Panama, Colombia, Ecuador and Brazil

Panama

Figure 1 shows the Medium Annual Precipitation in Panama, with the dark blue areas representing more than 3000mm/year; the medium [tone] blue areas 2000 mm/year and the light blue areas less than 1500 mm/year. This demonstrates that there is enough water in the country, although in specific watersheds and aquifers there are scarcity problems during the dry season. The Integrated Water Management National Plan from Panamá (2008-2012) confirms this fact when specifying that from the 10 watersheds existing in the country, only three present scarcity problems during the dry season (ANAM, 2009: 29).

Appendix Figure 1. Medium Annual Precipitation in Panama



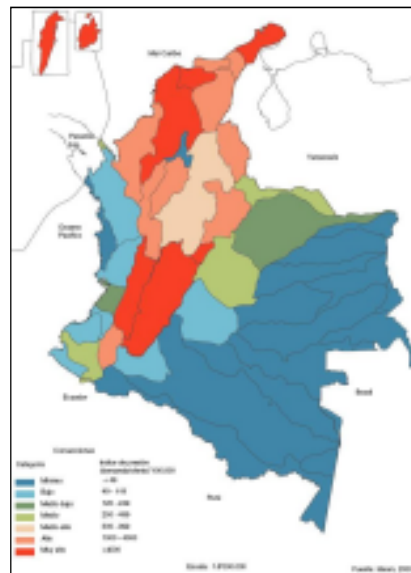
Source: Empresa de Energía Eléctrica de Panamá SA - Gerencia de Hidrometeorología (1998)

The primary uses of water (decreasing in importance) are hydroelectric production, inter-oceanic navigation (the Panama Canal), agriculture, and human consumption (for urban and rural sanitation, industrial production and tourism). However, water consumption between 2000 and 2007 was between 6.04% and 9.44% from the total amount of available water in the country (ANAM, 2009: 18). Although Panama is not considered yet to have high levels of industrialization, this sector has been growing without always taking into account the environmental effects caused by its activities on the environment and especially in the water resources (ANAM, 2009: 34). Although in absolute terms the percentage of wastewater discharges corresponds to 12% industrial activities versus 88% from domestic use, the contaminants produced by industries might be more dangerous for the environment and therefore is a source of pollution that needs to be addressed (Ibidem).

Colombia

Colombia has one of the major water resources endowments from the planet, with a superficial water offer of more than 2.000 km³ and 36% of the territory with underground water; however approximately 40% of the main watersheds are prone to degradation (DNP, 2010:425). In Colombia, water is not distributed homogenously across the different regions and its availability is subject to strong variations¹⁰, generating areas with high deficits and others with excess of water. Figure 2 shows a porcentual relation between demand and availability of water resources (called pressure index)¹¹ at the watershed level in Colombia. Simply speaking, the red areas represent that water demand should be controlled to prevent future water crisis in those watersheds, the green areas represent that the availability of water is starting to be limited, and the blue areas present minor management problems (which are the majority of the territory but also the less populated areas of the country) (IDEAM, 2000:25).

Appendix Figure 2. Pressure index in a normal hydrologic year at the watershed level in Colombia



Source: IDEAM (2000:18)

The main challenges at the watershed level in Colombia are associated to the control and management of the deficits and excess of water. Despite most of the water in the country is used for agricultural activities, the most critical aspects related to availability are in relation to water supply for populations, for industrial processes and hydroelectric generation (VMA, 2010: 51). On the other hand, the excess of water generates recurrent floods and landslides which affect the water resources with sediments but also damage the supply and distribution system of many parts of the country (Ibidem). The higher levels of contamination are in the watersheds that present higher levels of economic development and more population; being domestic and industrial

¹⁰ Weather, erosion, deforestation and other human activities

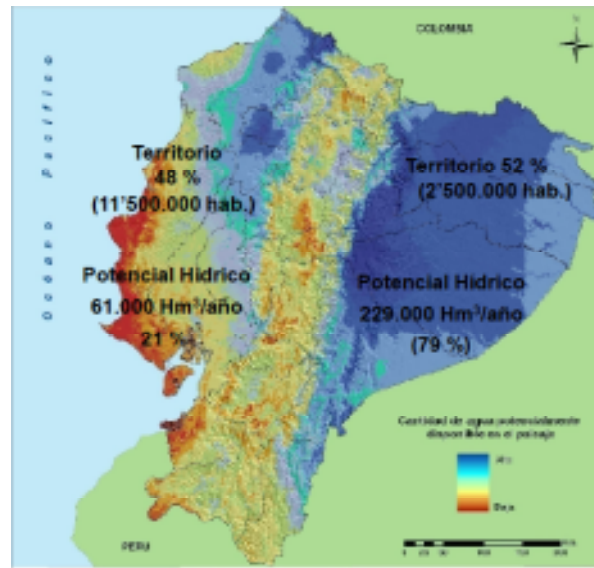
¹¹ The pressure index is calculated with the scarcity index (water demand/water availability)*100.000.

wastewater discharges, as well as sediments (caused by the erosion) from the agricultural zones, the major causes of water quality deterioration (DNP, 2010: 431).

Ecuador

The unequal distribution of precipitation and population are the main causes generating water availability problems in Ecuador. While some regions only receive 250 mm/year, others can receive even up to 6000 mm/year (CIEUA, 1998:7). In Figure 3 it can be observed that in the watersheds that drain to the Pacific Ocean there is almost 82% of the population and only 21% of the hydric potential (low). While in the watersheds draining to the Amazon Basin, there is only 18% of the population and almost 70% of the hydric potential (high) (SENAGUA, 2011:4).

Appendix Figure 3. Hydric potential distribution in Ecuador



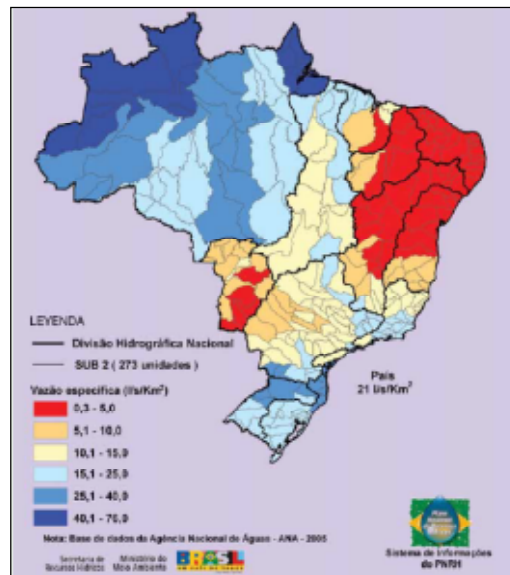
Source: SENAGUA (2011:4)

Only 10% of the total water availability in the country is used; from this, 97% is consumed for agriculture activities and the remaining 3% for domestic and industrial purposes (CIEUA, 1998:7). In recent years the risk of floods has increased partially caused to deforestation, which affects the hydrologic cycle of the watersheds (CIEUA, 1998:11). Although superficial water resources are generally abundant, water quality deterioration (biological and chemical) is increasingly becoming a problem especially in the most populated areas of the country. The major sources of contamination are identified as commercial agriculture, manufacturing plants, mining activities and oil & gas production (CIEUA, 1998: 13).

Brazil

The annual river flow from the Brazilian territory corresponds to 5.660 km³/year; approximately 12% of the total water availability in the world (MMA-SRH, 2006: 59). Figure 4 shows the medium flows of 273 watersheds which are part of the 12 hydrographic regions in Brazil. From these hydrographic regions the Amazonic has 73,6% of superficial water resources, followed by Tocantins/Araguaia (7,6%), and Paraná (6,4%). The lowest water availabilities are in the hydrographic regions of Parnaíba, Atlântico Noroeste Oriental and Atlântico Oeste.

Appendix Figure 4. Specific medium water flows in the watersheds of Brazil



Source: ANA, 2005 (in MMA-SRH, 2006:71)

Although Brazil has great hydric potential and can cover its demand by far (MMA-SRH, 2006: 71-72), water availability varies among the different regions (in space and time) due to different precipitation patterns and seasonality (MMA-SRH, 2006: 58). For example, in the Brazilian semiarid there are periods of critical water scarcity, mainly caused by irregular rainfall, a medium annual precipitation of approximately to 800 mm/year, and high evapo-transpiration rates, which cause many rivers and streams to dry out for long periods of time.

At a national level, the main sources of water contamination are the domestic wastewater discharges, since only 47% of municipalities have proper sewer systems and only 18% treat their wastewater. This is aggravated in rivers with low water availabilities (like in the semiarid region), because their assimilation capacity is reduced significantly. Mining and industrial discharges, diffuse contamination from agricultural areas and inadequate disposition of solid waste are common causes that affect water quality in all the hydrologic regions of the country (MMA-SRH, 2006: 62).

Appendix 2. Water Funds in Latin America



Source: The Nature Conservancy (2011b: 17)

Appendix 3. Reference websites related to water regulations and incentive-based policies and programmes for sustainable production

Panama

ANAM (2010) *Environmental Regulations in Panama: Water* [online] Available at: http://www.anam.gob.pa/index.php?option=com_content&view=article&id=350&Itemid=29&showall=1&lang=es [Accessed 12 of May 2012].

ANAM (2009a) *Environmental Auditing, Adaptation and Management Programmes* [online] Available at: http://www.anam.gob.pa/index.php?option=com_content&view=article&id=109&Itemid=113&lang=es [Accessed 12 of May 2012].

ANAM (2009b) *National Information Center for Cleaner Production and Consumption* [online] Available at: http://www.anam.gob.pa/index.php?option=com_content&view=article&id=178&Itemid=121&lang=es [Accessed 12 of May 2012].

Colombia

MMA Colombia - Water Resources Division (2012) *National Regulations for Water Resources Management and Planning* [online] Available at: <http://www.minambiente.gov.co//contenido/contenido.aspx?catID=909&conID=3975> [Accessed 12 of May 2012].

MMA Colombia – Sectorial and Urban Division (2012a) *Sustainable Consumption and Production* [online] Available at: <http://www.minambiente.gov.co//contenido/contenido.aspx?catID=1272&conID=7726> [Accessed 12 of May 2012].

MMA Colombia – Sectorial and Urban Division (2012b) *Incentives* [online] Available at: <http://www.minambiente.gov.co//contenido/contenido.aspx?catID=1272&conID=7730> [Accessed 12 of May 2012].

Ecuador

SENAGUA (2004) *National Water Law* [online] Available at: http://www.senagua.gob.ec/?page_id=117 [Accessed 18 of May 2012].

MMA Ecuador (2003) *National Unified Text of Environmental Regulations, Book VI for Environmental Quality* [online] Available at: <http://www.ambiente.gob.ec/?q=node/41&page=0,1> [Accessed 18 of May 2012].

MMA Ecuador (2012) *Sustainable Consumption and Production – Ecuadorian Certification Mechanism for Cleaner Production* [online] Available at: <http://www.ambiente.gob.ec/?q=node/554> [Accessed 18 of May 2012].

Brazil

Agencia Nacional de Aguas (n.d.) *Water-related regulations* [online] Available at: <http://www2.ana.gov.br/Paginas/institucional/SobreaAna/legislacao.aspx> [Accessed 18 of May 2012].

MMA Brazil - Secretaria de Recursos Hídricos (1997) *National Policy for Water Resources Management* [pdf] Available at: http://www.mma.gov.br/estruturas/srhu_drb/_arquivos/152_03122008033158.pdf [Accessed 18 of May 2012].

MMA Brazil - Secretaria de Articulação Institucional e Cidadania Ambiental (n.d.) *Sustainable Consumption and Production* [online] Available at: <http://www.mma.gov.br/sitio/index.php?ido=conteudo.monta&idEstrutura=234&idConteudo=11054&idMenu=10401> [Accessed 18 of May 2012].

Appendix 4. International voluntary initiatives and standards focused on SWM and CSER

The **United Nations Global Compact (UNGC)** is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption (<http://www.unglobalcompact.org/>).

The **Global Reporting Initiative (GRI)** is a non-profit organization that promotes economic, environmental and social sustainability. GRI provides all companies and organizations with a comprehensive sustainability reporting framework that is widely used around the world (<https://www.globalreporting.org/Information/about-gri/Pages/default.aspx>).

The World Business Council for Sustainable Development (WBCSD) led the elaboration of the **Vision 2050 report**; a consensus piece that was compiled by 29 leading global companies from 14 industries that features a set of agreed “must haves” that organizations need to consider putting in place within the next decade, to help ensure a steady course towards global sustainability is set (<http://www.wbcsd.org/vision2050.aspx>)

Down Jones sustainability Index: Launched in 1999, the Dow Jones Sustainability Indexes are the first global indexes tracking the financial performance of the leading sustainability-driven companies worldwide. The indexes serve as benchmarks for investors who integrate sustainability considerations into their portfolios, and provide an effective engagement platform for companies who want to adopt sustainable best practices (<http://www.sustainability-index.com/>)

The Carbon Disclosure Project (CDP) is an organization which works with shareholders and corporations claiming to disclose the greenhouse gas emissions and water use of major corporations. The **CDP Water Disclosure Project** works for a better measurement and transparency of water issues by sending a questionnaire to some of the world’s largest water-sensitive companies on behalf of their signatory investors. By working with other standard setting bodies they also aim to support and accelerate the development of standard metrics and performance benchmarks (<https://www.cdproject.net/en-US/Programmes/Pages/water.aspx>).

The **CEO Water Mandate**, is a unique public-private initiative designed by the UN to help companies better manage water use in their direct operations and throughout their supply chains, through the development, implementation, and disclosure of water sustainability policies and practices (<http://ceowatermandate.org/>)

The International Standards Organization has developed over 19 000 International Standards on a variety of subjects. **ISO 14001:2004** is a management tool enabling an organization of any size or type to: 1) identify and control the environmental impact of its activities, products or services; 2) improve its environmental performance continually, and to 3) implement a systematic approach to setting environmental objectives and targets, to achieving these and to demonstrating that they have been achieved. Whereas **ISO 14004:2004** gives general EMS guidelines (http://www.iso.org/iso/iso_14000_essentials).