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(Corporate) Water Stewardship

A Study on the Critical Success Factors and Financing Mechanisms for Water Stewardship Projects at the Field Level

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Water Stewardship can be seen as a motor that helps to engage corporates, civil society and public authorities. It is a way of taking action on an issue everyone is aware of. Leadership is needed to de-block the mind-set that water issues are too complex or someone else's responsibility. It is a starting point for progressive collaborative action.

- Diana Rojas

Water Stewardship is probably going down the route of being overtaken by circular economy. I think taking stewardship much more into understanding circular economy principles means that corporates can become more efficient locally, while, collectively, each operation starts to become much more aware of water management by investing in its own site first and in greater basin engagements in a next step.

- Dr. James Dalton

Abstract

Water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, and indispensable for human health and well-being. Against the background of population growth, evolving consumption patterns and climate change, the excessive use and pollution of water has led to water stress on a global level, while Water Governance mechanisms often lag behind. As a response, the concept of "Water Stewardship" has emerged. The concept emphasizes collective accountability and bottom-up collective action by water users towards a sustainable and responsible management of water resources. Given the popularity of Water Stewardship, this paper focuses on the concrete implementation of initiatives at the field level and aims at discussing two different, specific aspects of Water Stewardship; critical success factors and potential financing mechanisms. The focus primarily lies on projects in which the private sector involved. The analysis shows that concrete and valuable benefits need to be present to motivate actors to engage in Water Stewardship, while all affected parties need to be represented, and the collaboration with authorities is needed. Furthermore, public funding and integrated water resources management is needed to establish Water Governance in the long run. Finally, more attention should be paid to the collection of reliable data by corporates as well as public authorities.

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List of Abbreviations

AWS	Alliance for Water Stewardship
CSR	Corporate Social Responsibility
EWP	European Water Partnership
EWS	European Water Stewardship
IO	International Organization
IUCN	International Union for Conservation of Nature
IWaSP	International Water Stewardship Programme
IWRM	Integrated Water Resource Management
NGO	Non-governmental organization
ODA	Official Development Assistance
ODI	Overseas Development Institute
OECD	Organization for Economic Co-operation and Development
PPP	Public-Private-Partnerships
SDC	Swiss Agency for Development
SDG	Sustainable Development Goals
UN	United Nations
UNDESA	United Nations Department for Economic and Social Affairs
WBCSD	World Business Council for Sustainable Development
WUA	Water User Association
WWF	World Wildlife Fund

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Introduction

"Water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, and is indispensable for human health and well-being"
(UN General Assembly, 2003)

Water is life – it is the basis for humans and nature on this planet. Water is key for human well-being, needed for drinking, sanitation, agriculture, transport, electricity generation and recreation (WWF, 2017). Water, thereby, stands at the core of sustainable development. UN Water (2015, p. 2) states that *"Water resources, and the range of services they provide, underpin poverty reduction, economic growth and environmental sustainability. From food and energy security to human and environmental health, water contributes to improvements in social well-being and inclusive growth, affecting the livelihoods of billions."*

Less than 3% of the world's water resources are fresh, of which 2.5% are in form of ice in the Antarctica, the Arctic or glaciers. Consequently, only 0.5% of all water on this planet can be used by humanity to cover the worldwide fresh water needs (UN Sustainable Development, 2017a). Almost all human activity has an influence on the available freshwater of which 54% are currently being used. These activities include the direct use of surface and groundwater in agriculture, the industry or households; and the collection of rainwater for agriculture before it flows into lakes, rivers and wetlands. Further activities are the pollution of freshwater or the change of habitats through the construction of dams and canals influence water systems (WWF, 2017). Under these circumstances, nature is no longer able to recycle and purify water in rivers and lakes fast enough. Given global drivers like population growth, changing consumption patterns and climate change, the excessive use and pollution of water has led to water stress on a global level in times where there are still more than 1 billion people without access to freshwater (UN, 2017; AWS, 2017). It is estimated that by 2025, 30% of the global population will be living in water-stressed areas (UNDESA, 2017).

As a resource, water is finite and irreplaceable, unevenly distributed and can only be renewed if managed carefully (UNDESA, 2017). In our globalized world, direct negative impacts of water use and pollution happen on a local or regional level, while the drivers are global, given that products and services are produced and traded internationally (WWF, 2017). While agricultural production is responsible for 92% of the global human water use, estimations show that 90% of wastewater in developing countries is released in to rivers and streams without being cleaned. Most importantly, however, a substantial amount of water used or polluted stems from the cultivation or manufacturing process of products, which finally are exported to the developed world. Given that the private sector is by far the most important user of fresh water, it is not surprising that it is increasingly seen as having a critical role to address sustainability challenges related to water (WWF, 2017).

Against this backdrop the term 'Water Stewardship' has emerged. The expression 'stewardship' alludes to the idea that companies take care of something that we do not own. Companies following the Water Stewardship approach are supposed to take responsibility for water managed *"respecting shared use of water between water users in catchments and river basins, beyond just individual use"* (Dalton & Newborne, 2016, p. 9). Water Stewardship, therefore, emphasizes collective accountability and collective action towards a sustainable and responsible management of water resources (AWS, 2017). As a concept that has emerged only

in the 21st century, Water Stewardship is relatively new. Nevertheless, diverse definitions, programmes and projects exist, while the term has become very popular amongst development practitioners in the public and private sphere. Next to others, the SDC has been very active in supporting Water Stewardship initiatives forward and co-financing projects in different countries. In this context, questions around the successful implementation of such initiatives arise.

Given the popularity of Water Stewardship projects, this paper focuses on the concrete implementation of initiatives at the field level and aims at discussing two different, specific aspects of Water Stewardship, namely critical success factors and potential financing mechanisms. The focus lies primarily on projects in which corporates are involved. The authors thereby aim to make a contribution to the current debate by highlighting key issues for implementation of activities and provide the SDC with recommendations for future projects and initiatives. This is done by a theoretical review (part I and II) and case studies (part III) to illustrate the issue in practice. In order to gain a deeper insight, interviews with experts (for the theoretical part) and projects managers (for the case studies) have been conducted.

The first part, which is purely literature based, introduces water as an issue of sustainable development and water governance, thereby allowing to position the paper in the bigger context. In chapter 3, the concept of Water Stewardship is introduced. A definition is provided and the conceptual differences between Integrated Water Resources Management and Water Stewardship are drawn and discussed. The second part of the paper evaluates critical success factors and financing mechanisms of Water Stewardship initiatives and projects. With regards to critical success factors, the authors propose a framework of factors, which might be of importance in practice. The literature review and proposed model has been discussed and validated with experts through interviews and lays the basis for the practical part of the paper at hand. In the third part, the authors discuss three practical examples, in which elements of Water Stewardship can be found. Case studies have been made on the basis of project documents as well as interviews with project owners. The objective is to see what theoretical elements can be found in practice, how relevant they are and how they relate to each other. The final chapter consolidates the research results by applying the learnings and providing practical recommendations for future projects. Finally, a conclusion is drawn.

THE CONTEXT AND CONCEPT OF WATER STEWARDSHIP

1 Context

1.1 Water as a Global Issue and Challenge for Sustainable Development

The global water issue goes far beyond a mere water shortage, which is defined as situation in which demand exceeds supply. Due to unsustainable approaches towards water, the quality as well as the quantity of accessible water sources is decreasing. Thus, it is not surprising that the groundwater supply is reducing and 20% of the aquifers are overused (UNESCO, 2015, p. 2). Further, water quantity and quality issues are closely related to climate change. During a meeting in 2011, the Secretary-General Ban Ki-moon stated: "*Around the world, hundreds of millions of people are in danger of going short of food and water, undermining the most essential foundations of local, national, and global stability. Competition between communities and countries for scarce resources – especially water – is increasing, exacerbating old security dilemmas and creating new ones*." Water and their related services and resources are crucial to reduce poverty, maintain economic growth and sustainable development. Water promotes the social as well as the economic well-being of people (UNESCO, 2015, p. 2).

One of the most important, water-related issues for human well-being is safe drinking water. More than 1.8 billion people's drinking water is not clean and, hence, not safe. 1.5 million children in developing countries under the age of five die per year due to water borne diseases such as diarrhoea. Over 40% of the global population is estimated to be affected by water scarcity. Globally, 783 million people have no access to drinking water and over 1.7 billion people overuse their water sources (United Nations, 2017). Sustainable development of water has to be promoted along three different dimensions: social, economic, and environmental. This means that water issues reach far beyond the topic of drinking water, affecting also food and energy security, urbanization, industrial and population growth. Therefore, appropriate policies need to be developed in which water is key (UNESCO, 2015, p. 2).

In general, each country has a different geological surface and circumstance and, thus, every country needs unique adaption strategies and technologies on how to face the water crisis. However, economically weak countries have difficulties to deal with water scarcity. Many of them still rely on traditional water harvesting techniques to increase their water supply (UNDP, 2004). As water is an essential resource for the economy, its sustainable management promotes economic growth, because water is essential to produce goods and services, such as food and energy. By 2015, it is estimated that the global water demand for manufacturing will increase by 400% to 500%. Additionally, by 2050, the agriculture sector needs to produce 60% more output to feed the world population. In order to maintain the level of production, therefore, the quality and quantity of water supply has to be managed in a sustainable way along the supply chain and the right investments and infrastructure have to be considered. However, as today most economic models neglect the importance of dealing sustainably with water, industrial wastewater and agricultural run-off lead to degradation and pollution. As a result, many ecosystems around the world are harmed. The related damage on the environment leads to higher costs in the long-run. Therefore, the water use has to be more efficient and it is crucial to reduce water loss and pollution (UNESCO, 2015, p. 3–4).

1.2 Global Water Goals, Policies and Water Governance

As water is crucial for sustainable development, water policies can be found at different levels and the water governance landscape is rather complex. In 2015, 189 countries have agreed on the Sustainable Development Goals (SDGs) replacing the Millennium Development Goals. The 17 SDGs recognize the need to balance economic growth, social growth and environmental protection in promoting sustainable development (UN Water, 2017). The SDGs do not only apply to developing, but also to the developed countries. The emphasis on the interconnectedness of different development aspects shows the necessity of a systemic approach to address development. Due to the necessity of water and its linkages to all other SDGs, it is core for the 2030 agenda.

The SDG's include two water specific goals:

- **Goal 6: Ensures access to water and sanitation for all:** This goal focuses on access to drinking water and, thus, tries to cover the whole water cycle from water waste management, water ecosystem, water sources and basic sanitation. It promotes health, food security, countermeasures to climate change, and resiliency to disasters and ecosystems among many other issues. In addition, this goal tries to foster water quality and the efficient water-use as well as protecting water-related ecosystems like mountains, forests, wetlands, rivers, aquifers and lakes. Moreover. it wants to set forward the expansion of international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies. (UN Sustainable Development, 2017b)

- **Goal 14: Conserve and sustainably use the oceans, seas and marine resources:** Sustainability in the open ocean and deep-sea areas can only be achieved through increased international cooperation since water responsibility lies beyond the state-level (UN Sustainable Development, 2017c). Water Stewardship of oceans not only promotes collective action but also provides access for small-scale stakeholders like artisanal fishers (UN Sustainable Development Goals; Goal 14 targets, 2016). Additionally, by 2020, the outcomes of good Water Stewardship should be the effective regulation of harvesting and end of overfishing, the prohibition of certain forms of fisheries, subsidies and the implementation of international law (UN Sustainable Development, 2017c). Although there are these two specific goals on water, it is important to acknowledge that the issue of water is closely related to many SDGs. According to UN Water (2017), SDG 6 has strong linkages to all other goals and underpins them. Given the importance of water, reaching goal 6 and 14 can substantially contribute to the achievement of the 2030 Agenda.

Figure 1: The Water Cycle in Sustainable Development (UN Water, 2017)

Water Governance should be managed at all levels and across all sectors to increase water-use efficiency and to ensure sustainable withdrawals and supply of freshwater by 2030 (UN Sustainable Development, 2017b). Figure 2 illustrates the interplay between different policies and actors. The driving forces behind the water agenda in each country are the UN´s SDGs and national legislations that make a sustainable use of water legally possible and enforceable. Further, international conferences seek to raise awareness of the issue among the international community. Behind these forces stand actors of the UN, governments, and international organization who all together promote Water Stewardship top-down. On the other hand, actors like civil society, the private sector, NGOs and IOs are involved in a bottom-up approach. These actors do not have direct state power, but form important interest groups. Their interests are expressed in the formation of global, regional and corporate level initiatives. AWS, WWF and IUCN provide the private and public actors with guidelines and steps that are globally applicable, whereas EWS focuses on regional Water Stewardship. The CEO Water Mandate and the Water Footprint Network influence the water management in the supply chain at the corporate level. Stakeholder commitment on all levels ensures a widespread water effort.

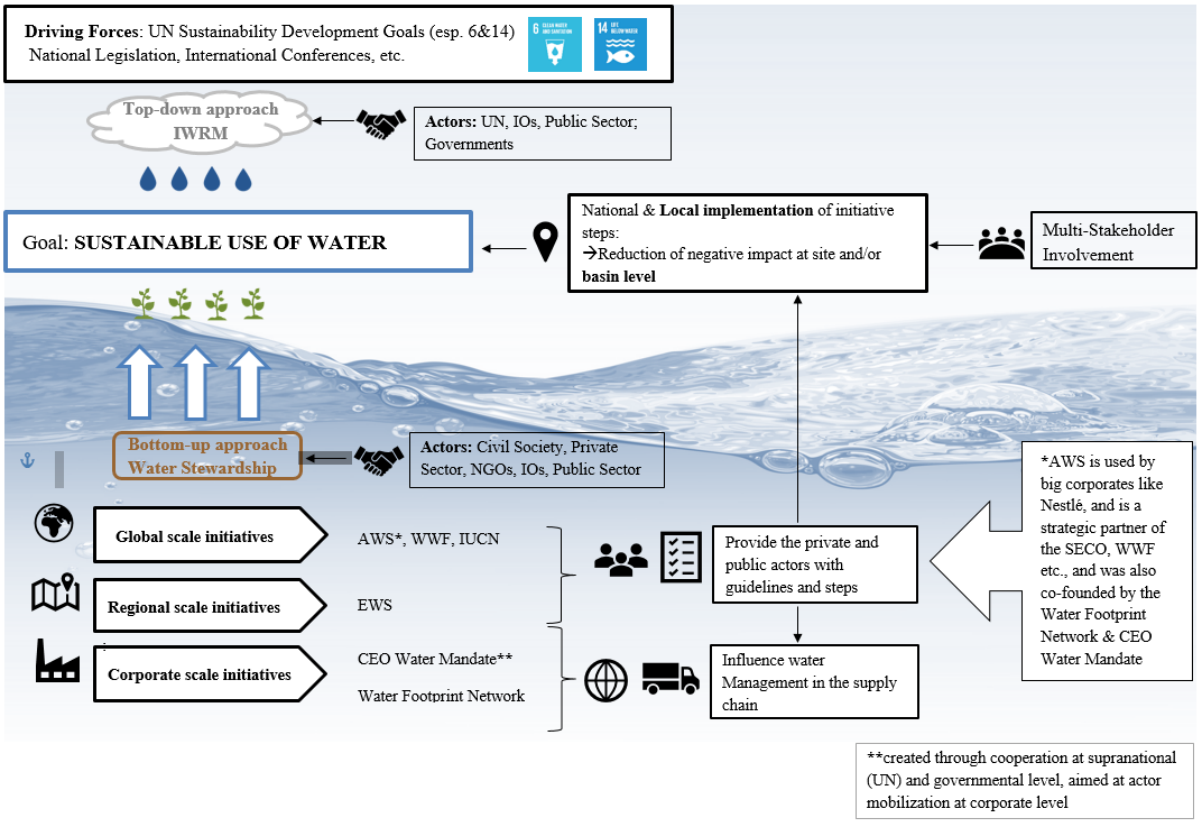


Figure 2: Water Policies and Actors – the Interplay of different Levels (own compilation)

An interesting insight into water governance on a very general level is given by the OECD, which has defined three fundamental principles for good for water governance (OECD, 2017, p. 3):

- **Effectiveness**: The government should have clear and tangible goals but also approaches to achieve a clear and sustainable water policy.
- **Efficiency**: This principle attempts to achieve the maximum possible outcome. In this context, this means sustainable water management with the least possible costs to the society.
- **Trust and Engagement:** The government contributes in building public confidence and ensuring inclusiveness of stakeholders through democratic legitimacy and fairness for society at large.

These defined principles are rooted in a broader definition of good governance: legitimacy, transparency, accountability, human rights, rule of law and inclusiveness. Water governance is an end, not a mean: All political actors and stakeholders can state their point of view and act self-responsible. Hence, they will be held responsible for their decision-making regarding water management. According to the OECD, the listed principles should help to manage the water in a sustainable and inclusive way. Under using a combination of bottom-up and top-down processes, good governance can solve central water issues. (OECD, 2017, p. 5)

2 The Rational of the Private Sector for Water Stewardship

Water is an issue that is not only handled at the government level, but also concerns the water users themselves, especially the private sector. Water Stewardship as a concept emerged only at the beginning of the 21st century. With the raising awareness on the importance of climate change and its implications, governments, NGOs and corporations began to focus more on the topic of water. Large multinational corporations like Nestlé started engaging in water issues by first developing an understanding of their water risks and own corporate water footprint, i.e. by determining how much water the company requires, or how much wastewater or runoff it produces across its operations and supply chains (UN Global Compact, 2017).

Besides growing expectations of consumers, civil society and communities that push the leading stakeholders to try to protect the environment and the people who depend on a healthy ecosystem, corporates have a rational business interest in Water Stewardship. With climate change increasingly affecting water quality and availability, competing demands over the use of water in agriculture, households, energy, industries and ecosystems arise. This is not only a risk for the society, governments and the environment, but also for the private sector. In 2016, impact wise, water has been identified as the most important societal and economical risk in the Global Risk Report of the World Economic Forum (WBCSD, 2017a). Without improving water management and use, a supply gap of 40% could become reality by 2030 (WBSCD, 2017b). This might lead to disruptions in companies' operations and, thus, negatively affect their profitability and brand value (WWF, 2013a, p. 9). Questions on the availability of water and the difficulties related to water shortage or quality depend on the regional and local water context (Dalton & Newborne, 2016), while water risks faced by private companies stem from the cumulative use of water in a specific catchment by all the water users present. For example, even if businesses are water efficient in their operations, the fact that they operate in a water-stressed area with a lack of rules for water allocations can put companies at risk. On the other hand, investing heavily in water efficiency in an area with enough water supply may lead to the fact that the capital is not used in an optimal way (WWF, 2013a, p. 9). In many cases, especially if the water price is very low to ensure affordability of water for all in weak legal environment, companies have little incentives to undertake conservation efforts.

According to the WWF, *"Water risk is distributed unevenly, with highly varied possibilities for users to cope with scarcity and pollution event*s" (WWF, 2013a, pp. 9–10). What the private sector and the public share, however, is a common interest in guaranteeing water supply for the future. Companies, should therefore have an interest in investing in sustainable water management in the whole water catchment surrounding their operations. Water is a shared problem of all users in a water catchment and, thus, is determined to be faced by collaborative, long-term oriented responses (WWF, 2013a, p. 10). Given the complexity of the water issue, private sector activities must not only include risk assessments and remedies at the factory site level, but also include *"the implementation of sound Water Stewardship strategies at the watershed level"* (WBCSD, 2017b). This includes the *"adoption of standards of "Water Stewardship" for responsible water management respecting shared use of water between water users in catchments and river basins, beyond just individual own use"* (Dalton & Newborne, 2016, p. 9). Against this background, Water Stewardship initiatives have risen in recent years and activities have moved beyond a company's factory walls to address issues such as water scarcity, pollution or inadequate governance (UN Global Compact, 2017).

3 Concepts & Definitions

This chapter defines the terms *Water Stewardship* and Integrated *Water Resources Management* (IWRM) and elaborates very shortly on the differences between the two concepts. This will help to avoid confusion, although a sharp line between the concepts cannot always be drawn.

3.1 Water Stewardship

Definition & Concept

The most used and cited definition of Water Stewardship is the one of the Alliance for Water Stewardship (AWS). The AWS is a global framework and certification scheme, which provides water users with information and support on their impact on the resource and how to use it in a sustainable way. The vision of the AWS is that water users act responsibly and preserve the resource's integrity and the environment for following generations. Water Stewardship is defined as follows:

*"The use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves **site** and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and important water-related areas; and then engage in meaningful individual and collective actions that benefit people and nature."* (AWS, 2017)

The term 'economically beneficial' refers to the fact that water use should contribute to long-term sustainable economic growth, development and poverty alleviation (Dalton & Newborne, 2016, p. 30). The definition of Water Stewardship and certification proposed by the AWS primarily targets the private sector and public agencies. The standard outlines a series of actions, criteria and indicators for how one should manage water at the site level and how water management should be stewarded beyond the boundaries of a "site". In this standard, the site refers to the implementing entity that is responsible for fulfilling the criteria and includes the facility and the property over which the implementer that is using or managing water has control (AWS, 2014, p. 6). The fact that the definition mentions individual as well as collective actions reflects the shared nature of water challenges. Good water stewards will address both in order to reduce risks. According to the idea of Water Stewardship, every actor has a responsibility to contribute to the public good. According to the WWF (2013a, p. 16), a company *"shifts from management to stewardship, where the rules, measures, focus, engagement, control and complexity change considerably, and where traditional notions of business sustainability are most challenged by the resource"*. As stated by the AWS, this should result in "good water governance", which describes *"the state when the political, social, economic and administrative systems that are in place, which directly or indirectly affect the use, development and management of water resources and the delivery of water services at all levels of society, promote stakeholder participation, transparency, accountability, rule of law, and equity in a manner that is effective, efficient and enduring and leads to the desired state of the water resource(s)"* (2014, p. 9 cited in Dalton & Newborne, 2016) .

The following two figures (Figure 3 and Figure 4) visualize the concept of Water Stewardship nicely.

The matrix below categorises corporate water behaviours. The x-axis represents the level of stakeholder involvement, while the y-axis stands for the use of net profits. The desired goal of good corporate Water Stewardship defined by the AWS and pursued by the WWF is in the top right corner, called “Shared Use”.

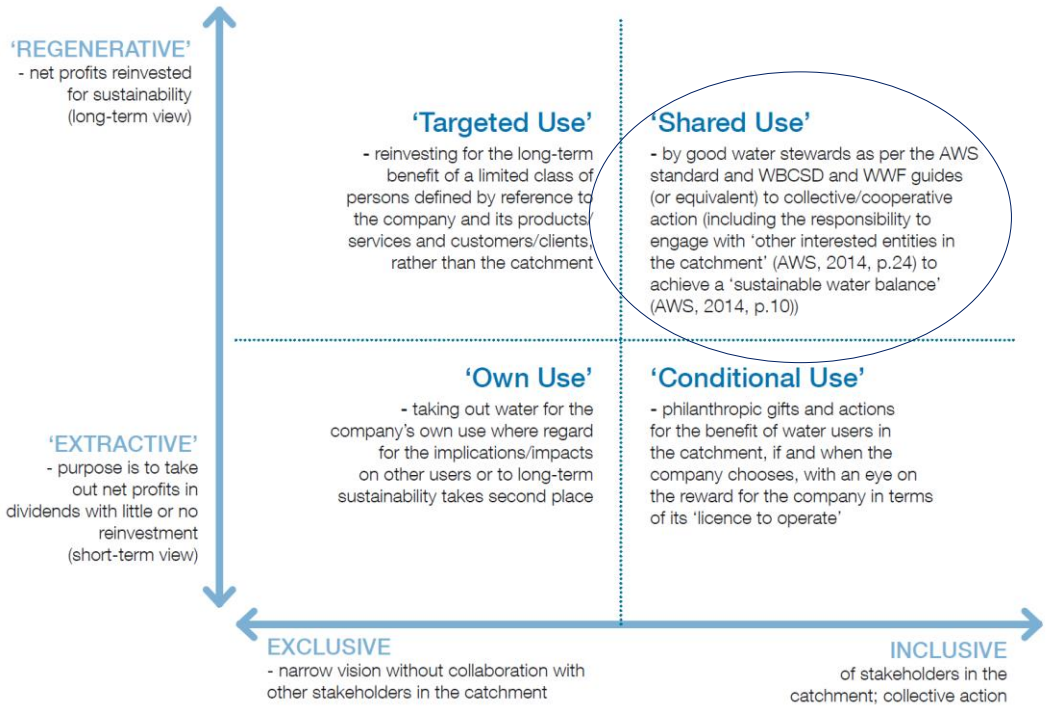


Figure 3: Categorisation of Corporate Water Behaviours (Dalton & Newborne, 2016, p. 46)

The second figure entails the five steps of Water Stewardship, as proposed by the WWF. Starting from the bottom, the first three steps are materially distinct from the final two steps because the step from internal to collective action defines the company’s shift from management to stewardship (WWF, 2013a, p.16)

Figure 4: WWF Steps to better Water Stewardship (Dalton & Newborne, 2016)

Important Aspects of the Concept of Water Stewardship

As mentioned in Figure 3, Water Stewardship goes much further than short-term oriented CSR/ philanthropic activities, but includes companies recognizing that water is a strategic issue of their business and crucial for long-term growth opportunities, rather than just an issue leading to reputational gains (Dalton & Newborne, 2016, p. 33). This interpretation of Water Stewardship incorporates a bottom-up approach, which tries to reach systemic changes by starting at micro- and meso-level activities. Nevertheless, research indicates that even companies taking Water Stewardship seriously hope for profiting from their first mover advantage, allowing them to retain or increase market shares, promote their companies or take advantage or other commercial benefits (Dalton & Newborne, 2016, p. 41).

Another interesting aspect is the tendency to talk about 'win-win' situations, rather than the existing trade-offs. In many occasions, there are not only synergies, but also potential tensions between individual and collective elements. Given that Water Stewardship aims at governing the use of a scarce resource for sometimes competing uses, win-win situations cannot always be created. This particularly applies to situations with high water stress and a limited access to water because it potentially leads to trade-offs, which could be resolved to the detriment of business interests (Dalton & Newborne, 2016, p. 10). In a recent report published by the ICUN and the ODI (2016, p. 43), the crucial question of what happened if for profit organizations faced trade-offs between individual and collective interests is raised. To what extent must private water stewards prioritize collective benefits? The AWS standards give guidelines regarding this issue (Dalton & Newborne, 2016, pp. 30–31).

Finally, when companies have to discuss questions of shared use and their own use, it has to be recognized that they face two important realities: *"the need to meet short-term business goals and the recognition of an uncertain future where they need to address sustainability challenges"* (Dalton & Newborne, 2016, p. 10). To increase the priority of water, a transition from seeing water as a medium risk to viewing the issue as a higher risk for business is necessary. This shift will only be possible if the "Corporate Water Behaviour" changes. The latter is shaped by internal factors such as a company's missions, values, financing structure, as well as external drivers like the pressure of regulators, investors and consumers (Dalton & Newborne, 2016, p. 11).

Water Stewardship Projects today

Today, many projects for Water Stewardship are underway. Examples include collaborations with local farmers to use water in a more efficient and effective way, support of the public sector in their water management programmes, implementation of preserving water sources, improve water waste management and others. Such engagement and projects create win-win situations for local authorities, citizens, and corporations (GIZ, 2017). However, a recent report by the ICUN has emphasized that there is little evolution regarding Water Stewardship and there is still a long way to go (Dalton & Newborne, 2016, p. 9). While many companies have started to take water related measures at the site-level, such as improving infrastructures to improve water efficiency, there are only few examples of companies engaging in collective action and addressing water issues with other stakeholders in the catchment. One reason for this is that, in many cases, initiatives are still funded by the CSR departments and included the

objective to see rewards in terms of reputation or justification for water use. When it comes to projects at the catchment level, NGOs are often found to support projects financially.

3.2 Integrated Water Management System

The Integrated Water Resources Management (IWRM) is a holistic approach to deal with the water challenge towards a more efficient, equitable and sustainable development and management as well as for coping with conflicting demands (UNDESA, 2015). IWRM can be defined as a *"process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems"* (Global Water Partnership, 2000). Most importantly, IWRM describes a top-down approach, in which governmental institutions take action, adapt and build the capacity of new institutions, i.e. local water committees. IWRM therefore takes a substantial amount of time, as it is related to profound institutional reforms and new legal frameworks to govern water issues better (Dalton & Newborne, 2016, p. 41).

The IWRM definition is based on the four Dublin principles, which have been defined in 1992 through the International Conference on Water and the Environment in Dublin. The aim of these principles is to change the water resource management in a new and more sustainable way (Global Water Partnership, 2000, pp. 13–21):

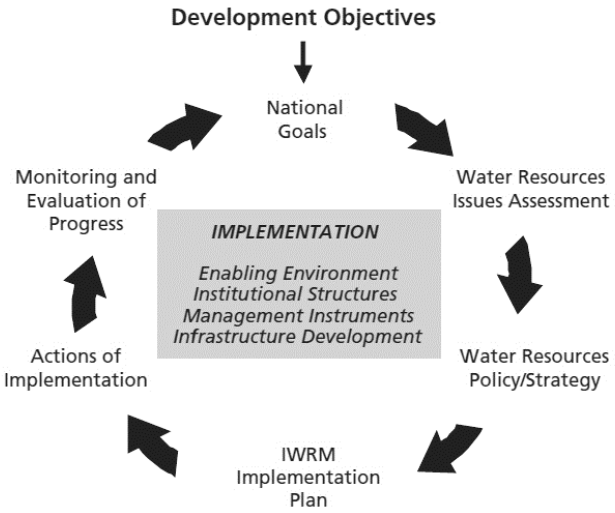


Figure 5: Stage in IWRM Planning & Implementation (UNDESA, 2015)

1. **Principle:** Water is a limited resource and crucial for human life and development as well as for the whole environment and ecosystem.
2. **Principle:** In water management, every important actor on every level should be involved such as users, planners and policy-makers.
3. **Principle:** A special remark should go to women as they play an essential role in providing, preserving, and managing water.
4. **Principle:** Due to its scarcity and its value water has an economic value and therefore, it should be recognized as an economic good.

The principles are rather generic and, thus, there is flexibility for updates and adaption for new circumstances and interpretations on the changing environment. IWRM is therefore an ongoing process and can respond to changing situations and needs (GWP, 2000, pp. 13–14).

In specific, the IWRM approach contains three pillars and targets to avoid an incomplete water resource management by considering the following aspects (GWP, 2000, pp. 33–43):

- Enabling the environment for developing suitable policies, strategies and legislation for sustainable water resources development and management.

- Putting in place the institutional framework through which the policies, strategies and legislation can be implemented
- Setting up management instruments which are required by these institutions to do their job

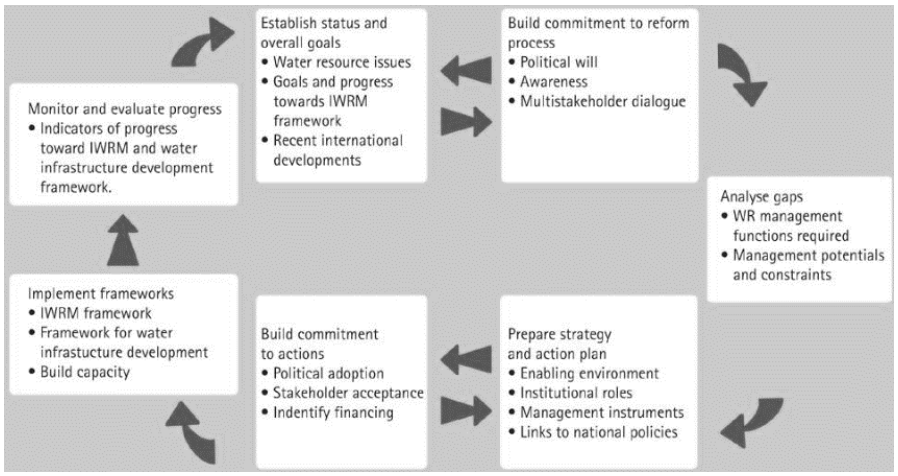


Figure 6: IRWM Process (GWP, 2000, p. 13-14)

In developing countries, IWRM faces specific context-related challenges. In an environment with weak institutional capacity, monitoring to track progress regarding IWRM. Further, it has to be acknowledged that the water sector is predominantly informal. This particularly applies to rural areas, where the water supply is either not managed at all or managed through local, informal water institutions. The influence of rules and regulations is limited, and policies are most often not applied. In comparison to the situation in developing countries, the water sector in developed countries is highly formalized and the behaviour of actors is largely determined by law. Whether IWRM will be successful or not is to a large extent contingent upon national governance structures present in a country. Water governance, especially at a local level, is determined by local communities, even if national IWRM principles for water resources management are in place. As IWRM initiatives require a change of mind-set by all stakeholders, programmes can lead to difficult negotiations and trade-offs. (Hassing, et al., 2009 in Dalton & Newborne, 2016, p. 42)

3.3 Water Stewardship vs. Integrated Water Management System

Water Stewardship and IWRM do have important similarities. They, for instance, share goals of environmental sustainability, equity or economic welfare. Further, they seek to mobilize different actors and promote collective actions and stakeholder-inclusive processes at the catchment-level. Further, both concepts require a change of the mind-set. While Water Stewardship focuses more on the development of corporate culture, IWRM targets the evaluation of institutional mentalities. Governments must develop an integrative approach in addressing challenges. This requires a shift from thinking in “silos” to cooperation between different agencies, recognizing the interrelated nature of development challenges (Dalton & Newborne, 2016, p. 42). Despite these shared characteristics, important differences between the two arise. Morgan & Orr (2015 cited in Dalton & Newborne, 2016, p. 43) state

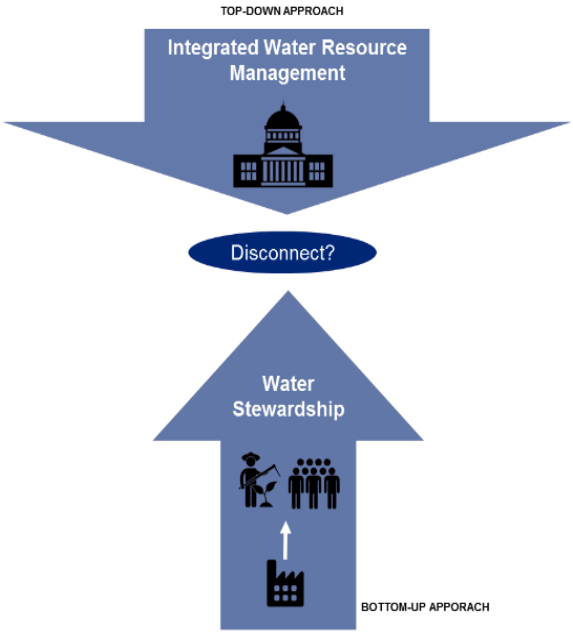


Figure 7: IRWM vs. Water Stewardship (own compilation)

that *"if IWRM is considered as actions by an authority mandated by the state to manage water resources on behalf of all water users, then Water Stewardship can be considered as actions by water users themselves to contribute to the management of the shared resource towards public good outcomes. Water Stewardship is, therefore, about non-traditional, private actors increasingly involving themselves in the management of the common pool-public good regarding water"*.

The following table details the differences between the two concepts further:

Water Stewardship	IWRM
• Incorporates a water users' perspective. Can be considered as the bottom-up part of IWRM (participation of users at water catchment level) • Assumption of responsibility by companies is voluntary • Starts at the company site, only subsequently goes beyond the catchment	• Typically, government-adopted and -led, based on laws and regulations • Operates mostly from central to local, focus on planning reforms • Based on laws and regulations • Focus on changing but most often focuses on policies, laws and plans, institutional framework, use of management and technical instruments, investments in water infrastructure, thus, requires institutional change • Should be led to change in practice, but tends to be slow • Collective action: stakeholders take part in decision-making process, each stakeholder assumes part of responsibility

Table 1: Differences between IRWM vs. Water Stewardship (based on IUCN, 2016, p. 42)

If Water Stewardship is implemented thoroughly and successfully, the private sector can serve as a catalyst for *"reviving integrated water resources management with new incentives to push forward IWRM so that governments accord greater priority for water resources management in their policies and budgets"* (Dalton & Newborne, 2016, p. 30). An interesting aspect is that Water Stewardship initiatives by companies are sometimes seen as means to make up for IWRM failures. Given that institutional learning and change of mind-set at public sector level takes time, it is certainly possible that private companies are more agile and faster to adopt principles and practices of stewardship. However, it also has to be considered that the company's engagement for collective benefit might put them at a disadvantage by rising competitors' advantages, reduce their negotiation power and raising liabilities, i.e. direct as well as indirect costs. Another aspect of Water Stewardship is the potential "policy capture" by private companies. Against this backdrop, government-led IWRM is certainly still needed (Dalton & Newborne, 2016, p. 43).

Different actors argue that there is a disconnect between private sector-led Water Stewardship initiatives and government-led IRWM actions. Although multi-stakeholder aim at bridging this gap between private and public stakeholders, there is a limited dialogue between *"the government process model of IWRM and the privately-driven outcome-oriented model of Water Stewardship"* (Dalton & Newborne, 2016, p. 44). Regarding this issue, it is uncertain what the future will bring. Most certainly, both approaches are needed. While IWRM ensures the planning accounting for the broader context at national or river basin level (including elected leaders), bottom-up action by companies might allow for more flexibility and speed. A connection of the two might result in the best development outcome. While Water Stewardship has the potential to support and *"waking-up the economic pillar of IWRM by directing attention of river basin organizations and other public agencies, who may tend to see IWRM solely in terms of command and control"* (Dalton & Newborne, 2016, p. 45). This could be key for

bringing the IWRM to the National Chambers of Commerce or similar organizations. Finally, connecting the two concepts might bring accountability to Water Stewardship initiatives.

Actors and their Roles

Although Water Stewardship by water users can be important to foster progress towards sustainable management of water resources, the responsibility taken by the water users has its practical and legal limits. Whenever initiatives come from the private sector, filling the public governance gap in absence of IWRM can lead to public policy capture by corporates (Dalton & Newborne, 2016, p. 13). This is problematic, given the fact that conflicts over water resources can arise. Therefore, a stronger lead from national governments is needed to support the implementations of IWRM and Water Stewardship initiatives. Currently, there seems to be a disconnect between IWRM efforts and Water Stewardship projects, especially in the projects executed by corporates. In many cases, projects are implemented in the absence of IWRM (Dalton & Newborne 2016, p. 13). However, collaboration with authorities is fundamental to improve water governance. IUCN, therefore, proposes two approaches, which allow for Corporate Water Stewardship to overcome the disconnect between IWRM and Water Stewardship Projects. (1) The *Catalytic Model* suggests that projects should focus on catalysing government involvement, instead of side-lining it, in order to prepare the ground for the government with the efforts executed. If projects have the clear objective of being a catalyser for government involvement, Water Stewardship will have a greater impact (Dalton & Newborne, 2016, p. 13). (2) The *Curation Model* refers to the potential role of NGO's. Instead of collaboration with specific projects from individual companies, collective action by NGO's to advocate and campaign for long-term investments in sustainability by the private sectors could beneficial. The Curation Approach states that NGO's could serve as a broker/ curator, which leads a coalition of companies to establish a platform for policy reform. This is only possible if an NGO can reach to be an accepted leader (Dalton & Newborne, 2016, p. 61).

4 Overview of existing Initiatives & Certifications

Today, Water Stewardship initiatives are manifold. When organizing the chosen initiatives in temporal order, one notices that Water Stewardship is a rather new concept. They have all been established in the 21st century simultaneously to the emerging concerns about water sustainability. The water footprint network in 2002 was only a metric to measure water use in the supply chain and then, later, became a global network to promote the awareness of water use among corporates (Water Footprint Network, 2017a). The CEO Water Mandate followed in 2007 and later in 2011 with its newest version, due to the supranational (UN) and governmental cooperation aimed at corporate actor mobilization (UN Global Compact Office, 2011, p. 2). WWF assisted AWS in 2010 until 2014 in formulating and completing its standard that was finally published in 2014 (WWF, 2014). In the meantime, EWS was launched in 2011 by the EU Commission to promote Water Stewardship throughout Europe (EWR, 2017). In 2016, the latest IUCN report on Water Stewardship was issued in 2016, containing important comparisons of standards and the collection of existing knowledge regarding corporate behaviour (Dalton & Newborne, 2016. p. 2).

All in all, their definitions of Water Stewardship overlap largely, focusing on the socially equitable, environmentally sustainable and economically beneficial use of water (AWS, 2017). Additionally, the Water Footprint Network points out the need for a collaborative and multi-stakeholder approach (Water Footprint Network, 2017b), while the WWF uses the term collective action to emphasize a "continuous improvement approach" (WWF, 2013c, p. 1). Most of the initiatives address all sectors in their standards except for the CEO Water Mandate that was primarily created for the private sector (UN Global Compact; CEO Water Mandate, 2015). The only exception in terms of applicability is the EWS initiative that focuses on regional impact in contrast to the other initiatives that are globally applicable (EWS Fact Sheet, n. d.).

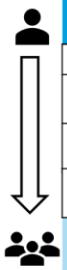
AWS and EWS are the only initiatives that offer user certification and are, till now, mostly used by companies. They are both divided in three categories. In the EWS standard, Bronze is the lowest possible certification, followed by Silver, and Gold as the highest (EWS Standard, 2012, p.3). Similarly, in the AWS standard, Core is the lowest certification, followed by Gold, and Platinum (AWS, 2014, p. 11). Each category is allocated with regards to the indicator compliance and thus, certificates the spent effort of the user.

Timeline:	2002 (metric) 2008 (network)	2007 (1st vers.) 2011 (new vers.)	2010-2014 assistance to AWS	2011 launch in EU Commission	2014 Standard launch	2016 latest report on WS
Definition of WS:	Collaborative and multi-stakeholder approach that aims to achieve social, environmental and economic benefits	AWS definition	• improvement of water use, reduction in water-related impacts along value chain. • sustainable management of shared water resources in the public interest through collective action	AWS definition	Socially equitable, environmentally sustainable and economically beneficial water use	Collection of definitions
Addressee & Application	All sectors, global	Private sector, global	All sectors, global	All sectors, regional (EU, EFTA members, EU candidates)	All sectors, global	All sectors, global
Certification				EWS Bronze (>50% indicator compliance) EWS Silver (>70% indicator compliance) EWS Gold (>90% indicator compliance)	AWS Core (0-39 points) AWS Gold (40-79 points) AWS Platinum (80+ points)	

Table 2: Existing Initiatives and Certifications – Overview (AWS, n. d., 2014, 2017; Dalton & Newborne, 2016; EWP, 2012, 2017; EWS, n. d.; UN Global Compact, 2015; UN Global Compact Office, 2011; Water Footprint Network, n. d; WWF, 2013, 2014, 2017).

One of the most important observations one must make when putting the standard´s steps next to each other, is that there are two distinct spheres of influence. The first few steps of the initiatives stay in the realm of direct control where the actors can focus on their individual action and thus, their water management. The Assessment of the Water Footprint Network, for example, stays in this sphere because it is directed towards improving internal corporate behaviour (Water Footprint Network, 2017c). *"However, common to the standards/guides is the big step up to collective/cooperative action, mostly after the third stage of the process, that companies and other actors are encouraged to follow. This is where the shift occurs from management to stewardship, beyond Corporate Social Responsibility projects"* (Dalton & Newborne, 2016, p. 33). "Unfortunately, compliance is not being explicitly highlighted in the WWF/AWS steps because corporate headquarters will naturally hope that all operational sites

are compliant with the law. Yet assuming this is the case, especially in different countries with different legal requirements poses a risk" (Dalton & Newborne, 2016, p. 33).



AWS	WWF	EWS	CEO WATER MANDATE	WATER FOOTPRINT ASSESSMENT
Direct Sphere of control:	**Individual Action &**	**Water Management**		
1. Commit	1. Water Awareness	1. Decision Time	1. Operations	1. Goals and Scope
2. Gather & Understand	2. Knowledge of Impact	2. Advice	2. Context	2. Accounting
3. Plan	3. Internal Action	3. Implementation	3. Strategy	3. Sustainability Assessment
		4. Certification		4. Response Formulation
Indirect Sphere of Control:	**Collective Action &**	**Water Stewardship**		
4. Implement	4. Collective Action		4. Engagement	
5. Evaluate	5. Influence Governance		5. Communication	
6. Communicate & Disclose				

Table 3: Existing Initiatives – Steps (AWS, 2014; Dalton & Newborne, 2016; EWP, 2012; UN Global Impact, 2015; Water Footprint Network, n. d.; WWF, 2013)

THEORETICAL INSIGHTS ON WATER STEWARDSHIP

The following chapters provide an overview of critical success factors for Water Stewardship projects in general (chapter 5.1), critical success factors for stakeholder engagement (chapter 5.2), as well as a discussion of the applicability of different financing mechanisms (chapter 6). For this purpose, in a first step, the most important factors discussed in the existing literature and case studies were identified. Based on these insights, in a second step, those findings were presented to two experts to validate them based on their knowledge and personal experiences in Water Stewardship projects/initiatives. The first expert was Dr. James Dalton, member of the IUCN global water team based in IUCN Headquarters in Gland, Switzerland. Dr. Dalton is co-author of the IUCN Water Management and Stewardship Report (Newborne & Dalton, 2016). The second expert interviewed was D. Diana Rojas Orjuela, who works as Regional Advisor and Senior National Programme Officer based in Colombia for the SDC Global Programme Water.

5 Critical Success Factors and Challenges

For the interview part regarding critical success factors and challenges, the eleven general success factors found and the ten success factors for stakeholder engagement were visualized in two different figures (see appendix 2). During the interviews, however, it became obvious that certain factors of the two categories sometimes overlap, while others need to be subdivided further. The research done for this paper consequently led to a new model synthesizing the most important factors. In this consolidated model, both success factor categories, general and stakeholder-specific, are included. In the following, all success factors included in the consolidated model are discussed.

5.1 General Success Factors

Specific Purpose and Goal: In the study conducted by Schuett, Selin and Carr (2001, p. 590)[1], respondents pointed out that in order for a Water Stewardship project to be successful, it is necessary to have a specific purpose and goal. Dr. Dalton further specifies this success factor by emphasizing how important it is to have a problem that needs solving together with other stakeholders from the same watershed. The problem is what differs a Water Stewardship programme from a sole CSR exercise for a corporate, as it ensures that benefits are also brought to other stakeholders, not just the corporate. D. Rojas believes that a common goal is indeed needed, not necessarily a problem but a common purpose. To her, corporates need to engage as Water Stewards as early as possible, even before a problem arises. One reason is that when things are going well, one needs to understand why somethings works out well and what the foreseen risks are. This is a precondition to start working on them (e.g. change in rainfall patterns, increasing demand, water quality, etc). Another reason is that the longer one waits to solve an issue, the more layers of mistrust must be overcome later on, because many confrontations between interest groups might already have taken place. Notwithstanding, whether a Water Stewardship programme aims at solving an existing problem or one that is identified in a risk assessment before it becomes pressing, having a specific purpose and goal is crucial for success. An accurately defined goal not only enables interest groups to clearly express their demands during discussions with each other, but the process of problem determination among the different members of an interest group also helps them to better organize themselves. For this reason, this general success factor will be included in the consolidated model.

Representation of Relevant Parties: The representation of relevant parties was pointed out by respondents in Schuett, Selin and Carr's study (2001, p. 590). The study of a project in the Hai Basin in China on evaporation management also clearly highlighted the necessity of having the most important stakeholders at the table (Tindale & Sagris, 2013, p. 25). Incentives for farmers to take part in the project from an early stage on were created by facilitating community driven development and creating Water User Associations. The Hai Basin is just one of many examples from Tinadale and Sagris' cases in which stakeholder engagement played a crucial role.

Interestingly, Dr. Dalton believes that it is not always necessary to have each affected party at the table, while the most powerful and, thus, most important parties are indispensable. Which interest groups are relevant varies from project to project. There are cases in which some interest groups simply do not want to engage in a stewardship programme, for any reason there may be. Concerning this aspect, Dr. Dalton gives a theoretical example of a mining company polluting a river all the way downstream for agriculture. In such a case, *"the agriculture groups will come together and try to fix the problem as best as they can, but the mining company does not have to turn up"*. The World Water Council suggests fostering *public engagement* by local-level institutions (2015a, p. 113). In Dr. Dalton's opinion, however, public engagement is not always required and may in certain cases even be harmful. Dr. Dalton supported his view with an example of the public's negative perception of Coca-Cola in India. The corporate was accused

[1] In their study, Schuett, Selin and Carr (2001, pp. 588-589) identified key factors for successful natural resource management. Their sample consistent of 647 participants in 30 initiatives. The response rate was 43% and reflects a board range of initiatives to ensure an extensive application.

of water pollution, which supposedly resulted in the death of several people, even though Coca-Cola's responsibility was never proved. In such cases, it might be even impossible to get all affected parties around one table. Furthermore, too much public attention might limit the corporate's ability to take action, because negative press might lead to an even worse perception of the public towards the corporate, resulting in complete public opposition against the corporate. D. Rojas, however, emphasized that all interested parties need to be involved in the Water Stewardship programme at some point, even though *"you cannot start with everything at the beginning"*. She does agree that, in a first step, the most important parties should be involved, whereby those parties are important who actually generate an impact. However, she contradicts in the point that some parties might be left out throughout the entire programme, because each interest group has a specific leverage crucial for the long-term success of a programme. Both, private sector and civil society have strong power potential to influence and foster change. For the private sector, this power relates to the ability not just to engage with other stakeholders within the same river basin or watershed, but to also implement water initiatives within their own plants, along their entire supply chain, and in their other sites around the world. When it comes to civil society engagement, D. Rojas thinks that *"there is a lack of civil society participation and representation"* that needs to be addressed. In contrast to Dr. Dalton, what takes water initiatives beyond sole CSR projects is not the problem that needs to be solved (see success factor *Specific Purpose and Goal* above), but the involvement of civil society. Civil society is included in the process of analysing the priorities of water issues, and, thereby, has a say in what actions are taken. On the contrary, in CSR projects, corporates independently decide what they think is valuable for the community, which makes civil society a sole recipient of their service. To D. Rojas, however, a long-term solution is only possible, if all stakeholders are engaged *"by putting something on the table and gaining something from that"*.

In the consolidated model, the contradiction between engaging all stakeholders and just engaging the ones that are relevant will be resolved by including *Representation of Relevant Parties* as a general success factor and *Representation of All Affected Parties* as a success factor for stakeholder engagement.

Concrete and Valuable Benefits: If participants can identify concrete and valuable benefits from the project at the local or even individual level, the likelihood of a successful partnership grows (The University of Cambridge Programme for Sustainable Leadership, n. d., p. 15). Dr. Dalton pointed out that each party needs to *"see what is in it for them"*, which means that to engage in a discussion, each party needs to see concrete benefits from the programme to have an incentive to invest time, effort, and money. In connection to the first success factor a *Specific Purpose and Goal*, D. Rojas added the importance of short-term results. Actor's behaviours most likely change by really focusing on results, which validate the engagements of the different actors.

Therefore, we conclude that a perquisite to get all parties to the table is to highlight what they individually will gain from it. In theory, this might also be that stakeholders are not negatively affected. Since visible benefits are a precondition for stakeholders to engage in the first place, in the consolidated model, *Concrete and Valuable Benefits* are represented as a general success factor.

Reliable Data, Monitoring and Evaluation: Schuett, Selin and Carr report that the exchange of information is vital for a positive outcome of a project (2001, p. 590). All stakeholders

involved must be informed about progress and challenges. Dr. Dalton even goes one step further: *"The point might not be the exchange of information, but, in the first place, having good information as a success factor."* There are cases where companies genuinely misreported, although not on purpose. An example mentioned by the expert was a company that mixed the two measurement units; meters cubed and litres cubed. Another firm never adjusted the numbers in their statement on water volume used for production, which led to the company reporting the same data each year that got aggregated into the corporate's sustainability report. This inattentiveness is mostly due to the fact that this data does not concern companies' core business and, therefore, less attention is paid regarding data handling. It is essential to first ensure that the exchanged information is of good quality and that a high standard of reporting is achieved. Surprisingly, not only firms have to improve their standard of reporting, but regulators are concerned too. Dr. Dalton referred to a case in California, where the local water authorities, even though they possess very sophisticated data on ground water occurrence and volumes, keep data on hand-written files in an old cabinet. Therefore, to Dr. Dalton, *"stewardship provides the opportunity to really improve public sector thinking on water management as much as it does about the corporate role in water management."*

Both, Dr. Dalton and D. Rojas, agree that it can be a valuable starting point if all parties trust in certain data, because it proves which actor is responsible for which aspect of the problem. However, often data is not available or owned by the companies collecting the data. In D. Rojas' view, data must be owned by all stewards involved in such programmes, and it must also be them who decide which indicators should be measured. Once a programme has started, it is important to have proof that it actually produces results, as shown in the studies of Schuett, Selin and Carr (2001, p. 590) or the World Water Council (2015a, p. 113). Such prove is provided by final reports and evaluations. The problem is that there is currently a lack of monitoring and evaluation efforts in Water Stewardship projects and initiatives. If done thoroughly, monitoring and evaluation allows for documentation of learnings and documenting progress. The current studies available are often more focused on promoting a programme, providing "snap-shots" for marketing purposes and claims. This potentially weakens the concept of Water Stewardship by obscuring what really works (IUCN, 2016, p. 11). A practical example to strengthen this argument is from Kothapally, India (Tindale & Sagris, 2013, p. 30). One of the factors which led to the success of the sustainable watershed programme was the continuous monitoring and evaluation effort. After an initial baseline assessment, regular monitoring was conducted by researchers and locals. Subsequently, everyone involved was informed about progress and, thus, was able to understand the next steps.

Dr. Dalton pointed out that a high standard of reporting is necessary. This also refers to reports and evaluations. To ensure the success of projects, correct reports and evaluations are key. Reports can further constitute an effective instrument to make benefits visible for stakeholders from the same water basin, but also to engage stakeholders in different initiatives around other watersheds. Given that data facilitates the implementation of new Water Stewardship programmes by proving their necessity, monitoring helps keep track of the progress and project evaluation provides learning for other projects as well. As a result, it can be concluded that *Reliable Data, Monitoring and Evaluation* is a general success factor; it is therefore included in the consolidated model.

Collaboration with Authorities: At an early stage, national and local politicians should be persuaded to ensure their support and engagement for an initiative, and to guarantee political legitimacy (World Water Council, 2015a, p. 113). In the interview, Dr. Dalton stated that it is

"very much cultural about what political level of engagement you need, because some of the best activities do not have any necessary political support, but they do have government support." In Honduras specifically, there are a lot of local politicians that do need to be involved, because they give the public push and leadership, which is needed to engage in Water Stewardship. Whether local, regional or national levels of politicians are involved, the regulator must be part of every Water Stewardship programme. One reason, according to Dr. Dalton, is that authorities need to improve their capacities by getting a better understanding of the issue, what investments are needed, and how the private sector can help in other locations as well by engaging with to create the ability to replicate a specific model elsewhere. Another reason Dr. Dalton mentioned in the interview was that the legal framework can either facilitate or hinder Water Stewardship efforts. In Chile, for example, a new water trading scheme was introduced in the nineties (for more information see Budds, 2013). However, water rights were distributed without sufficient understanding of the river basins, which resulted in half of the farmers in the Huasco Valley, who originally were to be protected by this scheme, selling their rights upstream to the Canadian gold mining company Barrick Gold. Since the mining company withdrew this additional amount of water, the other half of the farmers were not able to make use of their gravity system anymore to water their crops. This example shows how legal frameworks aimed at solving water issues can actually hinder progress if they are miss-targeted. Thus, *Collaboration with Authorities* at any level is as a success factor for Water Stewardship.

Effective Leadership: In order to implement Water Stewardship measures on the ground, effective leadership is necessary (Schuett, Selin and Carr, 2001, p. 591). To D. Rojas, leadership can be exerted by any steward, whether this is a corporate, the civil society or the public. What matters is that the leader really has the power to push the agenda forward and engage further stakeholders. According to Dr. Dalton, whether a broker agency, such as an NGO or a local company, is necessary to facilitate discussions depends on the culture of the region. Sometimes, corporates themselves are strong leaders and do not need this support.

Financial Resources: Finally, financial support has to be ensured (World Water Council, 2015a, p. 113). To Dr. Dalton *"finance is not critical at this stage"*. His argumentation is based on that assumption that there must be a problem to be solved for a Water Stewardship project to start. Therefore, companies, once they understood the threat a water issue poses to their business, will make the money available to address and solve it. D. Rojas also sees many leverages to incentivize corporates to invest. However, it is important to understand that it is often more expensive if every corporate implements its own project, whereas matching funds/ co-financing helps ensure long-term financing. As will be discussed in detail in chapter 6, there are many different financing mechanisms available. At this point, it is important to state that project-specific advantages and disadvantages of different *Financial Resources* need to be evaluated to ensure the general success of a Water Stewardship project.

5.2 Success Factors for Stakeholder Engagement

One aim of the paper at hand is to get an insight on how to bring all stakeholders together and more importantly, work together. Therefore, in addition to the evaluation of general success factors for Water Stewardship in the previous chapter, this chapter takes a closer look at the factors relevant for a successful stakeholder engagement – which is at the core of the idea of Stewardship.

In an OECD survey conducted in 2014, 200 stakeholders from OECD and non-OECD countries, including governments, service providers, intergovernmental organizations, financial actors, river basin organizations, businesses, agricultural actors, civil society, trade unions, academia, consumer associations, regulators, and advisors were surveyed (OECD, 2014, p. 3). The results were subsequently published in the OECD report on stakeholder engagement for inclusive water governance from 2015. Ten conditions for the success of stakeholder engagement were identified (see figure 8). In the following, the factors considered as important by interviewed experts and integrated into the consolidated model will be discussed.

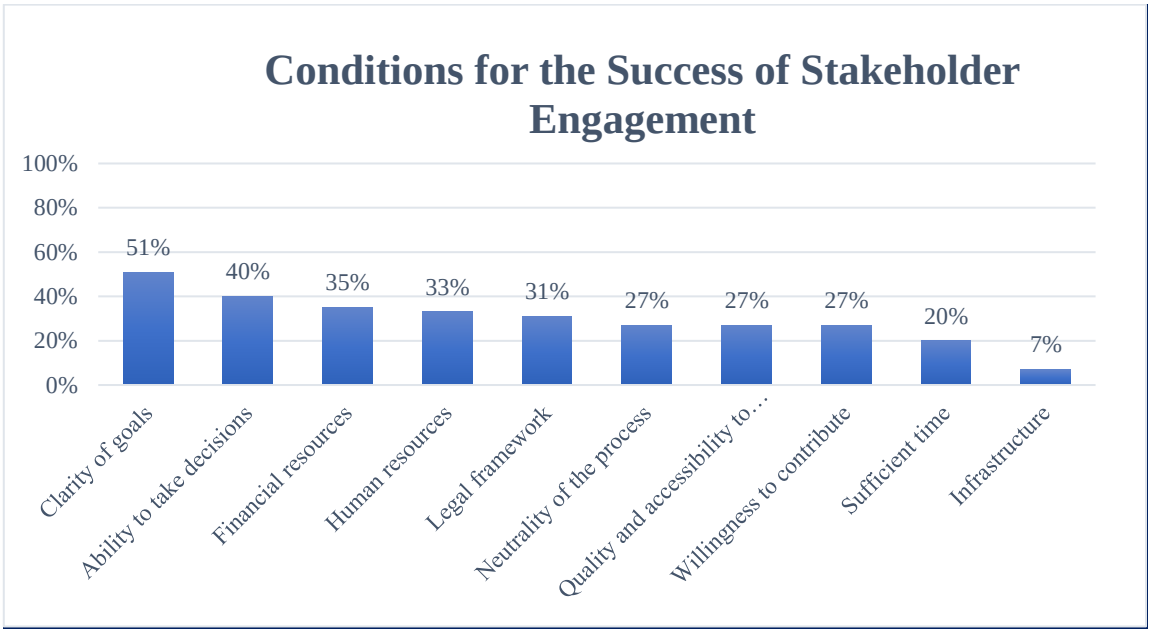


Figure 8: Conditions for the Success of Stakeholder Engagement (OECD, 2015, p. 169)

Clarity of Goals: 51% of the respondents believe that identifying and communicating common goals is important to succeed in collaborating (OECD, 2015b, p. 169). This also entails the roles and responsibilities of stakeholders. Decision-makers should disclose in advance what needs to be contributed and how the output will be used in order to avoid disappointments or false expectations. In the consolidated model, clarity of goals is included in two other factors: the general success factor *Specific Purpose and Goal* (see corresponding paragraph in the previous chapter), as well as Inter-*Stakeholder Communication* (see corresponding paragraph below). In the model, these two factors illustrate that stakeholders need to understand their own benefits of engaging in Water Stewardship, and second, the importance of communication about expectations and progress.

Ability to Take Decisions: Stakeholders should be able to influence and improve the outcomes, which implies that they have the ability to make decisions within their institutions as well as with other stakeholders (OECD, 2015b, pp. 169–170). This aspect was considered important by 40% of the surveyed stakeholders. Decision-makers need to be aware that they have to share the power to make decisions with other parties, possibly also with stakeholders who have conflicting aims or views. According to Dr. Dalton, especially corporates have to accept that they do not control everything. In order to make decisions collectively, power has to be distributed justly among the parties (OECD, 2015b, pp. 169–170). Stakeholders can be motivated to take on responsibility by incentives, grants or award mechanisms.

Know-How & Capacity: For 35% financial resources are key to stakeholder engagement (OECD, 2015b, p. 170). This goes hand in hand with the need for human resources, as put forward by 33% of the respondents. To promote engagement and create communication tools, financial resources are needed, along with competent personnel to implement measures. Furthermore, the staff needs to assist stakeholders to maximize their potential and thus directly influences the output and quality of decisions and actions. The staff needs to have in-depth knowledge on Water Stewardship in order to take the right decisions (J. Dalton, personal communication, March 24, 2017).

Willingness to Contribute: Only 27% of the respondents believe that the willingness to contribute is very important. In the contrary, Dr. Dalton believes that this aspects is probably the most important puzzle for stakeholder engagement. Since corporate companies are rather hierarchic, a change of one person in one position can be the end of a project (J. Dalton, personal communication, March 24, 2017). There is also a need for the support to conduct collaborative efforts. In particular, this applies to staff, finances and communication. (Schuett, Selin & Carr, 2001, p. 590) Lampe and Paplan (1999 cited in Schuett, Selin & Carr, 2001, p. 591) found that this support must come from stakeholders, leaders, key officials and the management alike.

Representation of all affected parties: For a detailed explanation of this factor, please find the paragraph *Representation of All Relevant Parties* in the previous chapter.

Inter-Stakeholder Communication: In order to take sustainable decisions, stakeholders need to be informed about issues related to the decision-making process (OECD, 2015b, p. 170). Therefore, the decision-making capacity depends greatly on inter-stakeholder communication. Inter-stakeholder communication involves several aspects: interpersonal communication; trust respect, and relationship-building; sufficient time; and stakeholder-specific data communication. Schuett, Selin and Carr (2001, pp. 590–591) argue that interpersonal communication is vital for decision making, meaning for example that federal agencies openly communicate with voluntary associations. Regarding this aspect, Dr. Dalton emphasized how important it is for the success of stewardship projects/ initiatives to have the right people within an organization. It is important that water issues are not only understood at the corporate level, but also by the individuals who are implementing these strategies.
Moreover, trust, respect and relationship building were identified to be a success factor (Schuett, Selin & Carr, 2001, p. 591). The project should enhance a working environment which enables these assets. One form could be to build a forum of experts as suggested by the World Water Council (2015a, p. 113). When talking about projects and also raising critical questions, it must be done so in a way that keeps everyone engaged and prevents actors from ending their participation and support. It is a prerequisite for future conversations and progress to take place. (J. Dalton, personal communication, March 24, 2017).
27% of the respondents named the quality and accessibility of information as an important factor. Some stakeholders, for example governments, need to be convinced to share information by showing the benefits that data sharing entails. Generally, information should always be easily accessible. Moreover, as stakeholders have different levels or no expertise in issues related to water, information has to be prepared and communicated in various forms, so that everyone has the chance to understand what is communicated. D. Rojas emphasized that reports and data should not be too complicated, because it is necessary that the information is understood by everyone, especially the public. Dr. Dalton, on the other hand, pointed out how important it is to present information stakeholder-specifically, especially to firms. To him, this

means presenting information in a way the stakeholder is used to, otherwise there is a danger of stakeholders to walk away.
Information communication is closely related to having sufficient time. This is important for 20% of the surveyed stakeholders in the OECD survey (OECD, 2015b, pp. ,170–171). Stakeholder engagement needs time to build up and later stakeholders need enough time to participate effectively. In practice, this means enough time for preparing meetings and to review the information at hand. Often, decisions are time sensitive. Nevertheless, a balance should be achieved between fast decision-making and involving all stakeholders in the decision-making process. Decisions take place at every stage of the project and, therefore, the process and timing need to be planned well in advance.

5.3 Consolidation of Results

The discussion in the previous chapters has shown that the success of a Water Stewardship project depends on a variety of factors – at the project and also at the inter-personal level. When implementing new Water Stewardship projects, the success factors can serve as a guideline or can be used to evaluate an existing project. It has to be noted that the model is not an exhaustive list of success factors.

Figure 9: Successful Water Stewardship – Consolidated Model of Critical Success Factors (own compilation)

The outer circle carries the general success factors which should be present for successful Water Stewardship. Those factors are a precondition for the next step - stakeholder engagement. The critical success factors for stakeholder engagement are listed in the middle, light blue circle.

6 Financing Mechanisms

Literature on the financing mechanism for water in general and Water Stewardship in specific is scarce. The World Water Council (2015, p. 20) argues that *"[t]here is no "model" for financing water. Each country follows a system born of its own distinctive features"*. Thus, the transnational exchange of information can be valuable in order to determine which models are most successful (World Water Council, 2015, p. 20).

An important distinction needs to be drawn between *water services*, which can usually be sold, and water as a *public good*, consisting of water resource management and development, flood protection, or ecosystem preservation, to name a few examples. Water services have a larger potential to be financed, because they can build on governmental and commercial funding sources, whereas water resource management and stewardship have much more limited financial options (World Water Council, 2015, p. 20).

The World Water council (2015, p. 28) presents three categories and sources of finance for water: 3Ts and other contributions to recurrent finance; loan and bond finance; and equity finance (see Table 3).

3Ts & Other Contributions to Recurrent Finance	Loan & Bond Finance	Equity Finance
Tariffs & User Charges	Public Development Banks	Institutional Investors
Taxes (National Budgets)	Commercial Banks (inc. Project Finance)	Sovereign Wealth Funds
Oversees Development Aid (ODA)	Institutional Investors	Specialised Water Funds
Philanthropic Funds	Sovereign Wealth Funds	International Financial Institutions
Property Taxes and Other Levies & Contributions	Public Bond Issue	Private Equity Funds
Self-Finance by Users	International Financial Institutions	Venture Capital
	Project Bonds	Public-Private-Partnerships
	Microfinance	Individual shareholders
	Climate Finance	
	Export Credits	
	Individual Bond Holders	

Table 4: Three Categories of Financing Mechanisms (based on World Water Council, 2015, p. 28)

In the following, the different financing mechanisms will be presented and evaluated. Not all funding sources mentioned above are applicable to the special case of Water Stewardship. Therefore, drawing on cases, further literature and the two expert interviews with Dr. James Dalton and Diana Rojas Orjuela, only the relevant sources will be discussed. The European Water Initiative (2013, p. 7) noted that regarding stewardship, a great variety of combinations of hybrid financing models are possible and observed in practice.

6.1 3Ts & Other Contributions to Recurrent Finance

In cases where the aim is to reduce pollution in a river basin, **tariffs & user charges** are a useful instrument. This relies heavily on the principle known as "The Polluter Pays" (World Water Council, 2015b, p. 23). This principle is part of the "3Ts", developed by the OECD, and means that all finance is drawn from tariffs, taxes or transfers from aid or philanthropy (EUWI, 2013, p. 5; World Water Council, 2015b, p. 24). For Example, the International Commission of the Congo-Oubangui-Sangha Basin receives its funds through a 1% levy on import duties for the

regional members (EUWI, 2013, p. 7). On the same token, a beneficiary can share the burden, being a farmer, multinational company or the public (World Water Council, 2015, p. 26).

Public grants and subsidies contribute to a large amount of funding for a whole variety of projects, also for Water Stewardship. It was estimated that 75% of finance for water-related projects comes from governmental sources (OECD; 2002, p. 38; Rodriguez et. al., 2012 cited in World Water Council, 2015, p. 22). Subsidies can also encourage self-funding initiatives or other forms of engagement if they target water users (EUWI, 2013, pp. 6–7). Financial support from public bodies also has an ethical component. D. Rojas argues that public finance has been part of water projects in the past and should also be part of public entities' responsibility in the future.

Official Development Assistance (ODA) funds the largest programmes on Water Stewardship, such as the International Water Stewardship Programme (IWaSP) and other work under various public-private contracts for water supply that touch upon Stewardship (J. Dalton, personal communication, March 24, 2017). ODA for water and sanitation has been rising since 2001. In 2012 commitments from members of the OECD Development Assistance Committee (DAC) totalled to almost 10 billion US Dollars. According to the DAC, the overall trend is a rise in the share committed to the aid to water supply and sanitation (OECD DAC, 2015, p. 1). This is in line with the importance and pressing nature of the resource, as discussed in chapter 1.1. When ODA comes into play, it usually involves big platforms like the IWaSP. The IWaSP follows a co-financing model, where a specific amount of donor funding is excepted to leverage the same amount of additional finance from the private sector. However, according to Dr. Dalton, this is very unlikely, as corporates are not interested in match funding. According to Dalton, the more common model is that the corporate pays 20-30% and the donor covers 70-80% of the project's costs, which reflects on the core problem. The purpose of a corporate is to generate profit and not to function as a donor. Thus, if a company invests in the water quality of a river basin, this is because it will benefit them. According to D. Rojas, companies finance the investments required to reduce their water footprints and their engagement in territorial actions to improve water management.

Non-Governmental organizations, corporate philanthropic funds and Corporate Social Responsibility funds are also engaged in the financial aid to water stewardship. The Bill and Melinda Gates Foundation, categorized as a philanthropic fund, spent 90 million US Dollar in water, sanitation and hygiene projects in 2013 alone. Overall philanthropic donations cover amount the same amount as ODA. (World Water Council, 2015, p. 30). Companies often set up philanthropic funds themselves from which they can finance water stewardship initiatives. Companies usually resist to pay such projects from their core budget because this would influence their key performance indicators and the benefits from the project cannot be shown easily in financial terms. Thus, a company investing in water stewardship will likely use the company's philanthropic fund, if available, to fund the project. (Newborne & Dalton, 2016, p. 100).

Self-finance by water users can be observed quite regularly in developing countries. Farmers, businesses and households are usually very willing to invest in the water they need to irrigate

their fields or for daily routines in the family. Another incentive for house owners is to invest in the environment to raise the value of their property. (World Water Council, 2015b, p. 30)

6.2 Loan & Bond Finance

When borrowing money, repayment period, grace periods, what kind of security is required are all important aspects that influence the attractiveness of a loan or bond. Especially for water projects, another important factor is whether the repayment has to be in foreign or local currency. If it is in foreign currency, the borrower has to consider possible exchange rate variations, which could be to the benefit, but more likely to the disadvantage of the borrower. In cases where not enough local capital is available for a loan, like in a developing country, money needs to be borrowed from international banks and IFIs, which is harder if it is not possible for them to raise funds locally. (World Water Council, 2015b, p. 31)

Public development banks are state owned and usually lend money for longer periods and at a lower interest rate, which is very beneficial for water stewardship projects. (World Water Council, 2015b, p. 31).

Another source of finance is **International Financial Institutions** (IFIs). How much IFIs are able to invest depends on the region. The Asian Development Bank projected to invest 2 billion USD annually whereas the African Development Bank could only approve 200 million USD for water and sanitation projects. The most well-known example is the World Bank, which invested more than 4.332 billion US Dollars for water related projects at a very favourable rate in 2014. (World Water Council, 2015b, p. 33).

In China, cities like Guanding and Guanxi have taken on **(bank) Loans** for water projects, in this case mostly flood control. These loans are then being repaid by the earning from land sales or flood control security fees (OECD, 2012, pp. 38–39).

6.3 Equity Finance

In this category, the source which is most applicable to water stewardship are **Public-Private Partnerships** (PPPs). *"They are reasonably effective, because there is a transactional relationship"*, according to Dr. Dalton. At the beginning of the partnership, it is clearly communicated who puts in how much resources and what benefits the party expects in return. (J. Dalton, personal communication, March 24, 2017) Perards (2012, cited in World Water Council, 2015b, p. 36) found a doubling in the number of PPPs in water infrastructure from 2001-2010 compared to 1991-2000. Contrarily to what might appear evident at first sight, private companies usually do not bring large amounts of finance to projects beyond their factory fence. They contribute mostly with their know-how and practical support. The finance comes from public sources in most cases (Newborne & Dalton, 2016, p. 9). At the same time, companies are willing to invest in projects if it reflects in their business profits (D. Rojas, personal communication, April 13, 2017). However, the form of the partnership depends on socio-economic, environmental and institutional factors, and is likely to take a different form from project to project (WWF, 2013, pp. 16–17).

An interesting example of a PPP is the case of the WWF and the Coca-Cola Company in Australia. Besides investing in 50 global water funds, Coca-Cola and WWF try to improve Water Stewardship along the supply chain. (Coca-Cola, n. d., pp. 7–8). Sugarcane is, besides water, one of the key ingredients for Coca-Cola's products. Australia produces large amounts

of sugarcane. Through unsustainable farming practices, pesticides, contaminants and other pollutants can enter the water and consequently destroy the Great Barrier Reef. Through a collaboration of sugarcane farmers, WWF, Coca-Cola, government and local agencies, the group is trying to bring sustainable farming methods into practice. Moreover, they work on improving the quality of water run-off flowing into the Reef. (WWF & Coca-Cola, 2017) WWF and Coca-Cola have powerful brands. Dr. Dalton called it *"a marriage made in heaven"* (J. Dalton, personal communication, March 24, 2017), from a marketing perspective. Nevertheless, the WWF's priority is to stop bad practice and promote good practice. This can prove to be difficult if an organization gets carried away in a partnership and delivers to the corporate's needs. In many cases, companies have difficulties to understand how a such partnership works, as the project funded is not there to simply fulfil the company needs. (J. Dalton, personal communication, March 24, 2017). Therefore, PPPs can be a valuable source, however, the terms of the partnerships have to be clear for all parties.

Another source of equity finance are **water funds**, as already mentioned above. Globally, there are several funds specialised in investing in water projects. Picet is the oldest and largest with a portfolio size of 2.828 billion Euros. (World Water Council, 2015b, p. 34) The basic idea of a water fund is that money is invested to solve a problem that occurs upstream, and, therefore, affects stakeholders downstream. (J. Dalton, personal communication, March 24, 2017). An example is the Upper Tana-Nairobi Water Fund, launched by the NGO Nature Conservancy and partners such as East African Breweries Ltd., Coca-Cola, Nairobi City Water and Sewerage Company (NCWSC), and electricity provider KenGen. The Tana River provides 95% of the water supply of Nairobi (Hatcher, 2015). The forests on steep hillsides and areas of wetlands have been converted to agricultural land since the 1990s. This removed the natural areas for storing run-off water and soil from the land. This resulted in soil flushing into the river in case of rainfall on farms. The productivity of farmers is reduced and sediments flow into the river. This increased sedimentation makes water treatment challenging, while distribution facilities are unable to deliver, causing service disruptions for entire weeks (Nairobi Water Fund, 2017). Coca-Cola has a pressing reason to invest into the fund, as the company relies on clean water for bottling. Moreover, when public utilities close down water pipes, this slows down water bottling and directly increases Coca-Cola's production costs. The downside of such funds is that output or results are not monitored in most cases. Thus, it is not clear whether the investment pays off. (J. Dalton, personal communication, March 24, 2017).

6.4 Implications

In general, there should not be only one source of finance for a project. The impact that a single source can generate is limited. Thus, a combination of financial sources is beneficial to overcome the limitations a capped fund would mean (D. Rojas, personal communication, April 13, 2017). Based on the conducted interviews, ODA, PPP and philanthropic funds are the most common financing mechanisms. Nevertheless, funding sources which have not been discussed here are certainly possible, as this depends on the individual case of each project. In general, those who benefit or pollute are a first instance to take into consideration for funding.

WATER STEWARDSHIP IN PRACTICE

The first two parts of the paper have laid the basis for the third part; a review of three cases with the objective to gain practical insights on the implementation of water initiatives at the field level and draw recommendations based on those experiences.

7 Insights from Practical Examples

7.1 Methodology: Case Selection & Limitations

This part aims to look at three practical examples to mirror how critical success factors and financing mechanisms discussed previously play out in practice. The focus of the insights provided lies on the specific project. As far as companies are concerned, it will not be discussed to what extent the discussed examples and the companies themselves can be qualified as good Water Stewards according to the definitions given earlier. Rather, the interviewees provided their experience and concrete example to explain how they see the factors discussed in the previous chapters.

Given the context in which this study has been conducted, the case studies are subject to the following limitations:

- First, no exhaustive screening of existing cases has been done prior to case selection. Comparability between cases was not a criterion. Cases have rather been selected due to their specific characteristics and insights they can give regarding the question of Water Stewardship. Importantly, not all projects are marketed under the label of Water Stewardship, even though all of them entail clear elements of the latter. The aim is not to benchmark those programmes and elaborate them in general from a “best-practice” perspective, but to highlight interesting elements against the backdrop of the theoretical part of this paper.
- Second, the case study was done on the basis of project material and an interview with an involved expert, responsible for the project. Consequently, there is a risk of subjectivity, as a project might be viewed differently depending on the function the person has.
- Thirdly, an interview guideline with semi-open questions was used for the interviews. The duration was between 1-1.5h, depending on the availability of the interviewee. As interviews have been not all been conducted by the same author, there are differences in the interview format, which might have influenced outcomes.
- Finally, no standardized procedure for data evaluation has been used. Instead, after the transcription of interviews, the points perceived as most interesting by authors have been selected for further discussion in the paper. The case study below subsequently does not contain all the information gathered on the cases, but presents a selective choice of interesting points raised in the discussions.

Against the background of the limitations mentioned above, results arising from this primary research conducted are not fully comparable and not exhaustive. Therefore, the extent to which results can be generalized is limited. Nevertheless, these cases give interesting insights into practice and raise important points which could be further researched in future studies.

The following three examples have been selected:

Project	Main Objective	Reason for Selection	Data Collection
Nestlé, Henniez	Reduce water pollution by farmers surrounding a water source used for bottling water	Older project and complex situation dealing with farmers and authorities	• Project Documents • Interview with C. Egger (Nestlé Waters, March 24, 2017, Henniez
SAI Platform, Huelva, Spain	Reduce water use, mainly to support conservation efforts in the Doñana National Park and avoid depletion of groundwater resources due to overexploitation in agriculture	Example of Water Stewardship along the supply chain; initiatives by buyers and interesting insights in terms of dealing with conflicting interests	• Interview with K. Rutishauser (Migros), April 25, 2017, Zurich
WAPRO Helvetas, 4 countries	Very large projects, covering 6 countries and different water issues. 3 important pillars: • Push: Knowledge GAP • Pull: Lack of Incentives • Policy: Inappropriate Water Governance	Although only 2 years old, one of the most comprehensive projects regarding Water Stewardship	• Publicly available information, like project fact sheet • Interview with S. Kaegi (Helvetas), April 28, 2017, Zurich

Table 5: Overview Practical Examples (own compilation)

7.2 Case Nestlé, Henniez

Project Metrics

Overview	
Name	Eco Broye Programme
Main Objective	There are three main objectives of the Eco Broye Programme: • First, to ensure the sustainability of the environmental resources, and water in particular, a special focus lies on water valorisation, to sustain high water quality in the long-run • Second, to harmonize the local economic development programmes with the goal of preserving the environment. This shall be done in cooperation with all regional actors • Recognition of Nestlé Waters as responsible stakeholder within the region
Duration	Ongoing initiative. Eco Broye started in 2009, when the Henniez well was transferred to Nestlé Waters. Some measures were already taken before 2009, such as the planting of 70,000 trees
Location	Henniez, Switzerland
Project Partners & Responsibilities	• The initiative was launched by Nestlé Waters. By now 29 farmers participate in the biogas collaboration and 72 farmers are part of the ecological network • The initiative is taking place in collaboration with local and national authorities
Main activities	**Three key initiatives:** • **Biogas**: The core idea of the biogas plant is to keep farmers from polluting the soil by the distribution of manure, by giving them the opportunity to turn their manure in sustainable energy instead. • **Phytoepuration**: The improvement of natural water filtration includes measures to control risks of accidental water pollution and pilot projects for natural filtration that could later be used for industrial sanitation processes • **Ecological Networks**: Restauration of the biodiversity in the catchment area of the well. This includes creation of edges around trees, stream renaturation, plantation of old crops and fruit trees, etc.

Table 6: Project Metrics: Case Nestlé, Henniez (own compilation)

The biogas plant in Henniez is often mistaken for a sole sustainable energy project done by Nestlé. In fact, at the core of this project lies a Water Stewardship Initiative aiming at preserving the Henniez water well, and the water quality in particular. The biggest threat to the water quality are the farming activities, manuring activities and the use of pesticides in particular. Therefore, Nestlé Waters tried to create a 'win-win-win situation' for Nestlé Waters, the local farmers, and the natural environment alike. This was achieved by keeping farmers from manuring within the 200 hectares catchment area of the well by enabling them to convert their manure into sustainable energy. Since 2014, 29 local farmers bring 30'000 tons of manure annually to the biogas plant, where about 7 GWh of sustainable energy can be generated per year. This is enough energy to not only run half of Nestlé's Henniez factory, but also provide electricity for 1,000 households in the region. The waste product of the manure can be re-used as dung, and because it is put directly into the soil it is less harmful to the well. In addition to the biogas plant, there are also other measures to improve the water quality. This shall be achieved by a restauration of the biodiversity, which, in turn aims at improving the natural filtration of the water.

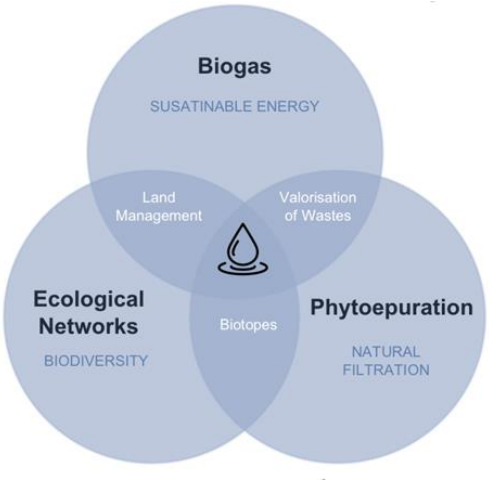


Figure 10 The components of Eco Broye (Nestlé)

Critical Success Factors

Effective Leadership: The advantage of the Eco Broye initiative in Henniez is the fact that there is a strategy at three levels: Nestlé, Nestlé Waters, and at the site level. Therefore, at the corporate level, Nestlé has a strategy and an ambition, which is driving the way the company is doing business, as well as the way it is advancing water resource management. The same holds for Nestlé's goal of being an effective leader: the company wants to be a leader in water resource management; globally, but also in specific projects and initiatives. Since C. Egger is responsible for the water resource management globally, including the 100 factories Nestlé has world-wide, a certain coherence in the company's approach is ensured not just by the strategy at the corporate's level, but also by himself. In the interview, however, he pointed out that *"each site is different. The hydrogeology, which includes where the water is coming from, where it is caught, where it is going – all of this is completely different in each site. Nevertheless, the approach of preserving the integrity of the water while exploiting it is similar – and the mind-set for this is this Water Stewardship."*

To C. Egger, Water Stewardship means understanding first that Nestlé cannot manage water alone. Other stakeholders from the watershed need to be involved to preserve the integrity and the sustainability of the resource. Nestlé aims at being the absolute leader, or at least one of the leaders, in terms of water management for two reasons: To ensure the integrity of the natural resource, the water, and to build a good relationship with the local stakeholders. Only this way the license to operate for Nestlé is secured in the long-run. Nestlé's potential to exercise leadership by convincing other stakeholders to engage in Water Stewardship initiatives was also named as the most important success factor by C. Egger.

Representation of all affected Parties, inter-Stakeholder Communication: C. Egger admitted that it was really difficult in the beginning to get the farmers, the most important stakeholder, around the table. In the beginning, there was a rather negative perception towards the big multinational coming into this remote area, buying the area to do business. It took a couple of years to convince the farmers and the local stakeholders that Nestlé is an actor who they benefit from working with over the mid- and long-term. C. Egger convinced the farmers by bringing all of them to Vittel in France, where they were able to visit farmers who are participating in similar Water Stewardship projects with Nestlé Waters. In Vittel, they got the chance to exchange experiences and ask questions directly to the local stakeholders. After their visit in France, 30 or 40 farmers constituted a committee. *"In the beginning, it was more in the mind-set of them being at least together against the multinational. But very quickly, they understood that we really wanted to work with them on relevant solutions."* By convincing them to collaborate in a proper way, they are today, eight years later, even implementing new projects together with Nestlé. However, not all farmers could be convinced. About three to five are still reluctant to collaborate with Nestlé. C. Egger hopes that when they see all the others who are taking part benefiting from it, they will still engage at some point. On the other hand, the ecological network is even becoming too big for projects with the Swiss confederation. Therefore, two additional biodiversity projects are taking place North and South from Henniez with all actors. The same was the case with the biogas plant: it was not possible for the totality of the area to participate, which is why the number of farmers engaged will remain to be 29. C. Egger also stressed how important it is that not just the farmers, but also all other stakeholders are involved: Even a supposedly unimportant neighbour of the factory can make a big buzz, which can cause a lot of trouble for the firm. As a consequence, it is important to consider everyone, and not to forget anyone in the stakeholder screening.
When the initiative was launched, there was no targeted stakeholder communication. The focus was mainly on inviting everybody to the table by communicating openly. However, having sufficient time for communication was never an issue experienced by C. Egger. To him, when engaging in a long-term initiative, it takes a very long time to work on the right mind-set of the stakeholders. This is why he thinks that time should not be an issue. On the one hand, one needs to spend as much time as necessary to create an impact, and at the other hand, there is never enough time.

Reliable Data, Monitoring, and Evaluation: First of all, for Nestlé Waters, it is important to know, what the local water situation is and what they are confronted with in each site. This is necessary to know precisely, which volumes each actor can withdraw from the spring without putting its integrity at risk. This production-related knowledge is summarized, including all factories world-wide, in the Nestlé Waters Management Report. In general, Nestlé Waters collects more data than they are requested to by the authorities. In accordance with the Water Stewardship mind-set, the company also plans to share the majority of information with the stakeholders within the respective watersheds.
It is also important to have sound data to demonstrate the relevancy of a project to shareholders within the firm, as well as to other stakeholders from the site to convince them to engage. However, this means that data must be collected specifically from each site, because different sites are not comparable. As an example C. Egger mentioned the Water Stewardship projects Nestlé Waters is doing in Vittel. According to him, it would not have been enough to show them the data proving the success of the projects in Vittel, because these data are not comparable due environmental and economical differences. Therefore, farmers from Henniez were taken to

Vittel. At the beginning of the project, when no data was available, it was difficult to convince stakeholders. C. Egger thus highlighted the importance of adequate and correct data to prove success.

Ability to take Decisions: When asked about the importance of this success factor, C. Egger responded that this point was important for the Eco Broye initiative at two levels: First at the level of the initiative, and second, within the company itself. At the initiative level, Nestlé is just one stakeholder among others and needs to find a way to agree on solutions with others. Within the company itself, this was challenging, because decision-making processes take a much longer time than the ones from farmers. To three framers, this was so much of an issue that they started their own biogas plant without Nestlé's participation, because they did not want to wait any longer for them to arrive at a decision. Therefore, even though Nestlé also built a biogas plant in collaboration with other farmers some years later, the collaboration with these three farmers did not work out. C. Egger pointed out that this problem occurs rather often when big corporates are involved, because several people at different firm levels need to give their agreement before actions can be taken within a site.

Collaboration with Authorities: Since the initiative is in Switzerland, authorities had to be involved, nothing could be done without their approval. The main difficulty was to handle all the different interests of these authorities. C. Egger gave the following example: After they had submitted a list of plants they wanted to use for their natural filtration system, the authority of Fribourg accepted the list while the one from Vaud refused it, because some plants were not desired in this area. Therefore, they had to communicate closely and coordinate with all the different authorities – even though they were colleagues. What is interesting is the fact, that authorities were brought together by this initiative, as they had beforehand never been working with each other. Although authorities tackle the exact same issue, differences in perspective exist among them.

Financing Mechanisms

Regarding financing mechanisms, insights provided by this initiative are rather limited. In the beginning, the difficulty regarding financing stemmed mainly from wrong expectations other stakeholders had towards Nestlé Waters. C. Egger explained that some farmers thought Nestlé would just buy the entire area and hire the farmers. Egger thinks that, at this point, Nestlé Waters was viewed as a potential cash provider by other stakeholders. Some of them were ready to just follow the companies' instructions as long as they got paid for it. Therefore, the first hurdle C. Egger had to take was to explain that this was not in the interest of Nestlé Waters and they both could benefit more by engaging actively.

In a later stage of the project, the largest challenge was to convince everyone within Nestlé Waters to provide the financial means needed for the initiative. This took a lot of time, because the relevancy of the project had to be proven several times before its financing was approved. C. Egger pointed out that a project can become even more relevant if it does not cost too much, because less expensive projects tend to be more sustainable.

7.3 Case Ferdoñana Project, SAI Platform, Huelva, Spain

Project Metrics

Overview	
Name, Location	Ferdoñana Project for Strawberries & Berries, SAI Platform Huelva Province, Spain
Main Objective	Promote the legal and efficient use of water and soil among strawberry producers
Length	Ongoing Programme, first activities in 2012 by individual companies, joint action via the SAI Platform started in 2015
Project Partners & Responsibilities	International strawberry buyers (Migros, EDEKA, Unilever, Danone, …), SAI Platform (Project Coordination), WWF, Fresh Huelva (Producer Organization)
Main activities	3 Pillars/Workstreams: • Development of Tools to evaluate compliance with new legal framework (came into force in 2014) • Stakeholder Involvement (=Government Dialogue) • Farmer Trainings Further activities by certain buyers (e.g. Migros): Farmer audits based on specially elaborated checklist (since 2012, baseline study to evaluate potential to water use, lobbying at the government to push for clearer regulations (before new law) and now for consequent implementation of new legal framework

Table 7: Project Metrics: Case Ferdoñana Project, SAI Platform, Huelva (own compilation)

Although this initiative has started very small, triggered by public pressure of the WWF to protect a conservation area, activities have over time become part of buyers' sustainable sourcing strategies. The issue is now one of the fundamental questions in their core business and international strawberry supply chains in general. This initiative can be interpreted as a bottom-up enforcement of the implementation of a new legal framework in strawberry cultivation by buyer pressure via supply chains (including checklists, audits, trainings etc.). Looking at the Stewardship steps of the WWF, this initiative indicates action at level 4; collective action (see figure 4). Buyers realized that their leverage to promote a change is bigger if buyers, strawberry producers and civil society organizations collaborate. According to K. Rutishauser, the fact that collective action between the WWF and a group of buyers has been established must be seen as one of the biggest successes of this initiative. She argued that "*it is how sustainability engagements in supply chains should be done; they should be pre-competitive at the farmers level – how the engagement is communicated to consumers is a different story"*. This statement indicates that firms move beyond CSR activities and acknowledge that collaboration is necessary to address water issues. The government does so far not play an active role in the project, but government dialogue to support the implementation of water measures and enforcement of laws exists. In this sense, the initiative also tries to influence governance, which would equal step 5 of the WWF's Stewardship definition. However, although efforts are thought to be led by producers and the government in the future, the lobbying for the introduction of catchment-wide water governance with Water User Associations and all other stakeholders (e.g. civil society) is not yet being discussed. There is, so far, no active participation of government or other civil society organizations in the process to moderate water governance. As stated above, government is insofar involved as there is a constant dialogue between the government and SAI members to support the implementation of the new legal framework. The WWF has played an important role from the beginning, however, the role was not neutral or moderating, but rather focused providing information on water practices and lobbying for compliance.

Critical Success Factors

The most urgent success factors are selectively discussed and illustrated with anecdotal examples. The information has been gathered during the interview with K. Rutishauser on April 25, 2017.

Specific Purpose & Goal: This factor has been the starting point of this project and is still one of the main drivers to promote change among water users. The promotion of legal and efficient use of water and soil among strawberry producers is linked to the aim of ensuring the protection of the Doñana National Park. The latter has been recognized as UNESCO world heritage in 1994 and is an area with a unique biodiversity. Its salt march is a breeding ground and transit point for thousands of birds and water plays a crucial role for conservation. Strawberry production in the region puts the park at a risk by an excessive use of ground water. The fact that those farming activities are linked to bigger context has allowed the WWF to bring the subject on the agenda of buyers and keep the issue in the media, thereby creating a sense of urgency among strawberry buyers.

Concrete & Valuable Benefits, Willingness to contribute: According to K. Rutishauser, the probably most important success factor to promote the responsible water use amongst strawberry producers is the presence of tangible benefits for these farmers. The business case must first be put together, and in a next step communicated to producers. Regarding this aspect, the ability of the other stakeholders (mainly buyers) to "tell the story right" is key. This relates to *inter-Stakeholder Communication*, also one of the factors in the proposed model. As water is not always seen as the most urgent issue by the farmers, they have to see what is in for them. In the present case, studies with two strawberry producers on water use mandated by the Swiss retailer Migros indicated that up to 30% of the water can be saved, while having the same productivity and increasing quality (higher sugar content). Although water does not have significant costs to producers, the fertilizer induced via drip irrigation can be reduced through water saving practices. Fertilizer being one of the most important production costs, this provides a tangible incentive for farmers to adopt the propose practices. When looking at the farmers, the *willingness to contribute* is crucial and seems to be linked to the benefits users need to see to be interested in participating. As K. Rutishauser emphasised, it cannot automatically be assumed that all stakeholders are interested in Water Stewardship and willing to take action.

Collaboration with Authorities: The Ferdoñana Project shows the importance of a legal framework as basis for action. In the present case, buyers support the government in implementing a politically sensitive reform, but also need governmental support by having clear legal framework and an active government, which engages in law enforcement. When first activities (e.g. audits) by buyers started in 2012, there was no spatial planning law, and attempts to evaluate wheatear producers were farming on legal or illegal land, and using water according to law (e.g. no illegal groundwater pumps) failed. Buyers consequently wrote letters to the government (national and provincial level) to push for the release of the new special planning law clarifying the issue. This law has been enacted in 2014, but given the political sensitiveness of the issue and complexity of situation, the enforcement of the new framework is not assured easily. It is expected that the clarification of legal issues will still take several years, as every single farm will have to be checked. In some cases, there is room for interpretations and

producers might have objections, in other cases, parcels have no chance to be legalized and farms will need to be closed. Regarding illegal water pumps and boreholes, some farmers are already no longer using them, as they receive water from the governmental water transfer system. In other cases, however, farms do not have any chance to get water and it is not clear what happens to those. The argument of the producers is that jobs will be lost, which is economically not good for the region. A special work stream for "stakeholder engagement", entailing a dialogue with authorities to reinforce the support from buyers to enforce the new law is therefore one of the main pillars of the project. K. Rutishauser argued that the governments' role is primarily to provide the conditions. It does not play an active role in this initiative, because this could reduce farmers' motivation to participate in this private initiative.

Representation of all affected Parties: A very interesting component is how the representation of all affected parties has played out. Given the origin of this initiative, the WWF and buyers have been the major project leaders, while the producer organization named Fresh Huelva has not been part of the project organization from the beginning. This has led to tension last year, as the producer organization did refuse to participate in official project events. Consequently, the project organization was adapted, giving farmers a stronger voice and more power. On the one hand, their expertise will directly feed the preparation of training modules, on the other hand, Fresh Huelva will be part of the core project team. This will allow to build ownership, which is fundamental for the sustainability of this project. Further, it will bring two rather opposed parties (WWF and producers) together and foster dialogue. In the best case, this creates trust and a mutual understanding. According K. Rutishauser, the idea is that producers will see the business case for responsible water practices and run trainings and the implementations of activities on their own. Including them in the project organization and building ownership might lay the basis for them becoming Water Stewards themselves.

Inter-Stakeholder Communication: The sharing of information and alignment of objectives is key and becomes more complicated the more parties are involved in a project. In the Ferdoñana Project, there are many different communication levels. Already the communication among all buyers is challenging. The project has grown from a few to now 10 participants. As new members have joined the initiative, fundamental questions on priorities were discussed regularly, making coordination and strategy development time-consuming. K. Rutishauser emphasized that it is challenging to integrate more and more participants in such a project in a manner that they have a voice, while keeping the focus on its goals and impact. This statement indicates that water governance including many different stakeholders might become more challenging the more inclusive it is. Effective leadership and clear organizational structures might help to avoid confusion and promote progress.

Reliable Data, Monitoring & Evaluation: According to K. Rutishauser, this factor plays not only an important role, but is gaining in importance in general. Not only is monitoring important to have a solid basis for communicating results and reporting, it is key to monitor progress and adapt activities if necessary. In the present example, measuring turned out to be more complex than initially thought. Generally, farmers first have to realize how important it is to measure the water use and then get equipped with adequate measuring instruments, which has been done in the wake of this project. During the first activities with checklists in 2012, buyers realized that many producers measure their water use only during the vegetation period, while water use measurements should already start during the preparation period, when farmers work on the

land and use water to soften the soil after the summer months. These experiences are now being integrated into to the current project activities, in which uniform measurement guidelines and sensors are enforced in order to reach comparability. Water use limits are set and enforced by the government and covered in the new spatial planning law. Water guidelines are defined on the basis of the whole river basis and targets defined per hectare. However, opinions on how sustainable the defined targets level diverge. For the moment, the focus is on compliance.

Financing Mechanisms

Concerning the financing mechanisms, this project does offer only a limited insight. The project is currently financed by the SAI Platform, which is funded by the buyers. Finances have so far not been an issue, as the costs per member are limited and the number of contributors have risen. At the level of the farmer, drip irrigation is already standard, while measurement instruments for water use have been offered for 100EUR in the context of the programme. The implementation of good practices itself does not necessarily cost for the farmers, but is more a question of mindset and behavioural change. Fortunately, there is a business case of implementing the recommended practices. Together with the pressure from buyers, farmers therefore do follow the recommended practices. Interesting, however, is that in the case in question, buyers have taken action to absorb the costs that are not covered by the strawberry farmers themselves. This indicates that supply chain actors of exportable crops might play an important role in financing water projects within their supply chains.

Further interesting Insights

Conflicting Interests & Trade-offs: As mentioned in chapter 3.1, Dalton & Newborne (2016) have emphasized that Water Stewardship does not always lead to win-win situation, in which all stakeholders gain from participating. In Huelva, different conflicting interests are present and have led to challenging discussions and tensions. Although there is a business case for farmers to participate and reduce their water use for the conservation of the natural park, it is inevitable that certain farms will have to be closed. This results in a discussion between conflicting objectives - should jobs and employment be sacrificed for the sake of conservation? Such trade-offs are not seldom and potentially become very political, especially when large agroindustry companies face measures having a negative impact of their profitability in the short-run. Although water users might want to engage in water saving practices, it cannot be assumed that the willingness to contribute remains, especially in a situation of conflicting interests. This aspect indicates that the behaviour of water users might change over time. This also happened in the present project, where Fresh Huelva (producer organization) has changed its position regarding the new spatial planning law and the initiative by buyers several times.

Importance of connecting the Water Issue with further Sustainability Aspects: An interesting issue which arose from the conversation with K. Rutishauser is the fact that water is in many cases not seen as the top priority by water users. This might be partly related to the fact that water prices are extremely low. Although it is known that groundwater levels have reached critical levels and this fact is widely recognized, a year with heavy rains changed the perception of some water users in the Ferdoñana Project. The water system is highly complex and water

reserves are not refilled within one year. However, K. Rutishauser commented that during a recent field visit, even a progressive farmer argued that the water issue has been publicly communicated as an immense problem, while he does not think that the attention given to the topic is adequate. Therefore, the thematic focus on water might be too narrow, and pushing the water issue too much might even cause negative reactions by some water users. K. Rutishauser stated that *"Of course water is very important. But producers, who finally need to implement measures, need to have different incentives and the benefit must be clear. As water is very connected to all other sustainability issues in agriculture, it is questionable to what extent it should be treated separately."* The idea of stakeholder involvement in the Water Stewardship approach is nice, but only focusing on water is a one-sided sustainability perspective. For example, in rice production, water is closely related to methane emissions, which are a very important climate related factor. Measures for the sustainable use of water must therefore be included in an integrative approach to promote sustainable agriculture. It is therefore important to connect the topic of water with other aspects of sustainability.

Water Governance and Sustainability: The idea of the Ferdoñana Project is that work streams 1 and 2 will become obsolete (as soon as the new spatial planning law is fully implemented, compliance enforce and instruments developed), while the farmer trainings (work stream 3) will no longer depend on the SAI members. If farmers see the benefits of trainings to improve their water footprint, then the producer organizations could themselves run the programme in the future. For the moment, this process is expected to take some years. The integration of Fresh Huelva into the core project organization is an important first step in this process of building ownership.
Regarding water governance, an interesting starting point are generally Water User Associations. It the present example, there are so-called water cooperatives in some of the locations. The latter are constituted of farmers and distribute the water from the government among them, measure the water use and organize payments. According to K. Rutishauser, this makes it much easier to measure how much water is used and leads to a certain level of self-control. However, as those cooperatives are representing the farmers themselves, they do not operate independently and do not have any decision-making power. Working with the cooperative cannot serve as a substitute to the work with farmers; a change of mind-set by the famers is needed. Therefore, farmers themselves are currently the primary target of activities and Water User Associations are currently not directly linked to the project.

In conclusion, the example illustrates the importance of legal aspects and compliance, and thereby, the very important role authorities play, even if they are not part of the core project organization. This nicely relates to chapter 3.3, in which the relation between IWRM and Water Stewardship has been discussed. IWRM, as explained, requires the adaption of legal institutions, like the new spatial planning law to promote change. Water Stewardship as bottom-up approach always operates within a governmental context, which can, as seen in the present case, limit the potential initiatives the private sector can take. The bottom-up action taken by buyers takes the law as basis and builds on it. Additionally, the case nicely shows how water is an issue where conflicting interests come into play, which makes taking action highly complex and discussions on fundamental trade-offs unavoidable.

7.4 Case Helvetas, Water Productivity (WAPRO) Project

Project Metrics

Overview	
Name	Water Productivity Project (WAPRO)
Main Objective	A multi-stakeholder initiative to address water efficiency issues in rice and cotton production in Asia and increase water productivity (the ratio of agricultural output per unit of water input). Water productivity is seen as an important leverage point to increase food security and promoting peace and economic well-being. The objective of the project is to increase water productivity of rice and cotton production by applying a PUSH (innovation and technology), PULL (incentives) and POLICY approach. New production and irrigation practices shall increase farmers' income without overusing local water supplies (Helvetas, 2016). • The project includes 6 sub-projects in 4 countries • Target: reach 45'000 farmers by 2018, increase water productivity by 30%
Length	• First Phase: 2015-2018 • Second Phase planned for 2018-2021
Location	India, Pakistan, Kyrgyzstan, and Tajikistan
Project Partners & Responsibilities	**Project Coordination & Implementation:** Helvetas **Different Project partners in all countries**: collaboration with buyers and sustainability initiatives. Buyers (Mars Food, Reismuehle Brunnen, Coop), SDC, AWS, sustainability initiatives (Sustainable Rice Platform, Better Cotton Initiative)
Main activities	The project is based on the assumption that water issues in the field can only be addressed by a collaboration among different actors. This requires a holistic approach, which can *"only be achieved by a set of activities that plug together synergistically"* (Helvetas, 2017). Project components, see figure 11 below.

Table 8: Project Metrics: Case Helvetas, Water Productivity Project (own compilation)

WAPRO is a large initiative which includes many activities on different levels. A discussion of sub-projects in detail would go beyond the scope of this paper. Therefore, the discussion with S. Kaegi was focused on the general experience from the different sub-projects regarding critical success factors, supported by anecdotal evidence from the field. WAPRO is an interesting case, as it is one of the most holistic Water Stewardship initiatives in the field and has an innovative approach based on the three components showed in the graph above. According to S. Kaegi, the three components (push, pull & policy) lay the basis to successfully implement a Water Stewardship initiative. It is therefore worth elaborating on how they play together.

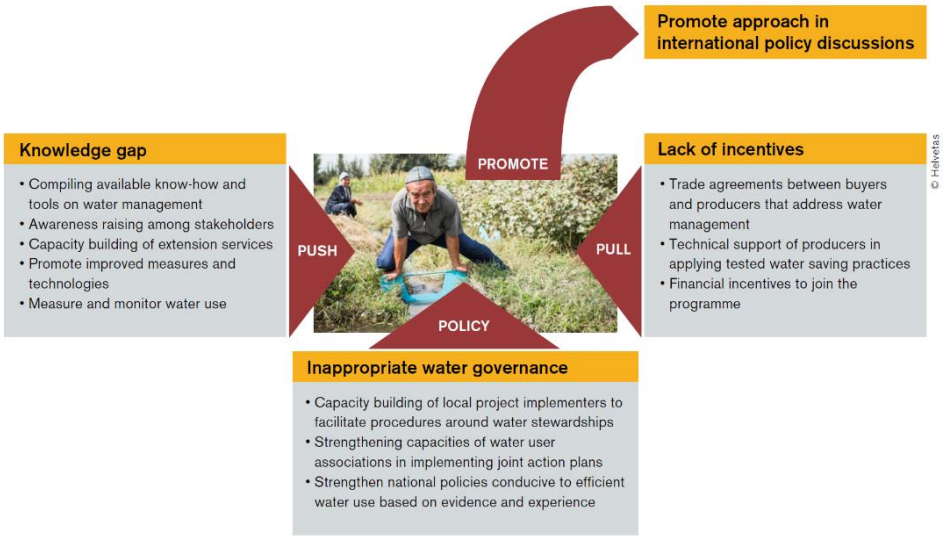


Figure 11: The interaction between the three components: PUSH – PULL – POLICY (Helvetas, 2017)

1) **The Push Component**: This component is a traditional approach in development cooperation: it aims to help farmers to improve their practices by training in agricultural practices like modern irrigation practices, intercropping, soil cover, laser levelling or water measuring. Training farmers in such practices allows them to improve their water related practices without doing risky experiments. Brining change of technologies through extension is useful, however, if the goal is "only" saving water, farmers do often not have enough incentives to adopt those practices. This is why the other two components are needed to create incentives and policies that promote behavioural change. (Helvetas, 2016; Helvetas, 2017).
2) **The Pull Component:** The Pull component specifically addresses the lack of incentives by connecting farmers with buyers who offer production or marketing incentives to farmers, such as paying a premium price for sustainably produced crops, or offering improved market access through participation in the programme, or supporting the application of technologies (Helvetas, 2016). Explicitly including such marketing and production incentives can be considered as innovative, as many projects from the past have mainly focused on capacity building, while the adoption of best practices for efficient water use requires more than training (S. Kaegi, personal communication, April 28, 2017).
3) **The Policy Component:** This component is particularly interesting, as it explicitly works on improving water governance through improved policy dialogue and implementation. Water distribution, the maintenance of infrastructure and timing of irrigation are often not properly managed, but at the same time, go beyond what individual farmers or corporates can reach. Within WAPRO, the capacities of Water User Associations are strengthened to elaborate and implement water user plans upon which all involved stakeholders have agreed. Further, they are supported in advocating for national policies, which are ensuring an efficient and sustainable use of water (Helvetas, 2017). Instead of waiting for policy changes coming as a top down approach (IWRM), the Water Stewardship approach is aimed at bringing water users together to agree on joint action. Activities under the policy component entail the Water Stewardship idea by bringing farmers and other local water users to together. To do this, the AWS Standard with its criteria, indicators and recommended action steps serves as guideline. In the context of WAPRO for instance, the AWS educates local implementers how to lead sensitive discussions and fulfil standard requirements. (Helvetas, 2017)

In comparison to the first two cases, WAPRO does integrate the water governance aspect ("policy") as important pillar of the project. WAPRO works with individual companies, while it includes from the beginning the last level of WWF's stewardship (see figure 4); water governance. Given the complexity of water issues, stewardship bringing all stakeholders together is in this case not the role of individual companies, but performed by an entity in civil society jointly with the private sector and governments (see discussion of role of actors below).

Critical Success Factors

Based on WAPRO, S. Kaegi was asked which factors are needed to successfully implement Water Stewardship, independently of the critical success factors of this study. The most important preconditions mentioned were:

- A buyer who is ready to invest in water efficiency in its supply chain (see "concrete & valuable benefits)
- Public funding (see financing mechanisms), at least in the beginning
- An organizational entity structured according to water catchment (see additional insights) with a well capacitated management
- A water price (for water, water services or maintenance of infrastructure) which motivates to measure and reduce the water use (see concrete & valuable benefits)
- A holistic approach: Push, Pull & Policy (see conclusion)

Based on the interview with S. Kaegi (personal communication, April 28, 2017), the most important critical success factors in the proposed model are the following:

Concrete & Valuable Benefits: As in the previous cases, concrete and valuable benefits are one of the most important critical success factors in WAPRO. This factor relates directly to the PULL component of the project, providing farmers with incentives to change their practices by providing market access, monetary premiums, and/or trainings to implement enhanced production systems that lead to higher profitability. The latter are adapted to the local situation and needs. According to S. Kaegi, the topic of water use faces a specific challenge. In case of technical support for farmers to introduce good agricultural practices with the objective to increase productivity, chances of farmers adopting the practices are relatively high. In the case of water, however, often the objective is to reduce the water use, while the same productivity does not increase. In such a situation, farmers might not perceive the value of good practices, especially if the water price is low. In many countries (except in India, where farmers have to pump the water and therefore feel the cost of the water), there are little incentives for farmers to increase water productivity, if they are not connected to buyers (larger corporates), which pay a higher premium for the corps, subsidies or support in other forms. In the case of Pakistan, the buyer subsidizes laser levelling to increase water productivity. However, it has to be stated that only in India the PULL component is directly linked to water efficient production practices, where Coop pays a premium for the application of rice intensification practices. In the other projects, buyers pay only more for a better quality. In some crops, the water management is connected to the quality of the produce, which indirectly relates the premium to water. In the case of rice, this does not apply, however, more efficient water practices can lead to a higher productivity, which presents a "package" which is motivating farmers. A precondition for this approach to work is the existence of buyers who are ready to invest in their supply chains. This presents a limitation in many cases, especially where crops are not exported to international buyers, which are publicly exposed, but rather sold on the local market. In Central Asia for example, a focus region of Helvetas, where water is an important issue, private sector engagement is still limited and communicating and engaging farmers is more challenging without the presence of a buyer offering incentives. (S. Kaegi, personal communication, April 28, 2017). For the moment, the focus of activities in this location is to work with and empower the WUAs. In case the private sector then comes in and is ready to buy from one specific WUA, the basis for future cooperation has been laid (see more under "organizational entity structured according to water catchment")
To make farmers aware of the business case, Helvetas works with "demo"-farmers, who are motivated adopt what they learned in trainings and serve as a positive example for their peers. All farmers are trained, know what is demonstrated and have awareness and knowledge on water topics. On the demonstration plots, they can see the results themselves. Interestingly,

some of the incentives are uncovered only during the process of implementation and not always known beforehand. Sometimes, it is not always observable at first sight what producers actually see as an incentive. In Tajikistan for example, farmers have seen that the owners of the demo-plots started to measure their water use. They then realized that those farmers pay much less for their water, because did previously not receive as much water from the authorities as they had been billed. In Tajikistan, farmers pay a price per hectare, with the different crops having different prices. Errors were only discovered by introducing measurement of water use. This led to the fact that more farmers now have an interest in measuring; not to use less water, but to pay less. This is an incentive, which has only uncovered during the implementation of activities on demonstration plots.

Representation of all relevant resp. affected Parties: For a Water Stewardship initiative to work, affected and relevant parties have to be involved. According to S. Kaegi, this might sound simpler than it is on the field level. When working according to the AWS standard, one of the first steps is the definition of the "site". The latter is a fundamental question, as it defines the area that a company is looking at when following this standard for Water Stewardship. Firms are allowed to define their own scope and most of them define the scope rather narrowly and measure their water use as well as water quality. In such case, the standard only covers the company itself to measure how the firm aims to minimize water use and pollution. If the site is defined more broadly, questions on where to draw the line in complex water systems arise. As there is no general definition of the site, Helvetas does define the site in each project according to the specific situation. In some cases, a farmer can be seen as a site (as measurement happens at this level), and in many cases, a so-called Water User Association (WUA) along a water catchment is a site, as working with individual farmers is resource-intensive. A WUA groups farmers around a same water catchment, for example a channel. Especially in case there are different Water User Associations in a basin, which overlap districts, the scope of Water Stewardship gets larger and larger. This has led to international water initiatives in the past, which is necessary in case a catchment crosses borders.
In a next important step, AWS recommends that the actor maps all stakeholders in the site, including their water risk and interests. The number of stakeholders depends on the scope of the site. And only after describing dependencies, a next step in the process of stewardship is undertaken. S. Kaegi argued that this is a crucial step towards Water Stewardship and stakeholder dynamics must be understood. However, when it comes to stakeholder involvement on the field level, S. Kaegi emphasized that pragmatism is needed. For her, it is most important to analyse critically who to involve and how to involve stakeholders in a way that progress can be made. This means that all actors with decision-making power (independently of their level of motivation) must necessarily be included. A common problem is that the most challenging stakeholders are the ones who are needed to promote change. In many cases, there is a specific reason that the water is managed insufficiently and that some stakeholder profit from this situation. Starting with a motivated stakeholder (e.g. innovative pilot farmer) is therefore easy, but does not lead to the systemic change needed to fundamentally improve the water situation.

Collaboration with Authorities: The involvement of authorities is key. Generally, the government must be involved from the beginning, especially when WUAs are governmental. The involvement and empowerment of WUAs is perceived as one of the most important successes of WAPRO. In Kirgizstan for instance, governmental WUA's already exist since the times of the Soviet Union. However, these entities tend to be very poor. They are very poorly

equipped with water and further lack know how in terms of water management. In this case, WAPRO succeeded in empowering WUAs by setting up an entire process, including a yearly general assembly with all the farmers and discussion of opportunities and how things should be. At the same time, associations also have been trained how to manage processes and at the end of the year, a feedback round with farmers is conducted (WUA Self-Assessment). Although WUAs are dependent of higher administrative levels, they have been empowered and can now lobby for more financial resources are district level to improve Water Resources Management.

Reliable Data, Monitoring & Evaluation: All interviewees have agreed on the importance of monitoring. S. Kaegi argued that a lot of data is collected for monitoring and evaluating if targets have been reached. However, she also emphasized that there is room for improvement regarding data provision and the overarching goal; the use of data to create a bigger impact. Which actor provides the data depends on the specific situation. In WAPRO sub-projects in Kirgizstan and Tajikistan, WUAs, a private service provider and a farmer cooperative collect data and Helvetas empowers them so that they know how to collect data correctly. Data is then aggregated for farmer groups in a WUA. In Pakistan, there are additional water pumps and the private sector plays an important role. The rice mill, which supplies a big rice buyer and the company, is required to provide data on the water use to buyers. Farmers therefore have to monitor, measure and send their data to the mill. However, in some cases there is not yet a direct feedback / interpretation of the data with the farmers. Still, it is probably the example where the data is most public. Data is collected with Akvo Flow (data collection online tool), where farmers also have access to. On the GPS, every single farmer can be seen in a different colour (green/red) according to their water use, and production data is registered. In Tajikistan, this has allowed to calculate the daily water foot print, which shows if more or less water should have been used. S. Kaegi argued that such a tool is probably the way to go to make data public, as data collected in an excel file is labour intensive to handle. With such an online software, data can be put into the cell phone easily and the software then visualizes data in an understandable manner. For the moment, the use of this tool is funded by Helvetas and the private sector. Given that the tool is not expensive, the private sector is expected to continue funding the application in future. In other cases, corporates collect a lot of data and in some exceptions, make them publicly available.

Effective Leadership: S. Kaegi sees the following role of the different actors: private companies provide incentives and markets, while civil society moderates stewardship processes. In the case of WAPRO, civil society leads, except in Tajikistan, where WUAs lead and farmers are involved. Leadership in private companies might be more effective, as companies have a very clear goal. Civil society organizations in contrast work on a range of topics. S. Kaegi argued that effective leadership is key; at the same time, finding good leaders with a strong personality is difficult, but possible if there are a range of civil society organizations available. Against this background, capacity building on water stewardship is important to ensure effectiveness. In Pakistan for instance, there are very good civil society organizations, which succeed in bringing the private sector and authorities at one table. In Tajikistan, the capacities on the specific requirements of AWS are still low and must be built. According to S. Kaegi, the party bringing all stakeholders to the table and moderating the stewardship process should be civil society or government, because the latter is the most neutral stakeholder in terms of water use. The process should not be moderated by the big water users themselves. Leaders do not necessarily have to work an NGO, but can also be an informal

community leaders. The most important is that leaders come an organization or are individuals from civil society, which are not financed by the government. Finally, the fact that effective leadership is key indicates the important role of individuals, additionally to the organizations doing Water Stewardship initiatives.

Further interesting Insights

The interview with S. Kaegi has given further, very valuable insights to take into consideration when thinking about Water Stewardship initiatives.

The Importance of WUAs for Water Governance: An important organizational entity for water governance are the WUAs. As seen previously, they can be governmental (like in Kirgizstan and Tajikistan) or non-governmental, as mentioned in the previous case in Spain. WAPRO works towards strengthening those WUAs. In the case of Pakistan, they are non-governmental and have been re-established in the wake of the project. WUAs were not existing anymore, because Pakistani had made negative experiences with different types of cooperatives. Through establishing these associations, the idea that collaboration regarding water is necessary has come back and people realized that there should be a certain leadership for water governance. Farmers then started having again more trust in the WUAs they have built themselves. These WUAs have made a water user plan they will now bring to the next administrative level, and discuss it with the district. This situation can be debated from a Water Stewardship Perspective. The AWS Standard, for instance, argues that Water Stewardship activities should take place within the boundary of the water catchment. In the case of Pakistan, WUAs decided that Water Stewardship should go beyond and be established at district level and within district boarders, because this is where the decision power lies (S. Kaegi, personal communication, April 28, 2017). From a more theoretical perspective, this example shows that WUAs have the potential to not only address the public governance GAP, but also overcome the often mentioned disconnect between corporate Water Stewardship initiatives and IWRM efforts by the government and reach a larger scale.

Organizational Entity Structured according to Water Catchment: One of the most important challenges and barriers to Water Stewardship is that organizational entities are often not structured according to a water catchment. For example, there are cases of WUAs covering various catchments, while one catchment is covered by different WUAs. This is for example the case in Tajikistan, where governmental WUAs supposed to manage water canals are not organized according to those canals and would have to be reorganized (S. Kaegi, personal communication, April 28, 2017). From a theoretical perspective, this nicely links to the concept of IWRM which emphasizes that institutional change is needed to make progress. Additionally, on the field level, natural and administrative water frontiers are often not identical. For example, districts and cities are only in few cases (e.g. in case of valleys or natural rivers) structured according water catchments. This leads to the fact that many water users, mainly farmers, are using water from catchment they do administratively not belong to. According to S. Kaegi, this is one of the most important challenges in Water Stewardship projects.
As stated earlier, WAPRO does link farmers to buyers to promote good water practices. However, in few cases, the private sector's supply chain is identical with the "site" (water catchment). The fact that for example organic farmers are often not organized along water

catchments, but in cooperatives operating in different areas, ads complexity to the issue. WAPRO deals with this challenge in the following manner: the primary entity to work with is the WUA with its associated farmers. Buyers are then connected to a group of specific farmers of a cooperative, which all as many as possible belong to the same WUA (Helvetas tries to have WUAs with many of the cooperative's farmers, however, there are farmers in the cooperative that don't belong to a WAPRO WUA). The cooperative is the entity which sells the products from the farmers of a well performing WUA. At cooperative level, the product is potentially mixed with products from other WUAs from the same cooperative, which shows the complexity of the situation. If the cooperative works in an area with good Water Stewardship, they can market their products under this component. As the issue of water, through the cooperative, is connected to other production sustainable methods (e.g. organic or sustainability standards), it makes sense to integrate the topic into broader initiatives (see. *"Importance of connecting the Water Issue with further Sustainability Aspects"* below).

Role of the different Actors depends on the Complexity of the Water Situation: The discussion with S. Kaegi has revealed that the role of the private sector, and consequently the other actors, depends on the complexity of the supply chains and/or the number and type of different water users.

The idea of Water Stewardship can be simple; there is a company in the centre, which is surrounded by are farmers who produce something for exactly this company. For example, a coffee company trains all the farmers in a certain valley, where most of the farmers are delivering to this specific buyer. If there is only one large water user (e.g. a factory) or group of water users (many farmers delivering to the same factory) in a specific catchment, then a corporate can decide to take measures with the attached farmers, implementing measures consequently. Hence, taking action in terms of Water Stewardship is relatively easy, and not even public guidance may be needed. In this *simple case*, the private sectors' potential contribution regarding Water Stewardship is large and can have a tremendous influence. According to S. Kaegi, this can bring a new mind-set into a region, which could spread to other firms. Such an initiative can be a starting point, and in an ideal case, the approach will be known at the regional level and the companes' peers start to implement similar activities.

In reality, the simple case is rather the exception and in most of the cases, there are many different actors in one catchment. Traditionally are many farmers, who cultivate different crops and deliver to different buyers. In the *complex case,* many different water users are located in a site (e.g. small holders of different crops, larger farms, different agro-dindustries and factories, civil society). The site in the complex case is a whole water catchment or sub-catchment with complex supply chains. Water Stewardship can, in this situation, only be effective if all water users are involved, participate and jointly agree on water use. A holistic approach including water governance and collaboration between all stakeholders (private sector, civil society and government) is needed. For example, in the case of Pakistan, the rice mill which collaborates with WAPRO only works with farmers of one water catchment. However, there are around 2000 farmers more in this site. Therefore, WAPRO aims to also integrate those farmers into the Water Stewardship efforts, although the rice mill is currently not buying from them. The objective is find other buyers offering production or marketing incentives to the rest of the farmers (S. Kaegi, personal communication, April 28, 2017). In a situation where the other farmers produce other crops and no buyers exists, public funds are needed to include those farmers into the initiative.

In the complex case, a governance process needs to be started, or top-down (IRWM) or bottom-up by water users. The latter represents the last step of WWF's Stewardship process, and is the probably most difficult: to bring all stakeholders at the table. S. Kaegi emphasized that bringing all stakeholders together in a complex situation goes beyond the responsibility of firms. The moderation of the stewardship process itself can and should, according to S. Kaegi, not be led by the private sector. As explained in the theoretical part, this avoids the risk policy capture by corporates. Therefore, a moderation of a governance process led by public entities or civil society is needed. In such a case, the private sectors' role is limited to providing incentives and participate as one of the stakeholders in the governance process.

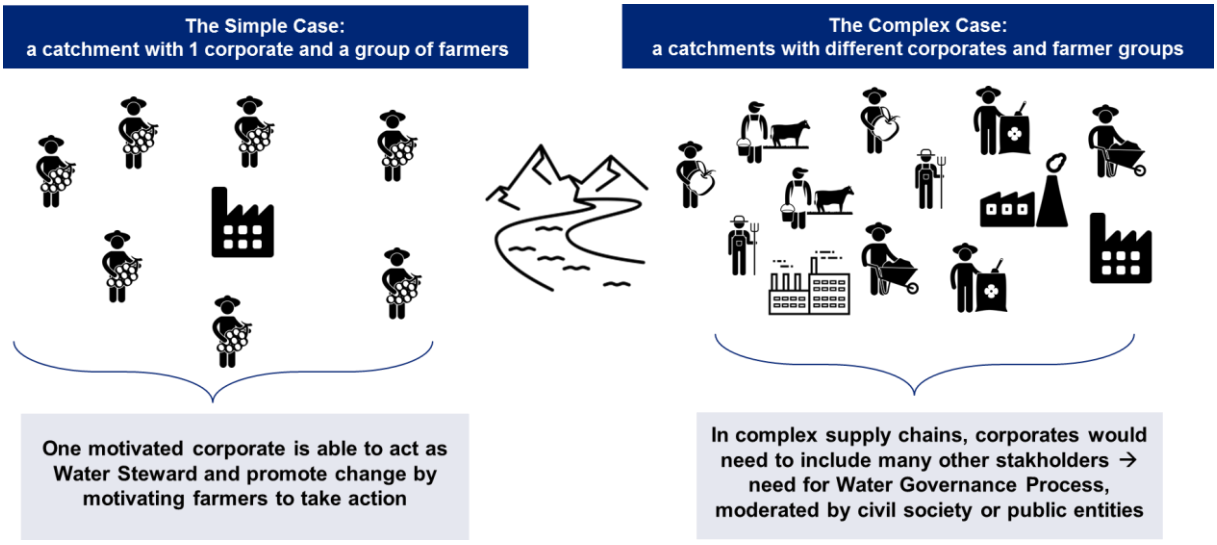


Figure 12: The Complexity of Water Stewardship (own compilation)

Importance of connecting the Water Issue with further Sustainability Aspects: Similarly to the previous case, the example of WAPRO indicates that water as such is just one of many sustainability issues in agriculture. In agriculture, different premiums are paid for different standards, which makes it difficult and unnecessary to isolate the question of water. To reach scale, the topic of water can be integrated in existing sustainability standards, which allows to use synergies, prove the efficient use of water (through audits) and market crops complying with standards with a price premium. In Central Asia for example, there are organic-cooperatives, whose farmers are scattered over different WUAs. Helvetas has therefore looked for the WUAs with the highest percentage of organic farmers. The organic farmers are then linked to a buyer. For the others, no client has yet been found. However, those farmers will now be included in the programme of the Better Cotton Initiative, which has recently decided to integrate water stewardship (e.g. collective action) into their standard. This allows to market the produce as complying to the BCI standard. BCI offers production incentives in terms of trainings for lowering production costs with the same of higher yields.

This example shows how complex the situation is: one buyer buys products from one large cooperative. Some farmers are in WUAs where no activities regarding Water Stewardship are undertaken, others WUAs do very well. Nevertheless, all farmers receive the same price (price for organic cotton). This works, because the efficient water use is connected to organic production. Organic farming is an important method to increase water productivity, since it helps enhancing soil fertility and thus water retention capacities of soils. However, there is a need that farmers also make use of this potential by timely and exact quantities of irrigation (S.

Kaegi, personal communication, April 28, 2017). Consequently, making the case for a "water certification" or marketing the products at higher prices just because of better practices of water use seems unrealistic.

Labelling & Certification of Water Stewardship: As mentioned in chapter 4, there are certification schemes for Water Stewardship. Certification and labelling of produces produced according to certain sustainability standards are, at least in theory, not only a good way of raising awareness among consumers, but also to get price premium for responsible cultivation practices. However, the example of WAPRO has shown the complexity of Water Stewardship and the importance of integrating the water issue into a general sustainability approach. S. Kaegi emphasised that, although the AWS standard is a very valuable guideline for many cases, measuring water use at the level of small holders is very complex and the water footprint not the only important aspect to consider. There are many qualitative aspects in Water Stewardship and labelling might not be the most effective tool to reach a goal. According to S. Kaegi, the process of stewardship, including the establishment of collective action amongst companies and other stakeholders is the most important factor to promote Water Stewardship, not the certification or a label.

Financing Mechanisms

The discussion of critical success factors has shown that Water Stewardship initiatives can take different forms depending on the complexity of a situation in a water catchment and the scope of the initiative. In complex situation, the need for collaborative action and water governance arises, as discussed earlier. Due to the comprehensive nature of Water Stewardship initiatives in complex cases, the limits of corporate responsibility and the risk of corporate influence in the moderation of the governance process, the "*moderation of stewardship processes belongs to the area of action of civil society and the government, and should therefore also be financed by these two parties."* (S. Kaegi, personal communication, April 28, 2017). Whenever possible, Water Stewardship can be given into the hands of the private sector. The private sector can lay the basis for change by financing incentives to farmers in its supply chain, a precondition for farmers to participate once a stewardship process is initiated. However, public funding is needed to finance moderation of stewardship processes. Consequently, S. Kaegi argued that there is a need for public funding, sometimes also in the long-term.

The discussion to what extent public funds should support such projects in general is important, as it entails to question to which extent there is a public interest in solving water governance issues. As mentioned in the theoretical part of this paper, stewardship traditionally arises as bottom-up approach where there is a top-down IWRM governance gap. According to S. Kaegi, it is fundamental to differentiate between a private and a public good. Often, it is forgotten that projects like WAPRO work for the public interest, and it is currently often argued in the realm of Development Cooperation that projects are only sustainable if they are self-supporting (= privately financed) in the long run. There is a pressure to find models in which the private sector finances as much as possible (sustainable = private). S. Kaegi argued that for some topics, public money is needed and that it should be acknowledged that public funds are equally present in the long run, and maybe even more constantly available than private funds.

8 Synthesis of Results & Recommendations

In this section, recommendations are drawn on the basis on the results from literature and expert interviews (chapter 5 & 6) and the cases discussed (chapter 7). This is done in a pragmatic manner, without discussing in detail all interview results comparing theory and cases, due to limited time and space. Rather, the most important points from the research are retaken and recommendations elaborated according to the best of the authors knowledge and belief.

In sum, the three cases confirmed the relevance of the model of critical success factors proposed in chapter 5. While some factors have been important in all the projects, others have been mentioned less often. Further, the examination of practical examples has shown that the relevance of some factors depends strongly on the context. Hence, the proposed model does give an important first insight on what factors need to be considered in Water Stewardship. However, given the simplifying nature of the model, it is important to analyse in detail how the factors might interact in a specific case when being applied. Besides the model proposed, standards like AWS or EWS serve as helpful and concrete guidelines to implement Water Stewardship. Many initiatives have been implemented in recent years. In the field of Water Stewardship, information-sharing and exchange of experiences (successes and failures) can therefore be very valuable. As Water Stewards are still learning which strategies are effective and work out well, especially regarding the engagement of many stakeholder having conflicting interests, exchange among practitioners should be promoted.

Recommendation 1: Before starting a new Water Stewardship initiative, the critical success factors from the model should be considered carefully. In addition, it is important to include learnings from previous initiatives.

Common in all the examples was the importance of concrete and valuable benefits. Conversations indicated that Water Stewardship can create a real impact. A precondition, however, is the existence of a concrete business case for Water Stewardship. This applies to small farmers, larger plantations and large corporates at the manufacturing level alike. In cases where no concrete and valuable benefits are perceived by some actors, their willingness to participate might be lacking. Especially when conflicting interests are negotiated, which might lead to constraints for corporates, potential benefits (like securing water supply in the long run) need to be made very clear and visible.

Recommendation 2: Stakeholders have to see a clear benefit in order to engage. Therefore, the (business) case for Water Stewardship must be made and communicated very clearly to motivate relevant stakeholders.

The comparison of the three cases has shown that Water Stewardship gets very complicated easily, as water catchments typically include stakeholders of different size and nature, with potentially conflicting interests. Initiatives which fail to assess this situation holistically might only have limited impact. The complexity of Water Stewardship on the ground requires a holistic approach to address this complexity. This means taking into consideration the complexity of the supply chain as well as the presence or absence of organizational entities which allow for Water Governance.

Recommendation 3: When engaging in Water Stewardship, the water situation, including all stakeholders and their interests, has to be assessed in detail. Thereby, a holistic approach is needed, which accounts for the complexity of actors in a water catchment. The scope of the "site" has to be defined and organizational entities organized according to water catchments need to be present. Finally, one must always be aware of the limits of scope of one actor in a specific water catchment.

One of the most important questions when it comes to Water Stewardship is which actor plays which role during which phase of the initiative. This allows to define which institution has the leading role and to secure the sources of funding. In sum, the cases have shown that the private sector often plays a very important role, especially in the agricultural sector. Corporates have the leverage to initiate collective action and promote a certain mind-set, paving the way for Water Stewardship. One of the most important functions of corporates is to motivate other stakeholders along their supply chain to adapt their water practices accordingly. This is done either by pressure and control from buyers, or incentives that motivate water users along the supply chain, or around the site. Especially in developing countries, linking farmers directly to the buyers of their products can facilitate fruitful collaborations.

Recommendation 4: Actions taken by the private sector have great potential to motivate water users in the same basin and along the supply chain (up to the end-consumer) to engage in more responsible water practices. A collaboration with the private sector should therefore be considered.

Given the complexity of water issues, the ability of corporates to solve problems on their own is limited. Therefore, collaboration with other stakeholders and the introduction of Water Governance becomes key. However, Water Governance goes beyond the responsibility of corporates, which is why civil society or public entities are needed. This also implies the necessity of public funding in these processes. Where top-down approaches like IWRM are not present, Water Stewardship follows a bottom-up approach and is initiated by water users. Nevertheless, Water Stewards always act within a legal framework. Although Water Stewardship is very valuable, it should not try to fill this gap, but rather catalyze government action. The roles of all actors have to be defined carefully to avoid confusion and enable participation of all stakeholders.

Recommendation 5: Integrating a Water Governance component in the project and collaborating with authorities is key to ensure the sustainable and equitable use of water resources. All affected stakeholders need to be integrated and their roles and responsibilities have to be defined clearly.

As the issue of water is connected to other aspects of sustainability, Water Stewardship actions should be integrated to or merged with other initiatives. Broadening the focus from water to overall sustainability is not only important from a sustainability perspective, but can also help to create the business case for an engagement for Water Stewardship. In agriculture, for example, integrating water productivity in other sustainability standards can help to improve market access for producers and allow them to market their products at a higher price. Ultimately, this aspect reveals the necessity that project initiators, may it be corporates, donors (international organizations or governmental agencies) or NGOs take an integrated perspective and do not have a narrow focus limited to the question of water.

Recommendation 6: As the issue of water is closely linked to other aspects of sustainability, actions should be integrated in sustainable production practices and potentially addressed via existing sustainability standard schemes.

Finally, the cases have shown the importance of data collection, monitoring and reporting. This part has often been neglected by corporates as well as by public authorities. Wrong, missing and not openly shared information hinders the forthcoming of Water Stewardship Initiatives in many ways. Therefore, in every initiative, the stakeholders need to agree on indicators, measures of data collection and the ownership of data.

Recommendation 7: Data collection is key for several reasons. Sophisticated data is often a crucial to convince stakeholders to engage in Water Stewardship initiatives in the first place. Further, data is needed to monitor and prove the progress made to ensure the long-term engagement of stakeholders. Finally, if shared with others, reports can help initiate further Water Stewardship initiatives and mutual learning.

9 Conclusion

The concept of Water Stewardship emerged only in recent years. Since then, standards and projects have proliferated. Although there are clear definitions and proposed procedures towards Water Stewardship, its practical implementation is more difficult to grasp, also because boundaries between CSR and Water Stewardship become blurred in practice, especially when communication is used to market a specific initiative. This paper has aimed at defining Water Stewardship in a clear manner and evaluating which factors are relevant for successful Water Stewardship engagement, with a focus on the perspective of the private sector. In addition,

different financing mechanisms available are introduced. After concept clarification, a literature review was conducted to identify critical success factors, as well as potential financing mechanisms. Based on these findings, a model for critical success factors has been developed and validated through expert interviews. In a next step, three practical examples were analysed to better understand the importance and interplay of critical success factors on the field level, and to complement the model with further important aspects of Water Stewardship. From this analysis, practical recommendation for the implementation of future initiatives were derived.

The literature review, interviews with experts and the three case studies have revealed interesting aspects of Water Stewardship initiatives at the field level. The discussions showed that there is not only a broad range of Water Stewardship initiatives in terms of international standard setting, but also a great variety of different field level programmes. In each case, the model has been found to cover the most critical issues, while each case has its specificities. The most important critical factor seems to be the necessity of valuable benefits for each stakeholder in order to engagement in Water Stewardship. This indicates that making the (business) case for Water Stewardship for all stakeholders in a water catchment is key. Furthermore, data collection and monitoring was an often-raised issue. Reliable data can be an important leverage to foster stakeholder engagement in the beginning, secure stakeholder commitment in the long-run and provide learnings for other initiatives. Another important insight was given on the potential corporates have in Water Stewardship projects. Changes in their behaviour towards water use cannot only be carried throughout the entire corporate to other sites or other water basins, but also be distributed along their supply chain.

Although the present study allowed for the validation of the model and the elaboration of practical recommendations, it has also revealed that the model is very broad and could, in future research, be refined for specific perspectives, contexts or sectors. Unfortunately, in this paper, it was not possible to gain a deeper insight on financing mechanisms. Project managers generally have been found to know their cases very well, but do not have a detailed knowledge about all potential financing mechanisms and the newest innovative approaches.

Given that water is at the core of sustainable development and corporates increasingly see the need to engage in Water Stewardship, it can be expected that the latter will become more important in the future. Hence, the exchange of previous experiences and expertise among Water Stewards might allow to integrate these learnings into new projects and thereby increase efficiency. The private sector is expected to play a very important role in the future. As the practical examples show, corporates can be active and effective Water Stewards. Nevertheless, it should not be forgotten that taking holistic approaches to address complexities goes beyond the ability of the private sector and raises fundamental questions on the responsibilities for Water Governance in general, and on the responsibility of public goods. The discussion has raised the question to what extent the private sector is responsible for the public good water, and where the line should be drawn. Too much engagement and influence might be risky in terms of public policy capture. Some water experts argue that Water Stewardship can and should not fill the public governance gap and try to overcome the current disconnect between Water Stewardship and IWRM. This implies that civil society and governmental entities will, in the future, have to take a more active role, while the private sector has to acknowledge and accept leadership by other actors and the fact that private institution are just one of many stakeholders around the negotiation table.

References

Alliance for Water Stewardship (2017). About. Retrieved from http://a4ws.org/about/

Alliance for Water Stewardship. (2014). The AWS International Water Stewardship Standard Version 1.0. Retrieved from http://a4ws.org/assets/documents/AWS-Standard-v-1-Abbreviated-print.pdf

AWS. (2014). The AWS International Water Stewardship Standard', version 1.0, April 8th, 2014. Alliance for Water Stewardship.

AWS. (2017). About the Alliance for Water Stewardship. Retrieved from http://a4ws.org/about/

Budds, J. (2013). Water, Power, and the Production of Neoliberalism in Chile 1973–2005. *Environment and Planning D: Society and Space, 31*(2), 301–318.

Coca-Cola. (n.d.). *Sustainability Update 2015-2016.* Retrieved from http://www.coca-colacompany.com/content/dam/journey/us/en/private/fileassets/pdf/2016/2015-2016-Sustainability-Update.pdf

Dalton J. & Newborne, P. (2016). *Water Management and Stewardship: Taking stock of corporate water behaviour*. Gland: IUCN & London: ODI. ISBN: 978-2-8317-1822-4

Dalton, J. (March 24, 2017). Interview with Dr. James Dalton, Gland: IUCN.

EU Water Initiative (EUWI). (2012). Financing of water resource management: Experiences from sub-Saharn Africa. Retrieved from http://www.gwp.org/Global/About%20GWP/Publications/EUWI/EUWI_FWG%20Financing%20WRM%20FINAL.pdf

European Water Partnership (2012). European Water Stewardship (EWS) Standard 4.8. Retrieved from http://www.ewp.eu/wp-content/uploads/2012/04/EWS+European-Water-Stewardship-Standard-v4.8-Dec-2012-Doc.pdf

European Water Partnership (n. d.). European Water Stewardship (EWS) General & Fact Sheet. Retrieved from http://www.ewp.eu/wp-content/uploads/2009/04/EWS-General+Fact-Sheet.pdf

European Water Partnership. (2017). EWS - Our Journey. Retrieved from http://www.ewp.eu/activities/ews/stewardship/our-journe/

GIZ. (2017). *International Water Stewardship Programme (IWaSP).* Retrieved from: https://www.giz.de/de/weltweit/27890.html

Global Water Partnership. (2000). What is IWRM. Retrieved April 10, 2017 from http://www.gwp.org/The-Challenge/What-is-IWRM/

Hassing, J., Ipsen, N, Jønch Clausen, T., Larsen, H and Lindgaard-Jørgensen (2009), 'Integrated Water Resources

Hatcher, J. (2015). Kenya hoping to make a splash with Africa's first public-private water fund. *The Guardian*. Retrieved from https://www.theguardian.com/global-development/2015/mar/22/world-water-day-kenya-upper-tana-nairobi-public-private-water-fund

Helvetas (2016). WAPRO: Enhancing Water Productivity by Using a "Push-Pull-Policy" Approach. Retrieved April 10, 2017 from https://www.helvetas.org/news_blog/news/news_archive/?2032/WAPRO-Enhancing-Water-Productivity-by-Using-a-Push-Pull-Policy-Approach

Helvetas (2017). Multi Stakeholders join force to increase water productivity in rice and cottong (WAPRO). Retrieved April 15, 2017 from https://www.helvetas.org/news_blog/news/news_archive/?2032/WAPRO-Enhancing-Water-Productivity-by-Using-a-Push-Pull-Policy-Approach

UNESCO 2009. Management in Action, Dialogue Paper. The United Nations World Water Assessment Programme.

Morgan, A. and Orr, S., (2015), 'The Value of Water: a framework for understanding water valuation, risk and stewardship',Discussion draft, WWF International and International Finance Corporation-IFC, August 2015.

Nairobi Water Fund. (2017). *The Nature Conservancy*. Retrieved from https://www.nature.org/ourinitiatives/regions/africa/explore/nairobi-water-fund.xml

Newborne, P., and J. Dalton (2016). *Water Management and Stewardship: Taking stock of corporate water behaviour.* Gland, Switzerland: IUCN and London, UK: ODI. Retrieved from https://portals.iucn.org/library/sites/library/files/documents/2016-069.pdf

OECD (5. June 2017). *OECD Principles on Water Governance.* Retrieved April 10, 2017from https://www.oecd.org/gov/regional-policy/OECD-Principles-on-Water-Governance-brochure.pdf

OECD Development Assistance Committee (DAC). (2015). *Aid to Water Supply and Sanitation.* Retrieved from http://www.oecd.org/dac/stats/documentupload/Aid%20to%20Water%20and%20Sanitation%20data.pdf

OECD. (2012). *A Framework for Financing Water Resources Management*. OECD Publishing. Paris. DOI: http://dx.doi.org/10.1787/9789264179820-en

OECD. (2014). OECD Survey: Stakeholder Engagement for Effective Water Governance. Retrieved from http://www.oecd.org/gov/regional-policy/OECDSurveyStakeholder%20engagement.pdf

OECD. (2015). *Stakeholder Engagement for Inclusive Water Governance*. OECD Studies on Water. OECD Publishing, Paris. Retrieved from *http://dx.doi.org/10.1787/9789264231122-en*

Rees, J. A., Winpenny, J., & Wall, A. W. (2008). *Water Financing and Governance.* TEC Background Papers, No. 12. Stockholm: Global Water Partnership. Retrieved from http://www.gwp.org/Global/ToolBox/Publications/Background%20papers/12%20Water%20Financing%20and%20Governance%20(2008)%20English.pdf

Schuett, M., Selin, S. & CARR, D. Environmental Management (2001) 27: 587. doi:10.1007/s002670010172

The University of Cambridge Program for Sustainable Leadership. (n. d.). *Sustainable Water Stewardship: Innovation through collaboration*. Retrieved from http://www.cisl.cam.ac.uk/business-action/natural-resource-security/natural-capital-leaders-platform/pdfs/sustainable-water-stewardship-innovation-through-c.pdf

Tindale, M. & Sagris, T. 2030 Water Resources Group. (2013). *Managing Water Use in Scarce Environtments: A Catalogue of Case Studies*. Retrieved from http://www.2030wrg.org/wp-content/uploads/2013/08/2030-WRG-Managing-water-scarcity-catalogue-web.pdf

TNC, 2015. Upper Tana-Nairobi Water Fund Business Case. Version 2. The Nature Conservancy: Nairobi, Kenya. Retrieved from

https://www.nature.org/ourinitiatives/regions/africa/upper-tana-nairobi-water-fund-business-case.pdf

UN Global Compact Office. (2011). CEO Water Mandate, Retrieved from http://ceowatermandate.org/files/CEO_Water_Mandate.pdf

UN Global Compact. (2015). The CEO Water Mandate – Mission & Governance. Retrieved from http://ceowatermandate.org/what-we-do/mission-governance/

UN Global Compact. (2015). The CEO Water Mandate – Toolbox – Discover Next Steps. Retrieved from http://ceowatermandate.org/toolbox/discover-next-steps/

UN Global Compact. (2017). *The CEO Water Mandate – History of Stewardship*. Retrieved from http://ceowatermandate.org/sufficiency/history-of-stewardship/

UN Water. (2015). Water for a Sustainable World. Paris: UNESCO. Retrieved April 21, 2017 from http://unesdoc.unesco.org/images/0023/002318/231823E.pdf

UN Water. (2017). Wate in the 2030 Agenda for Sustainable Development. Retrieved April 22, 2017 from http://www.unwater.org/sdgs/en/

UNDESA (2017). International Decade for Action "Water for Life" 2005-2015. Water and Sustainable Development. Retrieved April 15, 2017 from http://www.un.org/waterforlifedecade/water_and_sustainable_development.shtml

UNDESA. (2015). *International Decade for Action - WATER FOR LIFE 2005-2015.* Retrieved April 13, 2017 from http://www.un.org/waterforlifedecade/iwrm.shtml

UNDP. (2004). *Water Governance for Poverty Reduction.* Retrieved from: http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/water-governance/water-governance-for-poverty-reduction/UNDP_Water%20Governance%20for%20Poverty%20Reduction.pdf

UNESCO. (2015). *The United Nations World Water Development Report 2015 - Water for a sustainable world.* Retrieved from: http://unesdoc.unesco.org/images/0023/002318/231823E.pdf

United Nations General Assembly. (2003). *58/217. International Decade for Action, "Water for Life", 2005-2015*. Retrieved from http://www.un-documents.net/a58r217.htm

United Nations Sustainable Development (2017a). *Goal 12: Ensure sustainable consumption and production patterns*. Retrieved from http://www.un.org/sustainabledevelopment/sustainable-consumption-production/

United Nations Sustainable Development. (2017b). *Goal 6: Water and Sanitation.* Retrieved from http://www.un.org/sustainabledevelopment/water-and-sanitation/

United Nations Sustainable Development. (2017c). *Goal 14: Oceans*. Retrieved from http://www.un.org/sustainabledevelopment/oceans/

United Nations. (2017). *Water.* Retrieved from: http://www.un.org/en/sections/issues-depth/water/

United Nations. (n.d.). *Life below Water: Why it matters.* Retrieved from http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/14_Why-it-Matters_Goal-14_Life-Below-Water_3p.pdf

Water Footprint Network. (2017a). *Aims and History.* Retrieved from http://waterfootprint.org/en/about-us/aims-history/

Water Footprint Network. (2017b). *Water Stewardship.* Retrieved from http://waterfootprint.org/en/water-footprint/corporate-water-stewardship/

Water Footprint Network. (2017c). *What is Water Footprint Assessment.* Retrieved from http://waterfootprint.org/en/water-footprint/water-footprint-assessment/

WBCSD (2017a). *Water.* Retrieved from http://www.wbcsd.org/Clusters/Water

WBCSD (2017b). *Water stewardship: increase business participation in reducing shared water risk.* Retrieved from http://www.wbcsd.org/Clusters/Water/Water-stewardship-increase-business-participation-in-reducing-shared-water-risk

World Health Organization. (2017). *Water safety and quality.* Retrieved from: http://www.who.int/water_sanitation_health/water-quality/en/

World Water Council. (2015a). *Water and Green Growth: Volume 1*. Retrieved from http://www.worldwatercouncil.org/fileadmin/world_water_council/documents/publications/forum_documents/Water_and_Green_Growth_vol_1.pdf

World Water Council. (2015b). *Water: Fit To Finance*? Retrieved from http://www.worldwatercouncil.org/fileadmin/world_water_council/documents/publications/forum_documents/WWC_OECD_Water-fit-to-finance_Report.pdf

WWF. (2013a). *Water Stewardship. Perspectives on business risk and responses to water challenges.* Gland: WWF. Retrieved from http://awsassets.panda.org/downloads/ws_briefing_booklet_lr_spreads.pdfhttp://awsassets.panda.org/downloads/ws_briefing_booklet_lr_spreads.pdf

WWF. (2013b). *Water Stewardship. Perspectives on business risks and responses to water challenges.* Retrieved from http://awsassets.panda.org/downloads/ws_briefing_booklet_lr_spreads.pdf

WWF. (2013c). *Water Stewardship Brief.* Retrieved from http://awsassets.panda.org/downloads/ws_briefing_booklet_lr_spreads.pdf

WWF. (2014). *AWS Briefing Paper.* Retrieved from http://www.worldwildlife.org/publications/the-alliance-for-water-stewardship-briefing-paper

WWF. & Coca-Cola. (2017). Case Studies: Great Barrier Reef. *WWF Coca-Cola Partnership.* Retrieved from http://wwfcocacolapartnership.com/case-studies/great-barrier-reef/

WWF. (2015). *Serving the public interest: corporate water stewardship and sustainable development.* Retrieved from https://c402277.ssl.cf1.rackcdn.com/publications/829/files/original/Corporate_Water_Stewardship_and_SDG_6_on_Water_and_Sanitation.pdf?1444063768

WWF. (2017). *The Imported Risk. Switzerland's water risk in times of globalization.* WWF and SCD: Zurich.

Annex 1: Overview of Standard Steps

AWS (AWS Standard Version 1.0, 2014, p. 8):	**WWF** (Dalton & Newborne, 2016, p. 34):	**EWS** (EWP; EWS Standard v4.8, 2012, p.2):	**CEO WATER MANDATE** (UN Global Impact, CEO Water Mandate – Toolbox Next Steps, 2015):	**WATER FOOTPRINT ASSESS-MENT** (water footprint network; What is Water Footprint Assessment, n. d.):
Direct Sphere of Control:	**Individual Action & Water Management**			
1. Commit to being a responsible water steward	**1. Water Awareness** Actors understand the global water challenges and their dependence on freshwater	**1. Decision Time** Commitment for integrated sustainable water management	**1. Operations** - Provide WASH services in the workplace - Measure & Monitor Water Practices - Drive water efficiency and reduce pollution	**1. Goals and Scope** The goal and scope indicate • which data will be used, • how each subsequent step will be approached • the level of detail required to achieve the desired results.
2. Gather & Understand Gather data to understand shared water challenges and water-related risks, impacts and opportunities	**2. Knowledge of Impact** Detailed understanding of companies and suppliers impact (footprint + risk)	**2. Advice** Strategy prepared. Costs identified. Requirements identified.	**2. Context** Understand water-stressed and high-risk basins	**2. Accounting** Data collection to calculate the footprint of the relevant processes
3. Plan Develop a water stewardship plan	**3. Internal Action** Optimise internal water governance, improve water efficiency, reduce pollution		**3. Strategy** Integrate Water Management into business strategy	**3.Sustainability Assessment** Water Footprint Assessment is used to assess whether water use is environmentally sustainable, resource efficient and equitably allocated.
				4. Response Formulation Response strategies that reduce the water footprint and improve its sustainability can be prioritised for implementation

Indirect Sphere of Control:	Collective Action & Water Stewardship			
4. Implement the site's stewardship plan and improve impacts	**4. Collective Action** Companies, Communities, NGOs and public sector work together to mitigate water risks	**3.Implementation** Monitoring. Reporting. Improvements.	**4. Engagement** • Advance sustainable water management and collective action • Facilitate improved performance in the value chain	
5. Evaluate the site's performance	**5. Influence Governance** Government incentives and motivation to manage and invest in sustainable water use	**4. Certification** Verification of compliance	**5.Communication** Achieve meaningful and inclusive dialogue with stakeholders	
6. Communicate & Disclose Communicate about water stewardship and disclose the site's stewardship efforts				

Annex 2: Interview Guidelines

Interview Guideline I: Expert Interviews

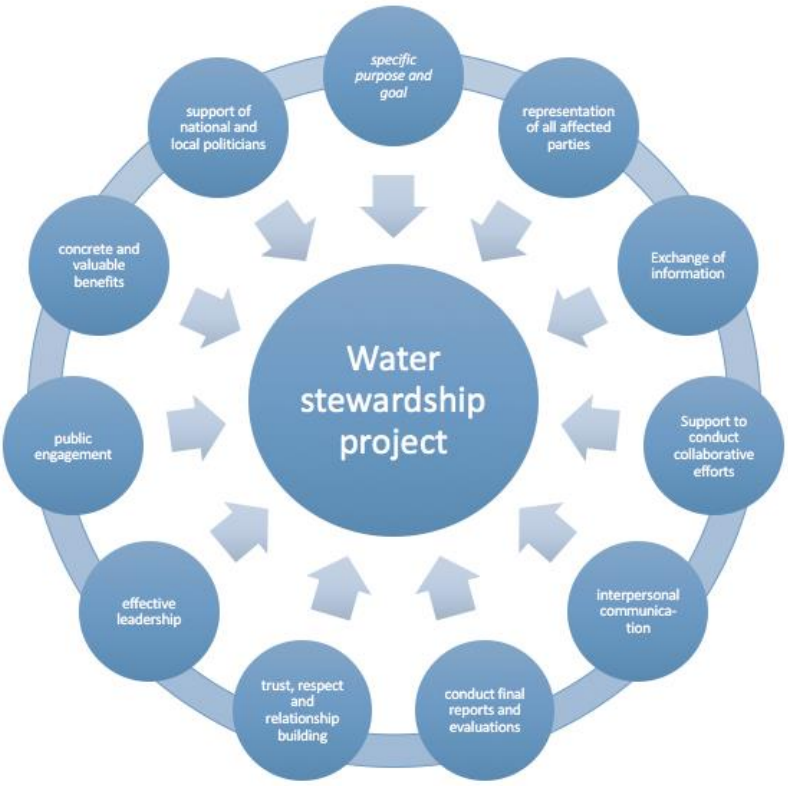
Background Information: The Definition of "Water Stewardship" we use

> *"The use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves **site** and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and important water-related areas; and then engage in meaningful individual and collective actions that benefit people and nature."* (AWS, 2017)

Questions:

1. What are critical success factors of Water Stewardship Projects?
2. What points are of particular importance with regard to the negotiation between stakeholders?
3. What role does the inclusion of civil society play? Why?

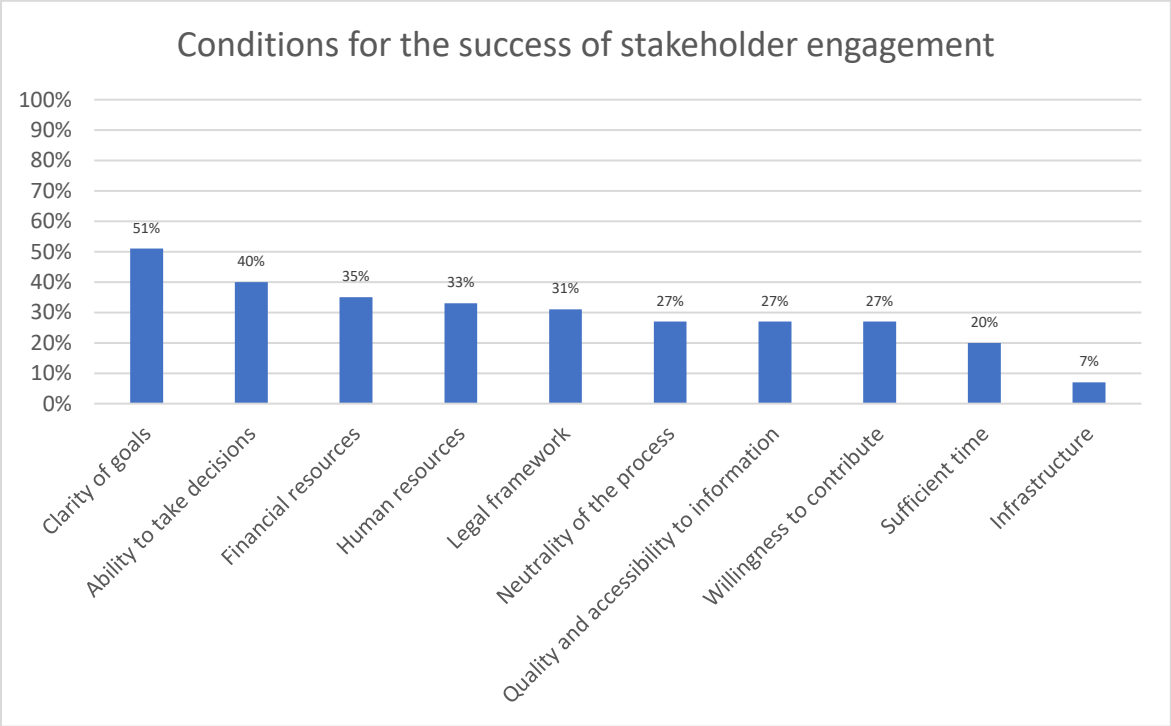
Part 1: Critical Success Factors for Water Stewardship Projects



Questions:

4. Based on the table above, please comment each of the mentioned critical success factors. What is its importance? (→ role and inclusion of civil society?)
5. How do the factors relate to each other? Explain.

Part 2: Critical Success Factors for Stakeholder Engagement



Questions:

6. Based on the table above, please comment each of the mentioned critical success factors. What is its importance? (→ role and inclusion of civil society?)
7. How do the factors relate to each other? Explain.

Part 3: Financing Mechanisms

8. What are the financing mechanisms of such projects?
9. What are advantages and disadvantages of each of them?
10. In which situation works which one best? Why?
11. The table above summarizes the mechanisms we have found in literature. Please answer question 9. and 10. For the mechanisms you have not discussed before, if any.

Table 2. Categories and sources of finance for water

3Ts & other contributions to recurrent finance	loan & bond finance	Equity finance
Tariffs & user charges	Public development banks	Institutional investors
Taxes (national budgets)	Commercial banks (inc. project finance)	Sovereign Wealth Funds
ODA	Institutional investors	Specialised water funds
Philanthropic funds	Sovereign Wealth Funds	International Financial Institutions
Property taxes & other levies & contributions	Public bond issue	Private equity funds
Self finance by users	International Financial Institutions	Venture capital
	Project Bonds	Public-Private Partnerships
	Microfinance	Individual shareholders
	Climate finance	
	Export credits	
	Individual bondholders	

To Conclude the following questions:

12. What is the future of Water Stewardship? In which direction, will and should it develop? Why?
13. What are the biggest challenges which need to be overcome? How?

Interview Guideline II: Cases

Project Details:

- Project name, location, length
- Objective of the project
- Who are the project partners? What their responsibility?
- How are the objectives achieved?
- Success and Challenges?

Specific Questions on Water Stewardship:

Part One:

- How were all stakeholder involved?
- How was the process of negotiation/inclusion of all stakeholders?
- Civil Society also included?
- Critical success factors of the project?
- What were the challenges?
- Looking back, what would you do differently?

Part two:

- How was the project funded?
- What was the advantage / disadvantage?
- What could have been done better / worked better?