

WATER STEWARDSHIP IN THE TEXTILE SECTOR: LESSONS LEARNED FROM PROJECTS IN CHINA, INDIA, TURKEY AND VIETNAM

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Introduction

The textile industry is characterised by the large volume of water required for operations and the considerable amount of chemicals used for various processes, generating many waste streams (liquid, gaseous and solid). While the specific waste depends on the type of textile facility it comes from, it is estimated that in 2015 the fashion industry was responsible for nearly 79 billion cubic meters of water consumed, 1 715 million tons of CO² emissions and 92 million tons of waste (GFA and the Boston Consulting Group, 2017). Under a business-as-usual scenario, it is also estimated that by 2030, these numbers would increase by at least 50 percent (GFA and the Boston Consulting Group, 2017). Hence, making this sector more sustainable is a crucial step towards a more sustainable planet and therefore the implementation of the 2030 Agenda.

Business and communities became more aware of the environmental impacts from the textile industry since the launch of the 2011 Greenpeace report 'Dirty Laundry'¹. This report highlighted the problem of toxic water pollution resulting from the release of hazardous chemicals by the textile industry in China (Greenpeace, 2011), and since then many brands have taken actions to increase the transparency, knowledge and engagement of their supply chains. International organizations also started to act upon it. In 2018, the United Nations Framework Convention on Climate Change (UNFCCC) launched the Fashion Industry Charter for Climate Action². The Charter goes beyond previous industry-wide commitments, including a target of 30 percent GHG emission reductions by 2030, a commitment to analyze and set a decarbonization pathway for the fashion industry and a vision to achieve net-zero emissions in the fashion sector by 2050. In 2019, the Group of 7 leading industrialised countries (G7) launched the G7 Fashion Pact³ with objectives drawn on the Science-Based Targets (SBT) initiative, which focuses on action in three essential areas for safeguarding the planet:

- Stop global warming: by creating and deploying an action plan for achieving the objective of zero greenhouse gas emissions by 2050, in order to keep global warming below a 1.5°C pathway between now and 2100.
- Restore biodiversity: by achieving objectives that use Science-Based Targets to restore natural ecosystems and protect species.
- Protect the oceans: by reducing the fashion industry's negative impact on the world's oceans through practical initiatives, such as gradually removing the usage of single-use plastics.

¹ <https://storage.googleapis.com/planet4-international-stateless/2011/07/3da806cc-dirty-laundry-report.pdf>

² <https://unfccc.int/sites/default/files/resource/Industry%20Charter%20and%20Climate%20Action%20-%20202102018.pdf>

³ <https://www.elysee.fr/admin/upload/default/0001/05/0247b6707e8a3f6139e041581fd7e638436dbc5b.pdf>

While the UN Charter is a clear demonstration that the fashion industry is serious about acting on climate change, and the G7 Fashion Pact expand the objectives to include biodiversity and oceans, there is no parallel mechanism in place for a sector commitment on water, and the water challenges are addressed less urgently. Despite the impact on water resources and the corresponding risks to business being well known, water and climate are not being addressed with the same urgency by the business community. Among the reasons why water is not stressed in the public debate about fashion are the intrinsic differences between water and climate issues: while for climate it is relatively straightforward to set global targets, water remains primarily a local issue⁴.

Nevertheless, the 2030 Agenda recognizes the key role that business needs to play in achieving all the SDGs, including SDG 6 on Clean Water and Sanitation. According to SDG Compass, the private sector can contribute by adopting a water stewardship strategy that addresses the economic, environment, and social dimensions of water (SDG Compass, 2019). Water Stewardship provides a framework enabling companies to understand and better manage their water risks and engage in advocacy to support the sustainable management of water resources (Morgan, 2018). By joining the water stewardship journey, companies contribute to the achievement of SDG 6, in particular SDG 6.5 on integrated water resources management, but also 6.3 and 6.4 that address water quality and water availability, respectively.

This paper aims to showcase the experiences acquired by WWF in the implementation of Water Stewardship projects in four river basins, highlighting how water stewardship can help in the transformation of the textile sector, through internal actions and the creation of a partnership between brands, NGOs and local-level offices and suppliers, and local stakeholders from public/private/civil spheres. Even though social issues linked to decent labour conditions exist and are very relevant in this industry, this article will only focus on environmental issues: specifically, the enhancement of water quality and quantity (SDG 6, SDG 14) and the protection of ecosystems (SDG 15). The reduction of energy consumption (SDG 7) and greenhouse gas emissions (SDG 13) is not directly addressed in this paper, but this is a side effect of cleaner production activities implemented in the projects as demonstrated by CDP (2017): 53% of companies responding to CDP in 2016 say they are realizing GHG reductions as a direct result of improvements to water management. Moreover, analysis of all the emissions reduction activities reported to CDP found that 24% are dependent on a stable supply of water.

Water Stewardship

Water stewardship, as defined by the Alliance for Water Stewardship (AWS), is “the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that includes both site- and catchment-based actions” (AWS, 2019). Water stewardship provides business with a practical framework to address the risks they are exposed to, implementing better water management within the fences and reducing water-related impacts outside the fences, by ensuring collective action with other stakeholders. The journey towards becoming water stewards encompasses five steps (Figure 1).

⁴ The creation of target for climate is going to take professionals to plan and work at the landscapes and basin level in order to understand what interventions are needed to deliver the necessary benefits. This on-the-ground implementation is where water projects have been taking place ever since, therefore both water and climate can benefit from discussions and integration when it comes to implementation and transforming landscapes.

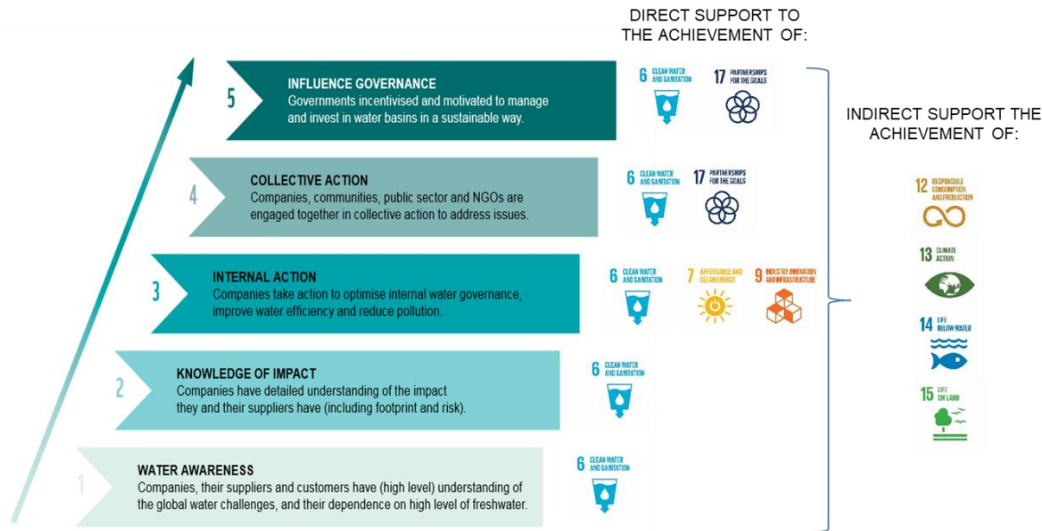


Figure 1: Water Stewardship Ladder and SDGs (Adapted from WWF, 2013)

A holistic approach to the implementation of water stewardship projects aims to restore and protect natural ecosystems, as well as the health of river basins. Therefore, it can indirectly support the achievement of SDG 13 (climate action, which can also be a call for collective action), SDG 14 (life below water – as one of the results is the reduction of water pollution) and SDG 15 (life on land: projects are implemented in WWF priority landscapes). By supporting the improvement of production process (i.e.: cleaner production), it also contributes to SDG 12 (Responsible Consumption and Production). Even if a direct link with certain SDG indicators is hard to identify, the last three steps of the ladder directly contribute to the achievement of the “aspirational” Sustainable Development Goals:

- 1- Internal action: the private sector facilities involved in the implementation of water stewardship will improve water and energy efficiency and reduce water pollution, contributing to SDG 6 and 7. The overall improvement may generate creative solutions to sustainability challenges in the industry (SDG 9);
- 2- Collective action: the creation of a platform of stakeholders to address common issues strengthens the implementation of water stewardship, brings action outside of the industry fence line and engages communities, public sector and NGOs, strengthening the partnership for goal achievement (SDG 17);
- 3- Influence governance: by creating multi stakeholder platforms and by leveraging the private sector, water stewardship may help reduce conflicts around water management, while increasing the transparency of how decisions are made (SDG 16).

Certain steps, such as knowledge of impact (Step 2) and actions associated with improving the supply chain (Step 3), are more technical and provide more tangible results than others. They also have specific tools available, such as the Water Risk Filter (WRF), to help increase business knowledge of where water risks are most likely to manifest in operational locations. The WRF is a WWF tool to assess both basin and operational risks that uses 32 annually-updated, peer reviewed data layers along with a site-based operational risk questionnaire to enable users to understand and prioritize water risks and specific sites/suppliers. The tool is also equipped with a “Respond Section”, which links the result of the risk assessment to a customized set of recommended response actions (WRF, 2019).

Steps four and five are governance-related and have the potential to support the achievement of SDG 6.5. Taken together, these steps ensure that businesses move beyond internal actions and commit to sustainable management of shared water resources. Depending on the planning and goals of the stakeholder platform envisaged, these steps can also help improve the conditions of water-related ecosystems (SDG 6.6) and overall basin health. Business engagement in Steps 4 and 5 is essential to drive a new narrative in the water stewardship space—one that is focused around notions of value, opportunity, collaboration, context, innovation and resilience (Morgan, 2018).

Water Stewardship projects in the textile sector

WWF has been actively working in the implementation of Water Stewardship in the textile sector with the support of international brands and local partners (i.e. governments, textile associations, NGOs) since 2011. Water Stewardship projects in the textile sector are being carried out in the following countries and river basins (WWF, 2019):

A) China - Taihu Lake Basin (Figure 2):

The textile sector is key to China’s economy with a total economic volume of about 1 trillion USD. China’s textile exports comprise 25 percent of the country’s total exports and are valued at 29 billion USD. Today, the country’s textile industry withdraws over 3 trillion liters of water, accounting for 8 percent of the total industrial water withdrawal and making textile the fourth largest industrial water user in China.

Operating since 2011, the “Water stewardship in Taihu” was the first Water Stewardship project in the textile sector implemented by WWF. The Taihu Basin is home to a significant portion of China’s manufacturing, including 37 percent of textile production, and it comprises more than 50 national and provincial level industrial parks, 14 Fortune 500 companies, hundreds of international and domestic brands with nearly 10,000 textile printing and dyeing facilities. The negative impacts from agriculture, livestock and industry to water quality and the fragmented water governance are the main challenges to be addressed in the basin, representing both a reputational risk for business and a risk for the environmental health of the basin. This project aims to improve the conditions of the river basin by transforming the industrial sector. While initial efforts have focused on the textile sector, the project’s vision is broader and will expand to include additional sectors: “By 2030, prioritized sectors are working collectively to drive improved freshwater ecosystems and better water governance in key basins for a healthy/living Yangtze, and introduce best practice in WWF priority basins”. This project has a strong component of stakeholder engagement at different levels:

- Site/Facility level: Here the goal is to increase the awareness and the knowledge of impact, and shared water risks among corporates, suppliers and facility managers;
- Industrial Park (IP) level: Project efforts are focused on contributing to the nationally-led Eco-IP Initiative and providing water management training through a package of resources to support water stewardship implementation;
- Sub-basin level: This aspect of the project has established a multi-stakeholder basin governance forum to provide relevant stakeholders a platform for regular meetings to discuss specific water management themes in different working groups (Box 1);
- National level: These efforts are disseminating Water stewardship practices and mechanisms to improve national standards. The project is providing further understanding of how international best practices can be useful in the Chinese context, as well as how best practices can support a greener Belt Road Initiative⁵ textile sector strategy.

BOX 1: Taihu International Forum: an Annual Platform for Better Basin Governance

In 2015, the first International Taihu Forum was held in Wuxi, the site of the 2007 algal bloom crisis in Taihu Lake. The purpose of the Forum was to promote the “Taihu Governance 2.0” model, which called for a new era of joint management with multi-stakeholder participation. Since then, the annual Forum has engaged government, industry, scientists and social organizations to discuss basin issues around joint-governance. Industry participation has been diverse, including many small and medium-sized enterprises located in the Taihu basin, as well as international brands, such as H&M, Tommy Hilfiger, Target, Coca Cola, Hilton and HSBC. Their annual engagement has allowed a rich discussion to evolve with respect to the role that industrial manufacturing can play in Taihu basin governance and the role that financial institutions can play in supporting cleaner production.

⁵ Belt and Road Initiative (BRI) is a transcontinental long-term policy and investment program which aims at infrastructure development and acceleration of the economic integration of countries along the route of the historic Silk Road. For more information: <https://www.beltroad-initiative.com/belt-and-road/>



Figure 2: Water stewardship in the textile sector in China, Taihu Basin Area

B) India - Noyyal and Bavani Basin (Figure 3):

Benefiting from the learning of other projects, work in the Noyyal-Bhavani basin was launched in 2018 with a desire to take an integrated landscape approach to basin water stewardship efforts. The Noyyal and Bhavani sub-basins are critical for the water security of the region and home to unique wildlife in the still relatively pristine upper water source areas. As the rivers continue downstream, they enable much of the agricultural and industrial economy of the region. The textile and garment industry has long been a crucial sector to the economy and is a major factor in the livelihoods of people in the basin. The textile industry clusters are predominantly located in the middle Noyyal region, in the cities of Coimbatore and Tiruppur. According to recent data, approximately 29,000 units are involved in various stages of textile production in the middle Noyyal region. The stakeholders part of the Water stewardship project planning have divided the Noyyal Bhavani Basin into 6 sub-basins in which different challenges have been identified, together with a list of activities and proposed pilot studies:

1. Zone 1 (Upper Noyyal): Initial work is focused on measuring the impacts of land-use and land-cover changes on flows in the river and rejuvenating two key sub-catchments of Upper Noyyal by 2021;
2. Zone 2 (Middle Noyyal): Efforts here center on determining the impacts of key water users (cities, industries, agriculture) on quantity and quality of surface and ground water, restoring the Sular wetland by 2021, and mainstreaming clean technology and best water management practices (BMPs) in the Tiruppur Textile cluster by 2021;
3. Zone 3 (Moyar): This work aims to understand the ecological impacts of water diversion from Moyar valley and develop an environmental flows policy for hydropower operations in the basin by 2021;
4. Zone 4 (Upper Bhavani): Initial work in this zone is focused on understanding the impacts of invasive species on flows in the Upper Bhavani sub-basin and integrating invasives management strategies into the management plans of the forest department by 2021;
5. Zone 5 (Middle Bhavani): Here efforts center on understanding the interactions and trade-offs between various water users in the zone and demonstrating best agricultural water management practices by 2021; and
6. Zone 6 (Lower Bhavani): This work is focused on understanding the interactions and trade-offs between various water users in the zone and reviewing policies on direct water withdrawal and discharges from and to the river by 2021.

With an integrated approach developed, the water stewardship project was shared with partners, including international textile brands, as an integral programme to which they were invited to join, knowing that the ambition was to address shared basin challenges. Brands accepted the commitment and were given a period of time for research and baseline assessment (one and a half years), in which dedicated reports and actions could be developed for each area. This period of preparation ensured the strong foundation of science-based actions, and the pilot pants are the confirmation to help informing policy making in the region and generating clear key performance indicators to measure the impact on the landscape.

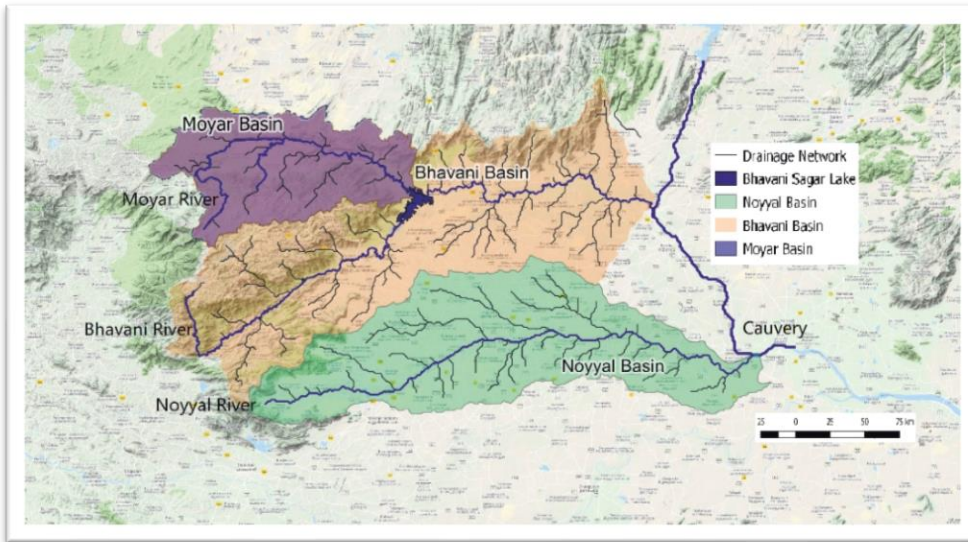


Figure 3: Water stewardship in the textile sector in India, Noyyal and Bhavani Basin Area

C) Turkey - Büyük Menderes Basin (Figure 4):

This project, started in 2015, has its main focus on the engagement of textile suppliers as well as the development of financial mechanisms to implement cleaner production in the facilities. The textile and leather industries are the leading industrial sectors in the Büyük Menderes basin, especially in the upper basin near Denizli and Uşak. Agriculture (including cotton production) is comparatively dominant in Aydın, which is located further downstream. The basin holds 40 percent of the national leather production, while Denizli holds 60 percent of all textile exports of Turkey and Aydın province contains 14 percent of the national cotton production. The river delta has been recognized as an Important Bird and Biodiversity Area (IBA) for breeding and wintering of water birds. To facilitate greater water stewardship, the project is being activated across the following four areas:

1. Cleaner production: Here the focus is to strengthen cleaner production implementation in Buyuk Menderes and Ergene basin, and identify financial mechanisms, policies and incentives that will help transform the textile industry (BOX 1);
2. Collective Action and Water Governance: This work is aimed at establishing a Multi-Stakeholder Platform (MSP) in the basin to improve basin governance in Büyük Menderes, which could then be replicated in other Turkish basins;
3. Landscape approach: These efforts are working to demonstrate the benefits of integrating biodiversity-friendly land, water and resource use into regional development and basin management planning, and policies;
4. Sustainability in the textile supply chain: This work focuses on achieving a sustainable supply chain between the cotton and textile sectors by engaging cotton and farming stakeholders in the basin.

This project provides an example that the steps of the Water Stewardship ladder do not necessarily need to be followed in sequential order – depending on the project, some parts can and should progress together. The vision of the project is ambitious: “Through the implementation of Water Stewardship, this programme aims to serve as a model in the conservation and sustainable use of water resources apt to be scaled up to other basins in Turkey”. However, the working team initially concentrated its energies in activities one and two (in accordance with the Water Stewardship ladder). Yet, the lack of action in the higher order steps failed to meet some partner expectations. Intervention and assistance from the broader international team and donors have helped regain focus on the big picture and collaborate with partners on the most challenging aspects of implementation, i.e. the landscape approach and integration of other basin actors into the MSP.

BOX 2: Cooperation with Development Agencies for financing cleaner production: Bankable Water Solutions

The cleaner production feasibility study carried out in some facilities indicated that actions in the sector could help save water, chemical and energy use, while reducing supplier costs. As loans could be taken by the facilities to cover the initial investment for improvements, the project team initiated a conversation with the government and financial sector to support the implementation of such actions. Together with the Turkish government’s Southern Aegean Development Agency (GEKA), WWF-Turkey launched in 2018 a ‘Cleaner Production in the Textile Sector’ program. The aim of the effort is to encourage investments in cleaner production technologies among local suppliers in the Büyük Menderes basin. Alongside this work, GEKA launched a program to support feasibility studies in Industrial Parks in the region, as well as a “Cleaner Production Support Program” in early 2019 to provide grant support to small and medium textile enterprises for investment in cleaner production technologies at their facilities. To capitalize on and leverage this stimulating work by key partners, WWF is collaborating with Garanti, a local Turkish bank, and has signed a protocol to provide credit support to textile companies in Buyuk Menderes to invest in cleaner production.

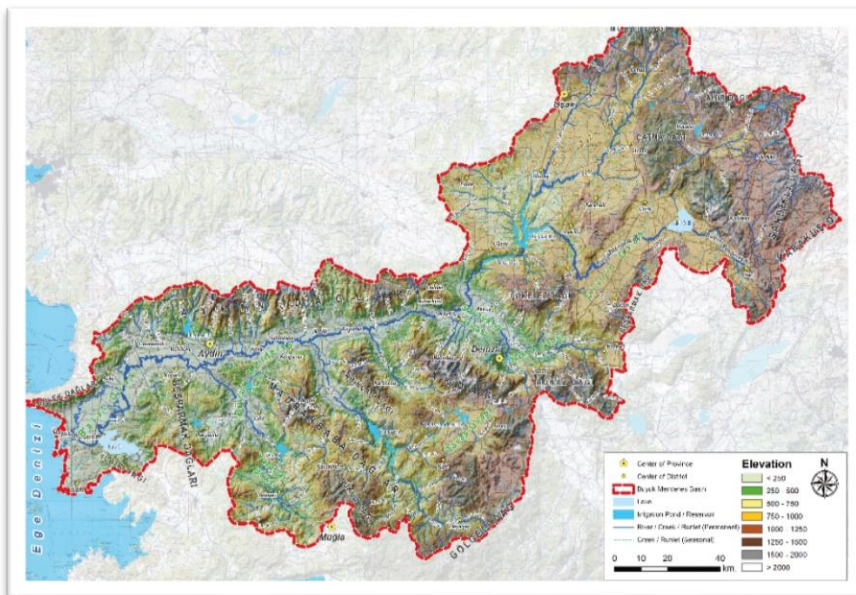


Figure 4: Water stewardship in the textile sector in Turkey, Büyük Menderes Basin area

D) Vietnam – Great Mekong Delta (Figure 5):

This project covers two interconnected areas, the Mekong and Dong Nai deltas, which have a total area of 10,000km². The region, where 62 percent of textile and apparel factories are located, makes up more than 60 percent of the country’s GDP. The Mekong Delta’s main challenges are upstream hydropower dam development, sand

mining, and overexploitation of groundwater. These activities are causing the delta to sink and shrink through land subsidence and erosion. The project’s vision is to transform the textile sector in Vietnam by engaging sectoral and environmental governance in order to bring social, economic and conservation benefits to the country and the entire Mekong region. This vision will be achieved by making textile businesses more active participants in Mekong River resource planning and management, sustainable energy planning and creating an opportunity for these businesses to discuss collective action and set plans to achieve sustainable investment and development in the textile sector. The creation of such dialogue platforms is expected to improve overall governance, indirectly helping to solve specific challenges of the basin. The project is divided in four main parts:

- 1- Transboundary cooperation: Here work is focused on strengthening the business sector (particularly small and medium enterprises - SMEs) to support the public sector on regional river management;
- 2- Site level: The project’s efforts focus on improving water and energy efficiency and reducing polluted water discharges in target SMEs through best technologies and practices;
- 3- Financial solutions for scaling up activities: These efforts are aimed at creating the business case for green financing by generating funds for water and energy stewardship investments to SMEs;
- 4- Policy advocacy and collective action: Through implementing water stewardship, the project team is working to improve key national policies, strategies, regulations, and ensure they are enforced in ways that strengthen the enabling environment for continued sustainable actions by SMEs.

Among WWF’s suite of global textile work, this is the first project to integrate water and energy issues from the beginning, while in other projects energy efficiency improvements were considered co-benefits generated by the projects. Moreover, the project has also initiated discussions and is serving as a convener – among SMEs and public sector at both the national and sector level – to develop “Green Textile Vision for Vietnam”.

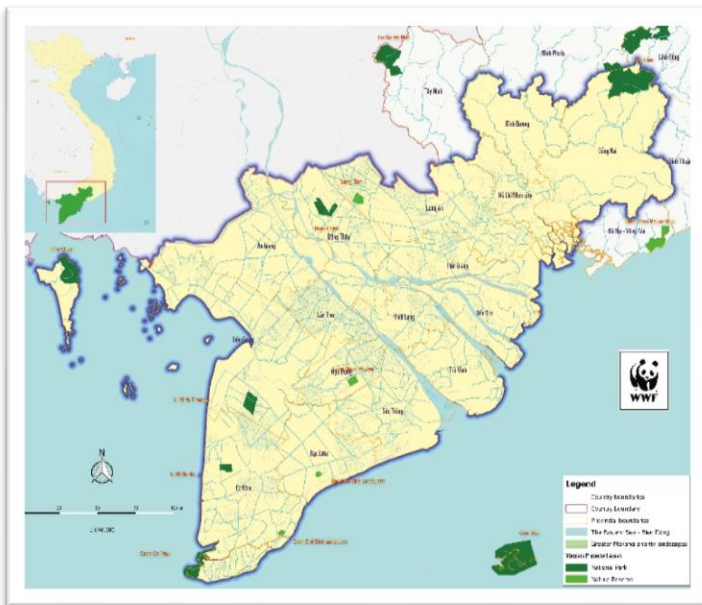


Figure 5: Water stewardship in the textile sector in Vietnam, Mekong Delta Area

The Water Stewardship ladder was primarily developed for use by business. Use in projects has often been less clear. Table 1 aims to clarify how all the above project activities can be aligned to the ladder, step-by-step.

Table 1: Matching between Water Stewardship steps and activities implemented by the Water stewardship programmes in Textile.

	1- Water Awareness	2- Knowledge of Impact	3- Internal Action	4- Collective Action	5- Influence governance
Taihu Lake (China)	Beyond dedicated trainings, a Water Stewardship app was developed to increase site/facility understanding and promote changes/improvements in their operations.	International partners (brands) have used the Water Risk Filter tool to increase their knowledge on their suppliers' water risks.	Within specific Industry Parks, dedicated studies are underway in selected factories to define the best practices/technologies needed to reduce impact in terms of water, energy, chemicals and waste.	The annual Taihu International Forum seeks the engagement of key national players, as well as international stakeholders, to discuss the challenges of the textile industry and solutions to improve basin health.	Through the collaboration with government leaders on textile work, the project disseminates best practices – from the project as well as international best practices – to the national level decision makers.
Noyyal and Bavani Basin (India):	Initial studies are being conducted to understand key sectors impacts (domestic, industries, agriculture), as well as the interactions and trade-offs between users and sectors in representative zones of the Bhavani and Noyyal river basin.	A mapping exercise is taking place to create the industry profile for textile sector, as well as a mapping of the stakeholders and institutional frameworks.	Once the Industry Profile has been completed, dedicated feasibility studies will be completed to help promote and encourage the implementation of clean technologies and Best Management Practices (BMPs).	Stakeholders will be involved in reviewing and disseminating the draft policy on the Best Available Technology Reference (BREF) process, as well as the development of Integrated River Basin Management (IRBM) plans for the basin.	The project aims to influence policy making and will push for the replication of IRBM plans in other sub-catchments within the Noyyal-Bhavani basins.
Buyuk Menderes (Turkey):	A campaign will be implemented to raise the awareness among stakeholders on the health and importance of the river (from source to sea). This will show the impact of the different sectors (including textile) on the river.	Feasibility Studies are being conducted in the 40 dying mills in the area (six have already been completed) to understand their environmental footprint.	Funding mechanisms are being developed to support the implementation of best practices and technologies.	A Brands Platform has been created to share best practices, lessons learned and support the implementation of changes inside factories.	The project will support development and implementation of the Buyuk Menderes Water Management Plan.
Great Mekong Delta (Vietnam):	The Report "Textile and Garment Sector in Vietnam: Water Risks and Solution" (WWF, 2018b) was produced and disseminated. This work includes the use of the Water Risk Filter tool to increase the knowledge of impact as well.	Feasibility Studies are being conducted in selected factories in order to understand their environmental footprint.	Financial support will be sought to implement the changes needed inside factories.	Through the creation of a Textile Alliance with multi-stakeholder participation (e.g. line ministries, associations, brands, and factories), the project will support the development of the Green Textile Vision for Vietnam.	Engagement of the Vietnamese Textile Association will advance the development of the "Textile Vision for Vietnam."

Discussion

The cases presented differ significantly in terms of both geographical context and level of implementation. However, lessons can be drawn to aid the implementation of other Water Stewardship projects, as well as projects in general that engage private sectors, NGOs and governments.

Setting ambitious goals

One of the most common criticisms of NGOs working with the private sector is the risk of engaging in “blue washing” projects (Hall et al, 2012), namely projects that are green from an external communications standpoint, but are not particularly so in terms of tangible outcomes. To avoid this risk, Water Stewardship projects led by WWF in the textile sector set concrete, ambitious and transformational goals for the sector, while keeping the focus on the restoration, conservation and/or protection of the basins where they operate. For example, the long term goal for Vietnam is “transforming the textile sector in Vietnam and engaging sectoral and environmental governance in order to bring social, economic and conservation benefits to the country and the entire Mekong region”. This project recognizes that the textile sector is a small part of the challenges in the Mekong area, but it aims to create a strong partnership that will improve this sector and expand corporate water stewardship efforts to others. WWF ensures that the participation of international partners in water stewardship activities will encourage governments and on-the-ground actors (industries) to embrace the projects’ long-term goals. As the projects operate in river basins of high interest for their ecological and environmental characteristics, they contribute to the achievement of SDG 14 and 15. Along with setting ambitious goals, it is important that projects set milestones and mechanisms for monitoring and evaluating the progress towards the achievement of the goals. Linking the Water Stewardship project goals with international frameworks, such as the SDGs, may help to explain to, and engage, a broader international audience, while linking to national/regional frameworks can help link the project deliverables to goals of national/ regional interest.

Multi-stakeholder partnerships

Water Stewardship requires the engagement of all stakeholders during all the steps, but engagement is particularly visible in steps four (Collective Action) and five (Influencing Governance). These steps propose actions that go beyond the fence line and expand opportunities for collaboration among the businesses involved, instead of generating competition amongst each other. While presented as a “ladder”, the water stewardship steps do not need to be taken in the official order (from one to five): preparations for stakeholder engagement can start in the planning phase of the project.

Mapping the range of stakeholders operating in a basin and their roles is performed at the beginning of projects to identify the government agencies, businesses and civil society associations that need to be involved for successful implementation of the project. Creating a strong partnership is important because the influence of brands on local suppliers is not necessarily strong enough to ensure the transformation of the basin, or to ensure changes in the supply chain. Therefore, the engagement of government, the chamber of commerce and textile associations is also needed and can help achieve the objective of transforming the sector.

A multi-stakeholder partnership is an important requirement in water stewardship projects as the transformation depends on the interactions between different stakeholders. Ownership of the project is built through trust and discussion of shared solutions—government is consulted for policy suggestions; universities and technical experts contribute technical expertise; industrial associations and companies add a private sector perspective. In this mix, managing the expectations of different stakeholder is also crucial, and is possible if the role of each stakeholder involved is clear. The goal is that the platform of stakeholders created by these projects will develop to respond to the challenges of the basin, not only those related to textile.

Working with Governments

Government and political structures vary significantly across the countries where projects are being implemented. A common challenge emphasized by project managers is communicating the practical importance and the value of

water stewardship projects to government officials who are, at least initially, not familiar with water stewardship projects. Consequently, a project should devote sufficient time to capacity development on water stewardship. When key government agencies and decision makers engage in these projects and work with other stakeholders, they can develop a better understanding of the sectors, their challenges and associated opportunities. Depending on the level of interaction achieved, some projects helped identify where the alignment (or lack of alignment) between national and international standards were having negative impacts on the environment. For example, some projects found local wastewater treatment regulation to be more permissive than international standards, resulting in harm to critical ecosystems. In other cases, government agencies were able to contribute existing funds towards the realization of the project's outcomes (See BOX 2). Not yet explored is the potential of these projects to ease data collection and performance management of the facilities. This information would be useful, for example, to countries interested in reporting on SDG 6.3.1 about the treatment of wastewater, particularly from industrial sources.

Working with international partners

The typical international partners working in these projects are fashion brands. Brands, as well as other businesses, are welcoming the water stewardship concept, but they also need proper guidance to ensure that change and engagement in transformation of the sector is both real and feasible, with indicators that can satisfy business managers' requirements on monitoring and evaluation. The engagement of international fashion brands provides welcome leverage on the engagement of facilities (current or potential suppliers) and governments. When well planned, their involvement can lead to a win-win situation. International brands, with their purchasing power, often have a strong leverage on their suppliers: they can request international standards to be followed. These standards, such as the Zero Discharge of Hazardous Chemicals (ZDHC), are often more restrictive than national environmental regulations, and, in cases where they are widely adopted, they may provide considerable environmental benefits to the basins. This reduces the reputational risk of sourcing from an area that is degraded and also helps brands be seen as a constructive partner in a region (the so-called social license to operate) and expand their production in a sustainable way.

Local-level transformation / working with suppliers

While international partners can advocate and promote change in the textile sector, where that change must manifest is within facilities, especially since dyeing and printing mills have the strongest impacts on water quantity and quality. When laws and regulations are in place, acknowledged and enforced, moving towards more sustainable production is the only way these manufacturing facilities will be able to continue operating, avoid pollution-related fines, and prevent permanent or temporary closures of the business. However, while governments often have environmental regulations and pollution controls in place, they often lack the ability to enforce them; hence facilities do not respect the laws and improve their operations.

Whenever lack of enforcement does not ensure environmental protection, the call from fashion brands can be helpful. However, a project's ability to demonstrate the costs and benefits from investing in sustainable technologies or production methods can be quite effective at boosting transformation. The key is to demonstrate to suppliers that real economic benefits can be attained by joining a water stewardship project and participating in cleaner production programs. In the example of Denizli and Aydın, the business case for transformation was created through feasibility studies. These studies identified the changes that dyeing mills should undertake to improve productivity while also increasing water and energy savings, improving wastewater quality, and reducing the use of chemicals. For example, one factory in Denizli learned it could save 40,000 m³ per year of freshwater, 220 tons per year of chemicals and 7000 MWh per year of energy (roughly equivalent to 4,500 barrels of oil) if cleaner production practices were implemented. The study for the 50 wet processing factories in the Büyük Menderes Basin estimated that an investment of approximately €5-12 million (a substantial sum compared to average facility profits) would provide a total savings of about €4-10 million per year and the investment would be recovered within 6 to 24 months (WWF, 2018a). This proved to be the best way to convince facilities to invest in production process improvements.

Financial challenges

Yet even when the business case for investment is clear, investments may not be made. In the basins where these projects were implemented, this has happened for three reasons: (1) low risk due to lack of legislation in place and/or weak enforcement of environmental regulation; (2) weak relationships or brand leverage on suppliers, e.g. when brands threaten to take their business elsewhere over suppliers' non-compliance, but other brands continue buying from these suppliers, it reduces the incentives of suppliers to improve production; and lastly (3) high risk linked to investing in landscape approaches and/or lack of de-risking financial mechanisms to support investment. Therefore, providing financial means or creating innovative ways to get funds can also encourage suppliers to act as water stewards (WWF, 2017).

Integration and Landscape approach

One of the final lessons learned from the implementation of water stewardship projects is the need to integrate water, climate and cotton issues for effective transformation of the sector. Integration of subjects is not easy as it often involves an even higher number of stakeholders, different line ministries and different people working on the themes inside the same organization. In some cases, these realities can give rise to internal competition or lack of commitment/ownership. However, the awareness around integration is increasing and more holistic visions are being developed for emerging water stewardship projects. A new approach to water stewardship is being adopted in India, where a focus on basin health is driving integration at the landscape level: the area of operation was identified as well as the actions needed, partners are supportive of actions that although not strictly related to textile, are relevant to the health of the basin.

Conclusions

The projects, which are at different stages of implementation, offer valuable lessons for similar initiatives in other geographical contexts, but also for other industrial sectors where international brands are involved and the awareness of the consumers on the impact of their purchases is increasing. In Turkey, WWF, along with several brands, helped assess the technological interventions needed to improve water and energy management, and is supporting factories in obtaining funds to implement needed technological changes for improved water quality and efficiency. In China, a large stakeholder forum is increasing the attention of government, brands and suppliers on basin health, and the adoption of an online tool and in-person training for factory workers has the potential to develop much needed water stewardship awareness and capacity. In India, textile brands are supporting the restoration of large areas of the basin, as well as helping improve water management inside the factories they supply from.

Success in water stewardship requires time for relationship building among partners, the promotion of the concept itself and demonstration of the associated economic benefits. While water stewardship benefits are tangible when it comes to implementation of cleaner production technologies (e.g. the Turkish example), measuring their associated impact on a basin's water quality remains a challenge. In particular, as the textile sector is often one of many sectors producing in a basin, it is difficult to separate its impact from that of other major polluters (e.g. in basins characterized by large agricultural productions, water quality monitoring with standard parameters cannot assess the contribution of the textile industry) and to detect the effects of textile-related improvements on a basin's water quality.

Impacts resulting from improvements to water governance are another aspect of water stewardship that is hard to measure. While the projects have personnel engaged in government discussions around textile (China and Vietnam) and river basin management plans (Turkey), the actual impact on the ground is not quantifiable. However, the creation of the multi stakeholder platforms and forums has at least generated discussions on water use and quality, contributed to cross-sector relationship building and alignment, as well as contributed to the protection of natural areas, wetlands, etc.

An alternative would be for the Textile sector, led by brands or by international organizations, to launch a "Call for Action on Water and the Textile/Fashion Industry", similar to the one launched by UNFCCC or the G7. However, the

best option would be for climate and water experts to start discussions that aim to align their asks to the fashion industry in order to convey the message and guarantee that both aspects - water and climate - will be tackled with the same energy and dedication, assessing as well the possible negative effects that an action on one aspect might generate on the other and vice-versa. Due to the engagement of Water Stewardship practitioners at the local level, this could be the starting point for a joint action on water and climate in the textile sector. While the beyond-the-fences results of Water Stewardship projects are not always easy to quantify, the work conducted by WWF so far shows that a transformation of the sector is not just possible, but that it is in fact taking place right now in the basins where the projects are operating.

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