

FINANCIAL SOLUTIONS FOR IMPROVING WATER QUALITY IN TURKEY'S BUYUK MENDERES RIVER BASIN

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1. Introduction

Water crisis has listed in the top ten risks of the World Economic Forum Report in the past 5 years in terms of impact and likelihood¹. This and the water related disasters linked to climate change has led investors and banks to increase their interest in investing in water-related infrastructure, and to be more focused on the sustainability of their water projects, and importantly, how their projects and investment are contributing to the achievement of Sustainable Development Goals (SDGs). According to WWF, an additional US\$2.5 trillion annually are needed to achieve the SDGs and water-related infrastructure makes up about a third of this amount². The achievement of the 2030 agenda requires the engagement of all stakeholders and the investors and private sector need to be involved. Greening the global supply chain is necessary to reduce the impact industrial production has on water resources (SDG 6), energy consumption (SDG 7) and aquatic and terrestrial ecosystems (SDG 14 and 15). However to unlock this potential of more sustainable production (SDG 12) and green jobs (SDG 8), the private sector need to be able to attract funds that will allow the transformation of supply chains.

On the other hand, investors willing to fund more sustainable projects, often find themselves without a pipeline of viable projects. This bridge between private sector needing funds and investor is yet a weak chain in the achievement of the 2030 Agenda.

There are many ways that this gap can be filled, and one of them is blended finance approach which leverages philanthropic funds and public sector capital and capital from the private sector. Although blended finance approach is acknowledged as an important tool by many groups, there is a lack of local sponsors who have access to capital to develop the business case. In addition, the regulatory environment in many countries is weak and unpredictable which could scare away potential investors³.

In 2016, WWF has created an initiative called Bankable Water Solutions which aims to address the above mentioned obstacles and attract different sources of funding, while transforming the investment landscape, redirecting substantial financial flows into sustainable water projects in the river basins. This initiative aims at bridging the investment gap by catalyzing a stream of bankable projects to improve freshwater ecosystems in our river basins, while providing investors with an acceptable return on their investment. In 2018 this is initiative was expanded to become Bankable Natures Solutions to focus on all conservation and impact themes.

¹ The World Economic Forum, 2020

² WWF Briefing, 2018

³ WWF Briefing, 2018

The Buyuk Menderes basin is one of the Bankable projects within this initiative as this is an area of rich biodiversity, where potential improvements in the private sector would support the conservation work that is already underway. The basin hosts 7 wetlands, 3 of them are internationally important namely Isikli Lake, Bafa Lake and Buyuk Menderes Delta and they are home to species that have conservation priority such as the Dalmatian pelican, the Eurasian otter and the European eel. However, water pollution from textile manufacturers situated upstream around the industrial city of Denizli is a growing threat for the flora and fauna and the quality of life of local people. The textile industry in Denizli, which rely on water from the river and supply products to global apparel companies, produces over \$1.5 billion worth of textiles⁴, and the industrial process used in most cases are the source of pollution and could be improved.

This paper will explain how WWF-Turkey has approached to address the gap need for investments to improve the textile production that would lead to improving the environmental conditions in the Buyuk Menderes basin. This work supports the achievement of SDG 6, 7, 9 and 12. The work also present the results of feasibility studies in the factories, the investment need and the challenges and opportunities faced during the realization of this work.

2. Buyuk Menderes basin

The Buyuk Menderes basin, which is located in south-western part of Turkey, is the 7th most populated basin⁵. Environmentally, Büyük Menderes is not just important to Turkey but also plays a role on the international stage as it is home to three internationally important wetland areas (namely Bafa Lake, Isikli Lake and B. Menderes Delta) and ten legally protected areas⁶ (Figure 1). These protected areas are found distributed throughout the basin along the mountainous regions as well as lakes, rivers and eventually the marine area as the water reaches the sea. Its location and diversity create a habitat for a variety of wildlife including roughly 4.500 pairs of Dalmatian pelican (categorized as Vulnerable (VU) according to the IUCN criteria), the European eel (Near Threatened (NT)), and the Eurasian otter (Critically Endangered (CR)).^{7 8}

⁴ News Service, 2019

⁵ Ministry of Environment and Urbanization, 2015

⁶ WWF-Turkey, 2013

⁷ National Parks of Turkey, 2017

⁸ GoTurkey, 2018

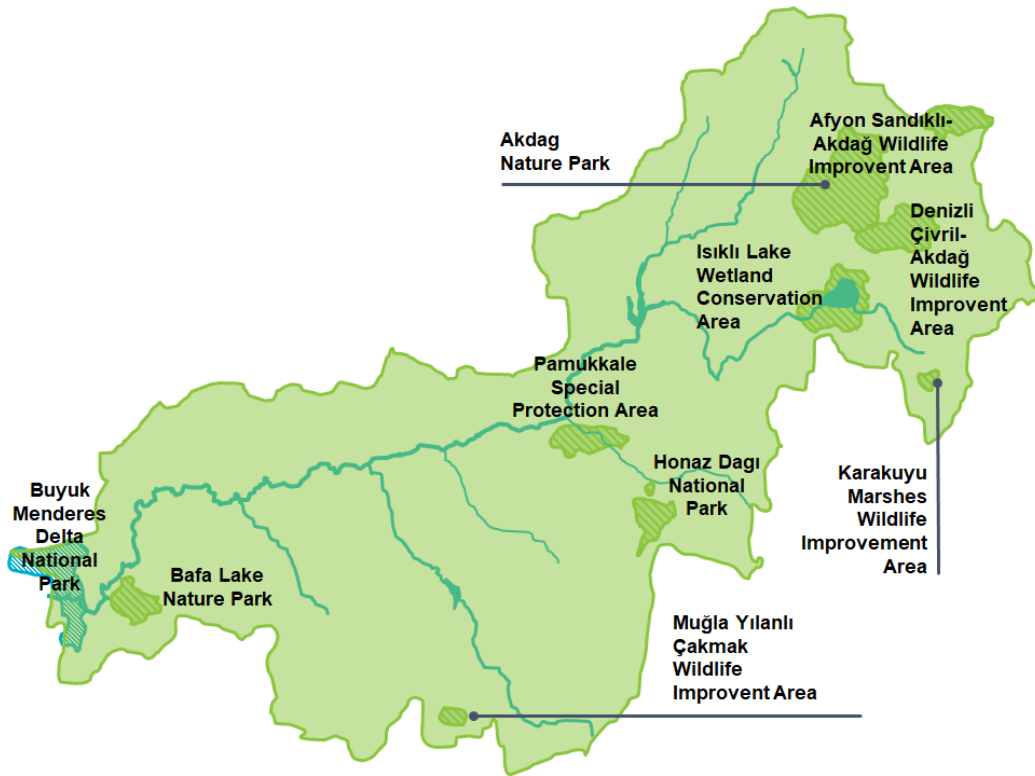


Figure 1 Protected areas in Buyuk Menderes basin

The three urban centers of Buyuk Menderes are Aydın, Denizli and Uşak, home to about 300k, 560k and 500k people respectively and making up the majority of the basin's 2.5 million inhabitants⁹. The basin has socio-economic significance in Turkey mainly due to industry and agriculture. The textile and leather industries are the leading industrial sectors, especially in the upper basin near Denizli and Uşak. Agriculture (including cotton production) is comparatively dominant in Aydın (14% of all national cotton production comes from Aydın¹⁰), which is located further downstream. Due to its abundance in beautiful landscapes and wildlife both in the sea, valleys and mountains as well as historical cities and ruins the basin is an attractive tourist destination.

2.1 Textile Sector in Buyuk Menderes basin

The real economic impulse in the region is the textile industry - one of the hubs in Turkey. Denizli produces more than half of all of the country's textile exports.¹¹ With a population nearing 560k inhabitants, Denizli is the largest city within the Buyuk Menderes basin and is one of Turkey's strongest performing and growing industrial cities, making it an attractive target for entrepreneurs and investors. Denizli profits from a powerful trade surplus and the city by itself contributes to almost 2% of all of Turkey's exports¹². The majority of exported industrial products originate from the metal, electrical and textile sectors - in 2014 alone, over \$1.5 billion worth of textiles, textile raw materials, clothing, garments and carpet goods were exported¹³. The

⁹ Scoping Report, Ministry of Environment and Urbanization, 2015

¹⁰ WWF-Turkey, 2013. Buyuk Menderes Basin Atlas

¹¹ Ministry of Agriculture and Forestry, 2019

¹² Ege TMF, 2019

¹³ News Service, 2019

textile sector employed close to 45k people in the year 2018, almost a quarter of Denizli's entire working population¹⁴. Within the Denizli textile industry, the goods primarily produced belong to the home textile sector comprising of towels, bed linen and bathrobes. With Turkey globally being the fourth largest exporting country of home textile products and Denizli exporting between 70-80% of these products, Denizli is a major powerhouse domestically and internationally¹⁵.

Despite the economic importance of the sector, the textile production process requires vast amounts of water, chemicals and energy. The use of these resources along the various stages of the production process creates a lasting impact on the environment that leads to a loss of habitats and biodiversity as well as creating economic risks for the region.

a) Water Use

The main water consumption takes place during the wet-processing stage (dyeing and finishing phases) of textile production. In a study on the Turkish textile industry, findings have shown that for one ton of textiles 20 to 230 cubic meters of water are necessary, a weight ratio of 1:20 to 1:230¹⁶. Here, the water is used to wash out chemicals, treat the textiles with substances diluted in the water and dye the textiles. Due to the nature of these processes, the water used cannot re-enter the rivers untreated. The final stages of the textile production (printing, finishing, coating) require less water - an effect which, however, is not felt as the low quantity of water used is still exposed to proportionally more chemicals, further reducing its quality¹⁷.

b) Use of Chemicals

The production of synthetic fibers such as acrylic, polyester and vinyl may require the use of carcinogenic chemicals of which the ones used to produce the latter are dioxins - a global health threat because they persist in the environment and in mammals and do not degrade¹⁸. During the yarn spinning and fabric production processes spinning lubricants, responsible for hazardous compounds such as poly-aromatic hydrocarbons. In the fabric production stage the process of de-sizing removes chemical substances (sizing agents) previously added to the fibers, yarn and fabric which are then found the water effluent¹⁹. In Turkey, the wastewater discharge amount per kilogram of fabric varies between 150 and 330 liter²⁰. Due to the toxic nature of many of these substances and their presence in almost all waters emitted by the textile plants, a decrease in water quality results in an imminent threat for aquatic flora and fauna.

c) Energy Consumption

Taking into account the electricity-intense dyeing, finishing, thread production and weaving processes and textile sector's reliance on fossil fuels, use of electricity created with such means has a negative impact on our atmosphere. While its

¹⁴ GTE Carbon, 2018

¹⁵ GTE Carbon, 2018

¹⁶ WWF and H&M, 2018

¹⁷ WWF and H&M, 2018

¹⁸ WWF and H&M, 2018

¹⁹ WWF and H&M, 2018

²⁰ Izmir Development Agency (İZKA), 2012

environmental impact might not be as direct and drastic as those from water consumption and chemical pollution, the reduction of energy consumption would play a larger role when incentivizing cleaner production measures due to its high cost saving potential.

2.2 Cleaner Production Techniques in Textile Sector in Turkey

Cleaner production practices can be applied at various scales but generally have one thing in common: they aim to either reduce the use of materials or improve efficiency to such an extent that the production has the smallest negative impact on the environment possible.²¹

Implementation of these techniques leads to a reduction in energy, water, and chemicals used during the processes. This in turn leads to the following advantages²²:

1. Efficiency in resource utilization,
2. Decrease in production and waste management costs,
3. Compliance with environmental laws, regulations and relevant national strategies, reducing the risk of fines,
4. Meeting the relevant expectations of international brands,
5. Increasing own brand value,
6. Ability to benefit from the financial opportunities of national and international financial institutions.

The concept of cleaner production practices to reduce the negative impact on the environment in Turkey has first been brought up in 1999 and Turkey has identified five priority sectors, namely basic metal industry, food products and beverages, chemicals and chemical products, other non-metallic mineral products and textile products.²³

The Ministry of Environment and Urban Planning published “Best Available Techniques for the Textile Industry (BATs)” in 2012 which outlines cleaner production practices. BATs provide a framework of practices for textile production processes including pre-finishing, de-sizing, bleaching, mercerization, dyeing, printing, finishing and washing.

While the regulatory landscape in the Turkish industry with regard to cleaner production has not been very restraining in the past, several broad cleaner production regulations are expected to come into effect. However, no incentives are currently being expected to support facilities in enhancing the Best Available Practices (BATs).

3. Implementation of the Büyük Menderes project

In order to address water challenges in Büyük Menderes by shifting textile manufacturers to cleaner production, WWF-Turkey has followed the following steps:

²¹ UNIDO, 2019

²² WWF and H&M, 2018

²³ TTGV, 2011

1) Stakeholder meetings: Meetings were held with several groups including brands, textile manufacturers, chamber of industry and industrial park management in Denizli, regional development agency, and financial institutions to identify opportunities and barriers for cleaner production investments. The initial findings included:

- Textile manufacturers don't know how much they can save in their facility and upfront investment poses a barrier for some producers.
- Financial institutions are keen to provide loans and have funds dedicated to sustainability. Several providers are investigating use of government guarantee fund.
- Industrial park (IP) management aims for reduction of water and chemical use in the textile manufacturers operating in the IP, however, in need for technical capacity.

2) Design of feasibility studies: Feasibility studies aimed to examine and evaluate the current approaches used to manage raw materials, chemical, water, energy, waste and wastewater at the textile facilities and to develop cleaner production opportunities for the company. As the focus area was on improving water and wastewater management, the study focused in particular on areas of potential water and wastewater management development for the firms. However, despite not making it a priority subject, some energy efficiency opportunities were also identified during the analyses and have been included.

3) Identification mapping of textile facilities and engagement of textile facilities: Feasibility studies were done in 9 facilities in Buyuk Menderes basin and 6 facilities in Ergene basin (another basin, which is also home to textile) in the suppliers of partnering brands.

4) Design of Bankable solutions model for Buyuk Menderes: This step included stakeholder overview, financial scheme possibilities, risks assessment, and review of models that aim for cleaner production implementations at national and international level.

4. Results and Discussion

4.1 Results from Feasibility Studies

The table below summarizes the extent to which cleaner production techniques are available for manufacturers in the textile sector. Information comes from several feasibility studies performed between 2017 and 2018 across 9 different factories including knitting, knit dye houses, the complete denim production process, and thread production facilities.

Item	1	2	3	4	5	6	7	8	9
Dryer Renovation	x						x		
Light changes (LED)	x	x	x	x	x				
New Servo System	x								
Foulard machine	x								
5S Technology	x								
Pump improvements		x							
Reverse Osmosis tech.		x				x	x	x	x
Air leakage maintenance program		x		x	x				x
Steam trap maintenance program		x	x		x	x	x	x	
Effective Insulation		x	x		x				
Boiler water control			x					x	
Wastewater management			x						
Technical Update - new machinery				x					
Chemical closing systems				x					
Flow meter at effluent points				x					
Boiler room update					x				
Water pinch analysis						x	x	x	x
Recycling and Reuse of Process-based Wastewater						x	x	x	x
Fill and draw system						x		x	
Balloon squeezing process						x			
Final rinsing reuse						x			x
Sand Filter						x			
Rainwater Harvesting						x	x	x	x
Cooling Water recycling						x			
Waste heat recovery						x	x	x	x
Heat recovery from wastewater						x	x	x	
Waste Heat Recovery from Compressed Air Systems						x	x	x	

Washing machines heat recovery	x	x
Steam Recovery in Sanforizing Process	x	x
Automated Water Softening System	x	x
Air system relocation	x	
Automated Dye Preparation/Dosing		x
Prevention of Cooling Water Discharge in Yarn Dyeing Process		x
Waste Heat Recovery in Heat Transfer Oil System		x

Table 1 Cleaner production techniques identified during the feasibility studies at 9 textile manufacturers between 2017 and 2018 (WWF-Turkey)

Feasibility studies have indicated that cleaner production measures most widely applicable are the use of LED lighting, the installation or upgrade of reverse osmosis technology (with implementation costs between 5,500 and 36,000 US\$²⁴ and one to two years payback period), steam trap maintenance and improvements (7,200 - 20,200 US\$, also amortized in one to two years), wastewater reuse and management (9,000 - 18,000 US\$, up to three years payback period), rainwater harvesting (18,000 - 36,000 US\$, five to seven years payback period) as well as heat recovery from waste, wastewater and systems such as air and washing (anywhere from 1,000 - 90,000 US\$ and amortized between one and four years).

For most factories, feasibility studies have also indicated that payback periods in total are unlikely to exceed three years, with one year being the minimum for most. As an approximate average, the aim is for investments to pay back within 48 months, but this is dependent on the size of the investment with the average loan, moving in a range of 90,000 - 200,000 US\$²⁵.

The improved production processes represent a cost saving of on average 200,000 US\$ per year per factory. While these investments and payback periods are very dependent on factory type and size, one can still estimate that for a target of 50 factories, a total of 10 million US\$ saving in total per year might be possible across the basin.

Estimations on the cleaner production investments and cost-savings in textile sector in Buyuk Menderes basin based on the outcomes of a textile pilot in Izmir are given in Figure 2.²⁶

²⁴ Converted from Turkish Lira on 6. August 2019 using Oanda

²⁵ GTE Carbon, 2018

²⁶ TTGV, 2020

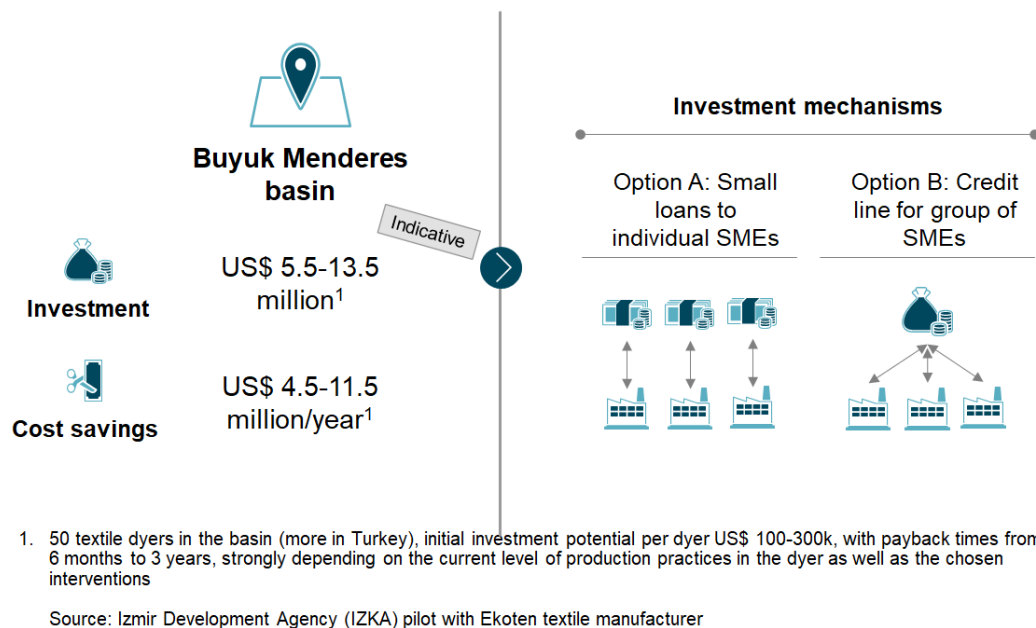


Figure 2. WWF-Turkey’s estimation on the cleaner production investment and cost-savings in textile sector in Buyuk Menderes basin

4.2 The development of the Bankable Nature Solutions for Turkey

The Bankable Nature Solutions concept aims at developing an ‘ecosystem’ of the different stakeholders throughout and around the supply chain aggregated at a river-basin level which aligns the goal of reducing pollution in the river basin with the commercial goals of textile factories and banks. Taking the solutions of the aforementioned barriers into account and ensuring commitment by all relevant stakeholders is the foundation of a bankable concept.

The following table summarizes the objectives, competences, incentives and barriers of the main stakeholders playing a role in the bankable project for Buyuk Menderes.

STAKEHOLDER	OBJECTIVES	COMPETENCE	INCENTIVES	BARRIERS
TEXTILE PRODUCERS	<ul style="list-style-type: none"> - Drive Profitability - Achieving compliance with environmental regulations 	<ul style="list-style-type: none"> - Key national industry institutions - Source of employment 	<ul style="list-style-type: none"> - Cost saving potentials - Regulatory advantages - Economic sustainability 	<ul style="list-style-type: none"> - Inactivity - Unawareness - Inadequate financing mechanisms
PUBLIC SECTOR (GOVERNMENT)	<ul style="list-style-type: none"> - Stimulate growth - Follow own political agenda - Avoidance of job losses 	<ul style="list-style-type: none"> - Strong voice with producers and chambers - Legislative authorities 	<ul style="list-style-type: none"> - Meeting development goals - Meeting prioritized agenda goals 	<ul style="list-style-type: none"> - Directives and hierarchical limitations - Specific agenda and criteria
WWF	<ul style="list-style-type: none"> - Conserve world's biological diversity - Restore Buyuk Menderes 	<ul style="list-style-type: none"> - Knowledge and previous cooperation with stakeholders - Access to know-how and financing 	<ul style="list-style-type: none"> - Need for action due to worsening environmental situation - Long project involvement 	<ul style="list-style-type: none"> - Limited reach - Financial restraints - Limited resources
INTERNATIONAL BRANDS	<ul style="list-style-type: none"> - Increasing revenues in an evolving market environment 	<ul style="list-style-type: none"> - Sufficient funding - Leverage over producers 	<ul style="list-style-type: none"> - Pressures from consumers interested in sustainably and ethically sourced products 	<ul style="list-style-type: none"> - Unstable political and financial environment (corruption, restrictions etc.)
FINANCIAL INSTITUTIONS	<ul style="list-style-type: none"> - Profitable investment opportunities 	<ul style="list-style-type: none"> - Financing - Incentivizing producers to act 	<ul style="list-style-type: none"> - Credit guarantees - Secure, positive NPV investments 	<ul style="list-style-type: none"> - Lack of transparency - Political challenges
REGIONAL DEVELOPMENT AGENCIES (MINISTRY OF INDUSTRY)	<ul style="list-style-type: none"> - Economic and environmental development of the region 	<ul style="list-style-type: none"> - Financial support - Know How - Experience 	<ul style="list-style-type: none"> - Governmental influence - Feasibility of projects 	<ul style="list-style-type: none"> - Limitations regarding priorities
LOCAL POPULATION	<ul style="list-style-type: none"> - Improved quality of life and job security 	<ul style="list-style-type: none"> - Word of mouth support 	<ul style="list-style-type: none"> - Threat of job cuts - Impact of environmental degradation 	<ul style="list-style-type: none"> - Initial hesitation - Fear of change

Table 2 Stakeholder Review for Bankable Solutions for Buyuk Menderes basin (WWF-Turkey, 2019)

Financing of feasibility studies by either brands or regional development agency represents the first step of the model and leads to awareness creation as well as understanding. Together with the assurance (purchase guarantees) of international brands and other buyers to keep purchasing as well as an encouraging financing environment instigated by local banks makes textile manufacturers now aware, assured, informed and ready to apply for loans and invest into cleaner production practices.

A more visual representation of the bankable concept for Buyuk Menderes is shown below:

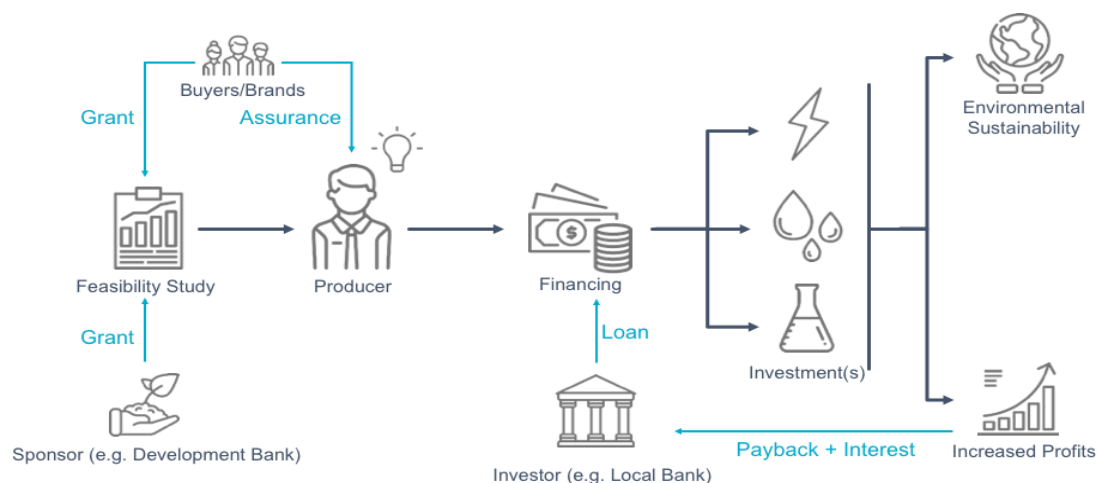


Figure 3. Financial model for Buyuk Menderes for cleaner production implementations at facility level

4.3 Bankable Solution Process in Buyuk Menderes

Table 3 presents a summary of the steps and timeline needed for the implementation of the Bankable Solution for Cleaner Production Process in Buyuk Menderes Basin:

Preparation phase	2007-2010	Involvement in the Buyuk Menderes river basin. WWF-Turkey promoted integrated basin management and efficient use of water in agriculture.
	2010-2013	A basin-wide water quality monitoring was implemented for 3 years and findings of the research were reported along with the outcomes of the socio-economy and ecology analysis ²⁷
	2015-2016	The Buyuk Menderes was chosen as one of the 15 pilot basins worldwide within the WWF Water Stewardship Program. WWF-Turkey developed a basin-wide Water Stewardship

²⁷ WWF-Turkey, 2013

Strategy for the target textile sector.

Planning phase 2016-2017

A framework for Cleaner Production in textile sector was developed to leverage best practices from projects within the WWF network and global textile sector initiatives to create a menu of site level best practices.

WWF-Turkey partnered with private sector, academia and public institutions to seek mechanisms to create finance to textile industry.

Feasibility studies to identify cleaner production technologies in 4 textile companies were conducted in Buyuk Menderes.

Implementation phase 2017-2018

WWF-Turkey in collaboration with the Chamber of Industry and the regional development agency (namely South-eastern Aegean Development Agency) launched “Cleaner Production in Textile Program” in Denizli.

7 textile companies that are interested in entering the program and willing to move towards cleaner production practices were announced as “Pioneers of Change”.

The Cleaner Production Guide²⁸, a report by H&M Group and WWF-Turkey outlining the concept of cleaner production, its functions, impacts and feasibilities in the Turkish textile industry (Buyuk Menderes in particular) was launched.

Initial results 2018-2019

“Call to Collective Action” meeting was held in Istanbul with brands, Garanti BBVA Bank, WWF-Turkey, WWF Freshwater Practice and the Denizli Chamber of Industry highlighting the progress of the project in Buyuk Menderes and possible roll outs.

“Brands Committee for Collective Action” was established.

Data provided by the Denizli Chamber of Industry showed that in the past two years 6.5 million € worth of investments have been invested into cleaner production practices. The chamber has also estimated 1.5 million cubic meters water savings due to the implemented investments²⁹

²⁸ WWF and H&M, 2018

²⁹ WWF Press Release, March 2019

The number of textile manufacturers that joined the program as Pioneers of Change has risen to 19.

Collaboration with the regional development agency resulted in grant support of 700.000 US\$ to cleaner production investments. The total number of feasibility studies at textile manufacturers has increased to 15.

Designing phase	2019	The Bankable Solutions case for Buyuk Menderes was developed in collaboration with WWF-Netherlands Green Finance Unit.
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Table 3 Summary of the Bankable Solution for Cleaner Production Process in Buyuk Menderes Basin

4.4 Challenges and Risks for the implementation of bankable solutions in the textile sector.

WWF-Turkey has identified a variety of bottlenecks throughout the dialogue with public and private sector stakeholders around the development and implementation of the cleaner production financial model for Buyuk Menderes.

a)Textile Manufacturers:

- **Lack of Awareness:** Textile manufacturers are not aware of cleaner production practices. While some know that possible measures exist, many do not know the extent to which they can derive tangible benefits, especially how they would look like on a factory level.
- **Order Uncertainties in a Traditionally Stationary Textile Sector:** Many manufacturers hesitate to change their system and production methods due to the fear of losing orders and business partners. Possible, temporary, shut-downs for the implementation of cleaner production measures are seen as possible threats to a running (and unchanging) business model.
- **Hesitation due to Financing Challenges:** While costs for water, energy and chemicals can be reduced - permanently having a positive impact on a company's cash flow statements - the necessary initial investments can be high and discouraging.

b)Public Sector

Lack of Support due to Priority Divergence and Political Resistance: Singular focus in public sector on renewable energy or limitation of support only for SMEs (excluding larger producers) could complicate the implementation of cleaner production techniques that focus on water treatment and chemical consumption.

c) Finance:

Lack of Access to Adequate Financing: Getting local banks to provide fair market risk adjusted rates for their loans is a key component in the bankable process. Hesitation from local banks might come from the current state of the economy, high cost of money (risk free rates are decreasing yet near 19%), proportionally small investments for elaborate due diligence processes and a low demand.

d) Preferential Selection of Manufacturers

In the past, grant support for feasibility studies has come from international brands which were at liberty to choose for which textile manufacturers' feasibility studies were to be made. Naturally, choices were limited to the largest manufacturers and main suppliers, leaving smaller enterprises (often outside of IPs and in need of cleaner production investments) behind.

e) Lack of Transparency and Resources:

Access to necessary and especially quantifiable information from various stakeholders has been challenging. Banks are currently not providing financial data such as market rates, loan data or interest estimates; the chamber of industry has not provided an in-depth overview of the already implemented investments (neither investment volume, locations, types, nor impacts); and clear collaboration with technical consultants is also still in progress.

5) Conclusions

WWF-Turkey has identified that enterprises in the textile dyeing industry could cut their costs and reduce their environmental footprint by cleaner production – saving water, chemicals, and energy – through a variety of interventions, ranging from changing chemicals and improving water management, to investing in new equipment and infrastructure all provided significant savings, with payback periods ranging from six months to two years.

WWF-Turkey has been tapping the benefits of a supportive ecosystem by working with industry associations to raise awareness about the program, identify potential candidates, and design effective interventions. It is also taking a blended finance approach: regional development agency provides a grant to cover the costs of a project's design, which is then used to raise commercial funding (US\$ 5.5-13.5 million credit line for enterprises from a commercial bank). The benefits are not limited to the Turkish textile industry: the model can serve as a blueprint to improve water management by textile manufacturers worldwide as well as in other industries (Figure 4).

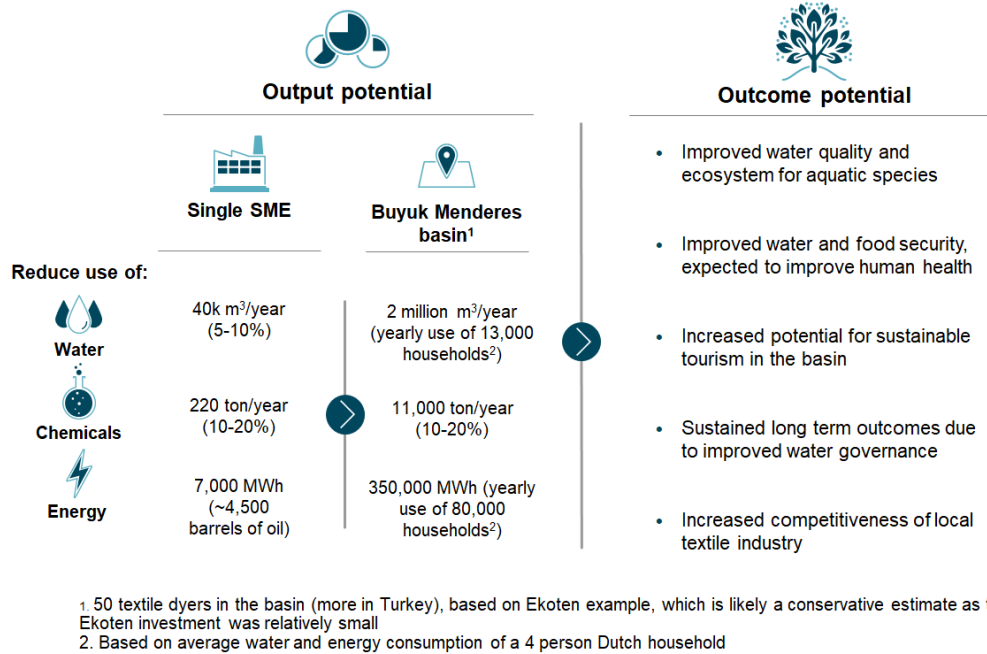


Figure 4 WWF-Turkey's Bankable Water Solutions Framework for Büyük Menderes basin

By Cleaner production implementations, the environment itself benefits from a decreased amount of chemicals and effluents floating into the water bodies from the textile sector. Water quality can recover as only a fraction of pollutants enter the streams. Water quantity will also be less of an issue in the streams as less water is required by factories.

Despite the challenges, due to thorough involvement in the Büyük Menderes river basin in the past years, as well as the current progress regarding feasibility studies and the engagement of stakeholders (through workshops, one-on-one meetings, questionnaires etc.) the project has evolved to become a flagship example of a bankable freshwater solution.

The project provides support to the contribution to the water resources (SDG 6), energy consumption (SDG 7), Inclusive and sustainable industrial development with resilient infrastructure and innovation (SDG 9), substantial use of chemicals and ensure sustainable consumption and production patterns (SDG 12), and aquatic and terrestrial ecosystems (SDG 14 and 15).

While stakeholders are diverse, the envisioned mutually beneficial solution incorporates respective goals whilst mitigating risks through collaboration and assurance of the stakeholders amongst themselves. This places WWF-Turkey in a position as a mediator, matching stakeholder needs and interests while slowly working toward environmental rehabilitation in the basin.

WWF-Turkey's collaboration with chamber of industry, brands, industrial park management and the distribution of reports are all means of creating awareness and bringing movement into the sector. Feasibility studies performed by local consultancies have shown manufacturers how costs can be reduced, and cleaner production practices are a solution for the environment and business alike.

Assurance from the international brands to continue, if not even increase or commit to orders would alleviate textile manufacturers of the fear of losing business while simultaneously working towards a more future-oriented business model.

First loss or credit guarantees by development financial institutions and funds investing into the more junior and riskier tranches of the project can mitigate the fear of local banks. Simultaneously, collaboration with their respective lenders such as the European Bank for Reconstruction and Development (EBRD), where interests are aligned, could even incentivize them into engaging more actively.

Collaboration with local banks can ensure financing at advantageous terms (meaning risk adjusted market rates) while the feasibility studies provide certainty on the payback periods and essence of the investment. The current economic stagnation, difficult cash situation and high borrowing costs make funding rather difficult for banks; however, a strong track record and years of experience are an advantage for many textile manufacturers in Buyuk Menderes.

The next steps include creation of the first draft of Financial Model Assumptions; testing of these assumptions with stakeholders; and to create concept on single financing and de-risking opportunities. As part of this, WWF-Turkey will initiate a series of panel discussions with public, finance and textile sector stakeholders outlining their respective competencies, motives, mutual connections as well as reasons for hesitation and sources of risks with the ultimate goal of developing a multi-stakeholder platform.

As the project evolves, gains momentum and recognition, independence is expected from the stakeholders to continue the concept themselves without WWF-Turkey in the role of a mediator. The goal is to reach the level of momentum where sufficient attractive pilot projects make textile manufacturers on all levels and tiers want to engage, while brands as well as financial institutions are eager to offer standardized support³⁰ in order to sustain economic viability and simultaneously improve the environmental condition of this river basin.

Acknowledgements

Special thanks to H&M Group, IKEA, Inditex, WWF-NL Green Finance Unit Team, the technical experts of GTE and all stakeholders involved in the implementation of the project described in this paper including Aaron Vermeulen, Keiron Brand, Philip Stoll, Kemal Demirkol, Emrah Alkaya and Engin Koç.

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³⁰ Through grants, market risk-adjusted loans, purchase guarantees as well as other non-monetary support.

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