Planet Tracker

EASY (UN)PICKINGS

Investing in environmental improvements at wet processors generates positive financial returns

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A Case Study with Apparel Impact Institute

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KEY TAKEAWAYS

Wet processors have the largest environmental impact in the TAC (Textiles, Apparel & Clothing) supply chain. This comes from their high energy, water and chemicals use. The water risk associated with wet processors was discussed in an earlier Planet Tracker report, "Will Fashion Dye Another Day?" and the lack of environmental disclosure in "Threadbare Data", This report highlights the opportunity for significant financial gains from investing in processes that lower the environmental footprint of wet processing.

Many wet processors could make simple, practical improvements to lower operating costs at the same time as lowering their environmental impact. However, these are often not implemented due to a lack of funding (among other reasons - see Box 1).

This report highlights the huge investment opportunity available to financial institutions to generate impressive investment returns while making a significant difference to the planet.

This note uses data shared with Planet Tracker by the Apparel Impact Institute (Aii) to show that **helping the planet brings financial returns that cover the investment required in less than two years** on average.

Across a sample of 67 wet processing facilities:

- An average one-off investment of USD 455k produced:
  - Average annual cost saving of USD 369.5k
  - Average payback period of 13.8 months
  - Average annualized return on investment was 68%
  - IRR (internal rate of return) of 33% after 2 years
  - Average annual energy efficiency saving 12.6%
  - Average annual water saving 11.5%
  - Average GhG[1] emission reduction 10.8%

1 GhG refers to greenhouse gas. Savings here are mainly from carbon being used to provide energy

BRIEFING PAPER
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BOX 1 – Why haven't wet processors made these changes already?

- Lack of access to knowledge and/or expertise – not knowing how or what they can do
- Lack of access to bank loans (for smaller wet processors or those with less cashflow)
- Lack of understanding for potential savings (financial and environmental)
- Little regulatory pressure requiring changes
- Not enough pressure coming from customers / multiple customers

Implementing these savings across the textiles industry in China (for example) could improve the industry operating profits by around USD 2 billion a year or 8%, resulting in a 40bps[2] improvement in operating margin from 4.1% to 4.5%.

However, wet processing facilities can struggle to get investment to fund this transition, as well as the knowledge and support needed to operate and maintain them.

This is a huge opportunity for investors to facilitate a key environmental transition for wet processors through a range of funding mechanisms, as well as other parts of the textiles manufacturing chain such as garment manufacturers.

Impact investors are in a unique position to have an opportunity to invest directly into the wet processors themselves or into another vehicle that is directly investing.

We call for investors to:

- Actively seek opportunities to directly invest in the supply chain of textiles producers, and take advantage of JVs or pooled debt to affect change.
- Continue to pressure brands to insist on transparency from Tier 2 & 3 suppliers (as well as Tier 1) and to encourage them to invest in supply chain improvements.
- Seek partners such as Aii to help aid external investment opportunities.

We call for companies and brands to:

- Issue ESG-labelled bonds to specifically fund the transition and improvement of wet processing companies (could be SLBs but could be other GSS – Green, Social, or Sustainable Bonds).
- Cultivate long-term relationships with suppliers to enable them to get secured financing – move supplier relationships to one of mutual risk mitigation as opposed to transactional.
- Push for active and consistent environmental transparency from their own operations as well as those of their suppliers.

2 bps or basis points refers to a common unit of measure for percentages in finance. The relationship between percentage changes and basis points can be summarized as follows: 1% change = 100 basis points and 0.01% = 1 basis point

TEXTILES SUPPLY CHAIN FOCUS

Planet Tracker thinks about the Textiles supply chain as a group of nodes - see Figure 1. Our Textiles programme focuses on the nature-based risks and opportunities at each node of the supply chain, enabling us to take a more systems-based view of the whole supply chain.

This report focuses on wet processing, which is part of the fabric manufacturing node (the processing of dyeing and printing 'greige' fabric[3]).

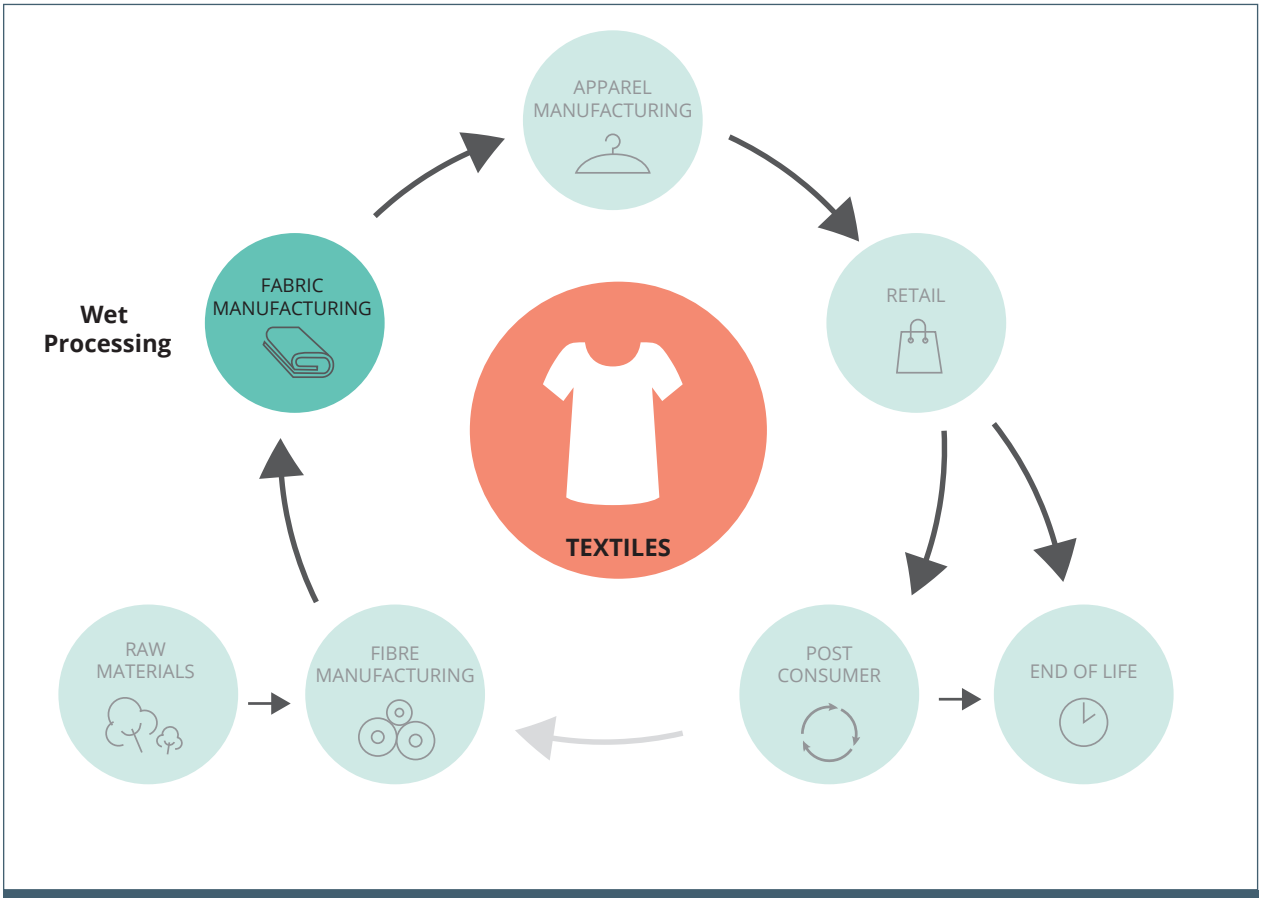


Figure 1: *Planet Tracker Textiles Supply Chain*
Source: Planet Tracker

3 Greige, or raw, fabric refers to an unfinished material that has neither been fully bleached nor dyed

WET PROCESSORS ARE KNOWN TO HAVE A LARGE ENVIRONMENTAL IMPACT

Two previous reports ("Will Fashion Dye Another Day?" and "Threadbare Data") focused on understanding the water and reporting risks for the investors behind wet processing companies.

The focus has been on the wet processors, as this stage in the Textiles supply chain has been shown to be a significant driver of the negative environmental impacts arising from the textiles industry,[4] as shown in Table 1.

Table 1: *Environmental and Social Impact of the Textile Supply Chain (rows may not sum to 100% due to rounding).*[i]

	Raw materials / fibre production	Fibre and fabric producers		Wet processing	Garment assembly	Distribution and retail	Disposal
		Yarn preparation	Fabric production				
Climate change	16%	28%	12%	36%	7%	1%	1%
Human health	21%	26%	11%	32%	8%	1%	0%
Ecosystem quality	30%	21%	9%	30%	9%	1%	0%
Resources consumption	18%	25%	10%	38%	7%	2%	0%
Freshwater withdrawal	31%	23%	11%	27%	8%	0%	0%

This paper highlights the significant investment opportunities available for those who are willing to assist wet processing companies in transitioning to more sustainable business practices.

With the introduction of corporate greenhouse gas accounting, companies are increasingly focused on reporting Scope 3 emissions – which cover all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Companies and brands are therefore more incentivised to take responsibility for the impacts of their supply chain and the raw materials used (as well as the reliance on key resources and inputs, such as water, on energy). As such, we expect brands to have an increasing need to assist their suppliers in making the transition to more sustainable business practices.

However, the fact that their suppliers are often serving several companies and brands can make brands reluctant to fund the transition cost on their own (and co-ordinated action with other brands can be challenging).

4 Table 1 excludes the environmental impact of micro-plastics (including oceanic pollution) so it is likely it understates the negative impact of the disposal stage on ecosystem quality and (potentially) human health

This leaves an opening for investors.

To get a better sense of the magnitude of the opportunity Planet Tracker has collaborated with the Apparel Impact Institute (Aii), a not-for-profit collective founded in 2017 by four industry leaders: the Sustainable Apparel Coalition (SAC), the Sustainable Trade Initiative (IDH), Natural Resources Defense Council (NRDC) and Target Corporation. The organization emerged organically because of a real need that apparel brands and retailers self-identified. Aii identifies, funds and scales proven quality solutions to accelerate positive impact in the apparel and footwear industry. Part of its focus is to identify opportunities and scale initiatives for wet processing mills to improve operational and environmental efficiency - see Box 2.

BOX 2 - The Apparel Impact Institute (Aii)

Who they are

Aii identifies, funds and scales proven impact solutions by curating partnerships with industry and other professional services. Using proven apparel supply chain solutions that address the most urgent sustainability needs, they aim to transform the textiles industry to have a positive and measurable impact on people and planet.

What they do

The Aii has four key programme areas - energy, water, chemicals and materials use.
Each programme must meet the following criteria:

1. Impact Focused: Programmes must focus on the most urgent environmental and social needs in the apparel supply chain. For example, their flagship Mill Improvement Programme is focused on wet processing facilities within the apparel and textile supply chains, where data shows there is the greatest impact.

2. Measurable Significance: Impact significance is quantified via third party validation- estimates are not sufficient.

3. Transparent Data: Validated results are shared via their programmes' database which encourages industry collaboration to improve standards year-over-year, while maintaining facility confidentiality.

4. Scalability: Programmes are designed to be simple, cost-effective and repeatable, to ensure they make a global impact.

5. Focused Programmes: By focusing on programmes that address energy, water, chemistry and materials, they target areas where they can maximize scalable impact.

6. Capacity Building: A critical component of programmes that they scale is that they must train facility staff beyond initial implementation. Aii identify programmes that contribute to capacity building by training staff in the facilities, locally and nationally.

Discussions with industry experts[ii] reveal that with the right investment and knowledge, there are plenty of simple sustainability improvement wins for wet processors, especially when it comes to lowering energy and water use and shifting to safer and greener chemicals. Indeed, it is often the case that lower energy use and better water and chemicals management practices go hand in hand.

Aii have proved this to be the case in practice through their work with wet processing companies in a variety of countries. Aii's experience is that investment produces real environmental improvements by wet processors (an average of 126k m^3 per year in total water consumption saving, 7,500 tons per year steam saving and 62,000 tons per year in wastewater discharge saving) together with cost savings, resulting in payback periods of just over a year and average annual operational savings of USD 370,000.

We do not have the information to calculate the operating margin *improvement* from the cost savings across the wet processors sampled. However, according to China's Ministry of Industry and Information Technology (MIIT), in Q1 2021 China's textile industry[5] generated 1.05 trillion yuan (USD 9.5 billion) of revenues and 43.4 billion yuan (USD 391 million) of profits, an overall operating margin of 4.1%.[iii] This ties in with other sources such as China's National Bureau of Statistics which also reports small single digit operating profit for the textiles (dyeing) industry. As such, for an industry with relatively low margins and high energy and water requirements, this means that profitability is at risk of being significantly impacted by higher operational costs, resulting from environmental stresses that lead to higher prices on these inputs. Measures put in place to reduce these inputs can actually help to reduce costs and also reduce risk from high prices in the future.

From an investor perspective this presents an opportunity for direct investment, but also an important risk mitigation strategy that they can encourage companies to pursue.

5 Firms with over 20 million yuan of annual turnover

IMPROVING WET PROCESSING OPERATIONS IS NOT HARD OR EXPENSIVE

Simple process changes and better management and training can reduce energy use, GhG emissions, water and chemical use, and wastewater output, all while generating cost savings from using fewer inputs. While the changes themselves can be fairly simple in practical terms, implementation knowledge and expertise are required.

Focusing on reducing energy use can have knock-on effects for other inputs; therefore, the inputs must be regarded holistically. In wet processing, the use of energy, water and chemicals rely on each other. Often fabrics are dyed in water at high temperatures. Using less water (for example) can also mean that less energy is required to heat the lower volume of water and perhaps even a lower amount of dyeing chemicals is needed. The solution isn't necessarily as simple as this, as to find processes requiring less water, slightly higher temperatures may be required or a higher concentration of chemicals, which in turn may require more water to dispose of the chemicals. Therefore, finding the "best" environmental process can be a balancing act between those key inputs and outputs and require a significant amount of process knowledge.

There are measures that can be taken to both improve the energy and water efficiency, and lower costs at wet processors by focusing on projects that address areas with scalable impact.

Aii have focused on projects covering energy, water, chemicals and materials use. Clean by Design, a program within Aii, is a turnkey green supply chain programme focused on scaling up energy, water and chemicals efficiency in textiles manufacturing, including wet processors. The process typically takes six to eight months, with the following key ten best practices as a focus:

1) Install meters & detect leaks
2) Optimize compressed air
3) Collect & recover condensate
4) Reuse cooling water
5) Reuse process & wastewater
6) Recover heat from hot water
7) Improve boiler efficiency
8) Maintain steam traps & system
9) Improve insulation
10) Recover heat from exhaust gas & heating oil

Many of these improvements are linked to equipment upgrade and process improvement – where an investment is required to upgrade equipment and, crucially, to train personnel. Some further problems and solutions are listed below.

Energy efficiency measures

- *Problems:*
  - Energy is one of the main cost factors in the textile industry[iv] due to high price volatility. Wet processing specifically uses a large amount of thermal energy in the form of steam and heat. The source of this energy is usually fossil fuel-based, rather than renewably sourced electricity. In addition, the loss of energy onsite through badly insulated hot water is a problem.
  - Many textiles manufacturers are small and medium enterprises (SMEs) with a lack of access to information on how to implement energy efficiency measures.
- *Some general improvement measures*
  - Implementation of energy saving equipment such as installing tank covers or hoods, automatic valves in washing and better equipment maintenance.
  - Temperature control including reduction in temperature of processes like rinsing and reducing the time taken to rinse, installing heat recovery equipment, point-of-use water heating and heat insulation.
  - Investment in education of management around process changes.

Water (and chemistry) measures

- *Problems:*
  - Pollution of water in regions of high water stress is a well-documented issue with wet processing.
  - In wet processing, most water is used in the washing stage in order to treat the dye-polluted effluent.[v] Therefore, dyeing textiles (coloration) uses a large/significant amount of water.
  - Due to increasing freshwater regulation in certain regions restricting the amount used, there is also an increasing focus on water use in wet processing.
- *Measures and technological improvements*
  - The techniques for conserving water while processing textiles include low wet pickup application, foam finishing, the cold pad batch[6] method, the counter current washing technique[7], the latest dyeing equipment and solvent dyeing methods.[vi]
  - Wastewater management through controlling effluent discharge by optimising water consumption through reuse of water (and chemicals) either from other processes or by combining various processes.
  - Investment in education of management around water and chemicals policy, including entities like ZDHC (an organisation which guides value chains towards the use of safer chemistry) and green chemistry initiatives.

6 Cold Pad Batch (CPB) dyeing offers the most economical and convenient method of dyeing cotton with reactive dyes. The energy and water consumptions are at the lowest and salt addition is eliminated, thus rendering it more eco-friendly and the dye fixation is also high.

7 Counter Current Washing technique is employed frequently on continuous preparation and dye ranges for water and energy savings. The cleanest water contacts the cleanest fabric, and the more contaminated wash water contacts the fabric immediately as it enters the actual process. This method of water reuse is opposed to the traditional washing method of supplying clean water at every stage of the washing. It is also easy to implement in existing mills where there is a synchronous processing operation.

The fragmentation of the textiles industry in location, process and materials used means that a wide variety of substrates, machinery and components, processes and finishing steps is undertaken. This complexity means that not all finished fabrics are the same and so can require a whole set of different inputs and, while you can find plant-specific data, each facility is likely to see cost savings from a range of different methods.

The selection of materials by the brand also has a direct impact on the requirement of energy, water and chemicals used. For wet processing specifically, the energy used depends on various factors such as the form of the product being processed (fibre, yarn, fabric, cloth), the machine type, the particular process type and even the state of the final product.

Energy, water and chemicals use are not independent of each other either. For example, a significant share of thermal energy is lost in a dyeing plant through waste (hot) water loss.

These investments are financially attractive

The struggle for many wet processors is accessing funding to implement these environmental efficiency saving measures.

However, based on data provided by the Aii, we believe these investments could be attractive, with fairly low initial investment, short pay-back periods of around a year, a double-digit IRR after just two years and significant cost reductions.

For 67 wet-processing facilities located across Mainland China and Taiwan the average energy efficiency investment per facility is USD 455,000 in total, with an average annual cost savings of USD 369,500, implying an average 13.8 month payback period – see Figures 2 & 3.

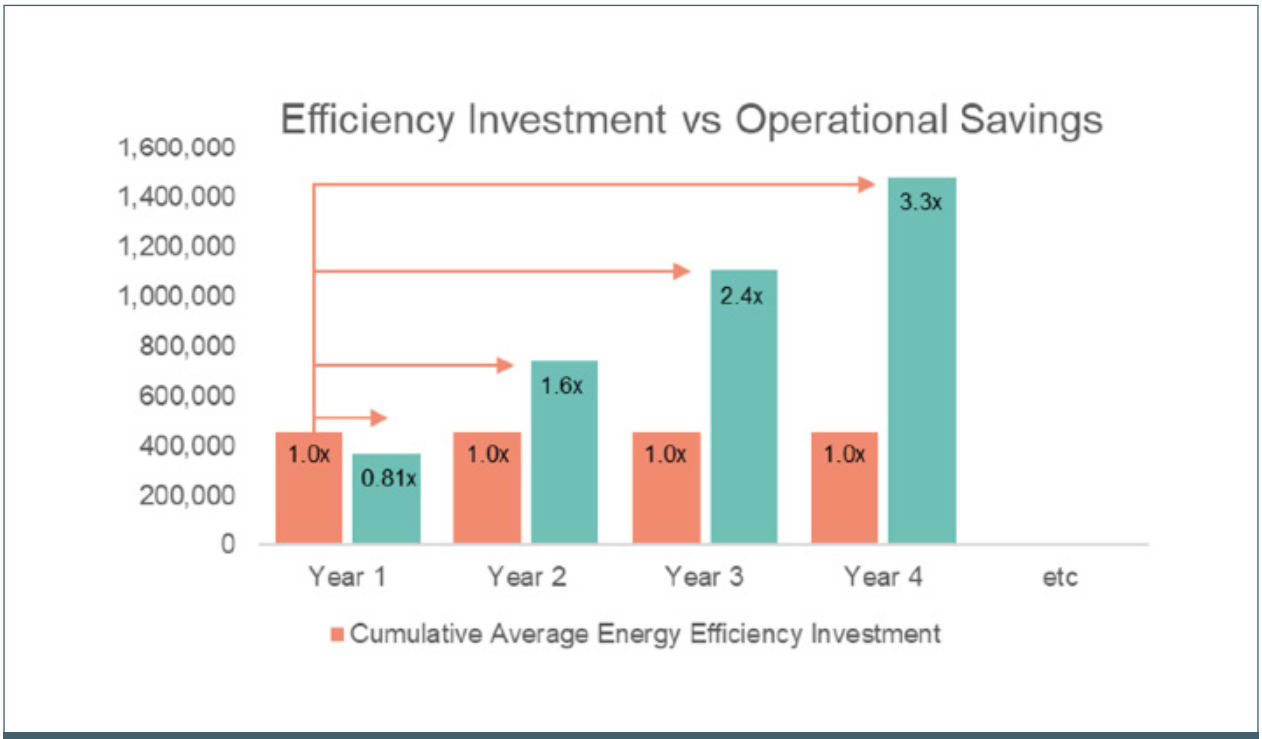


Figure 2: *Energy efficiency returns from investment*
Note: Wet processor sample size of 67, located in Mainland China and Taiwan

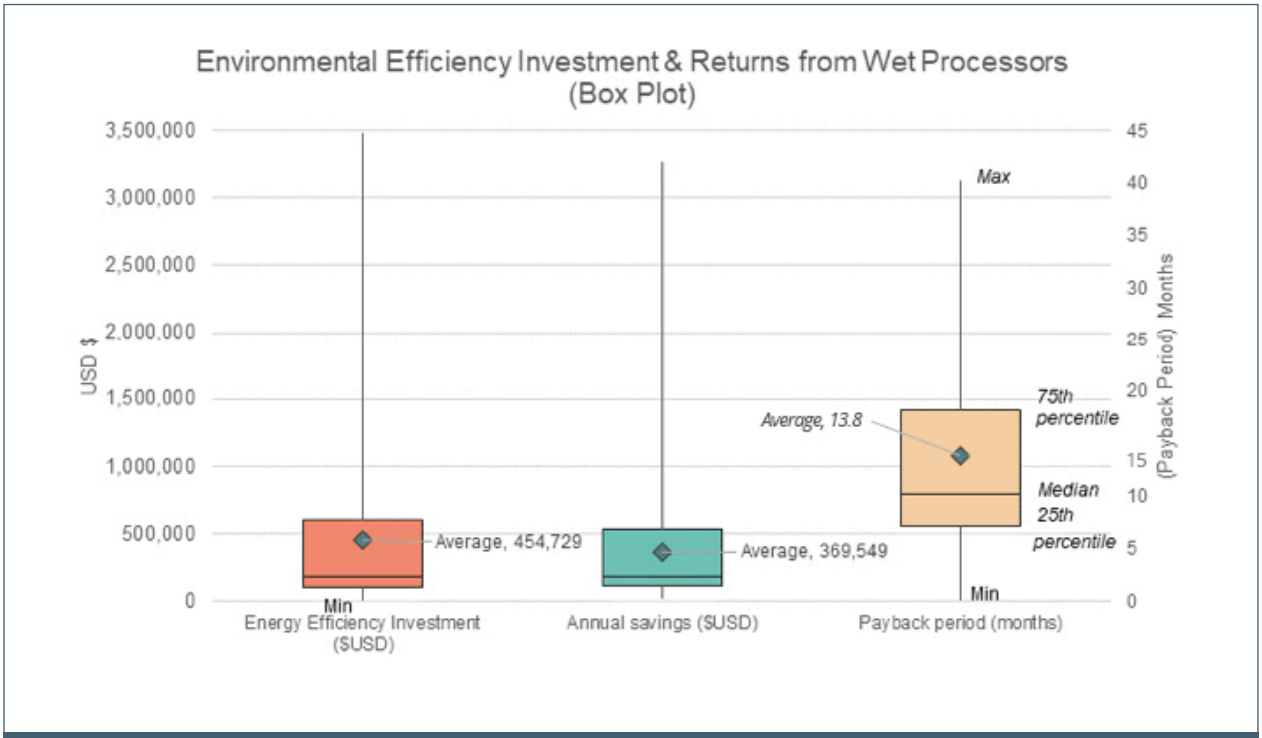


Figure 3: *Box plots[8] showing energy efficiency returns from investment*
Note: Wet processor sample size of 67, located in Mainland China and Taiwan

Crucially, the internal rate of return (IRR) of these projects is 33% after just two years of operational savings (and 55% after three years) – see Figure 4. In China, PE/VC generated returns of up to 24%, with over 70% of those PE/VC companies indicating a hurdle rate[9] of between 5-14% was preferable.[vii]

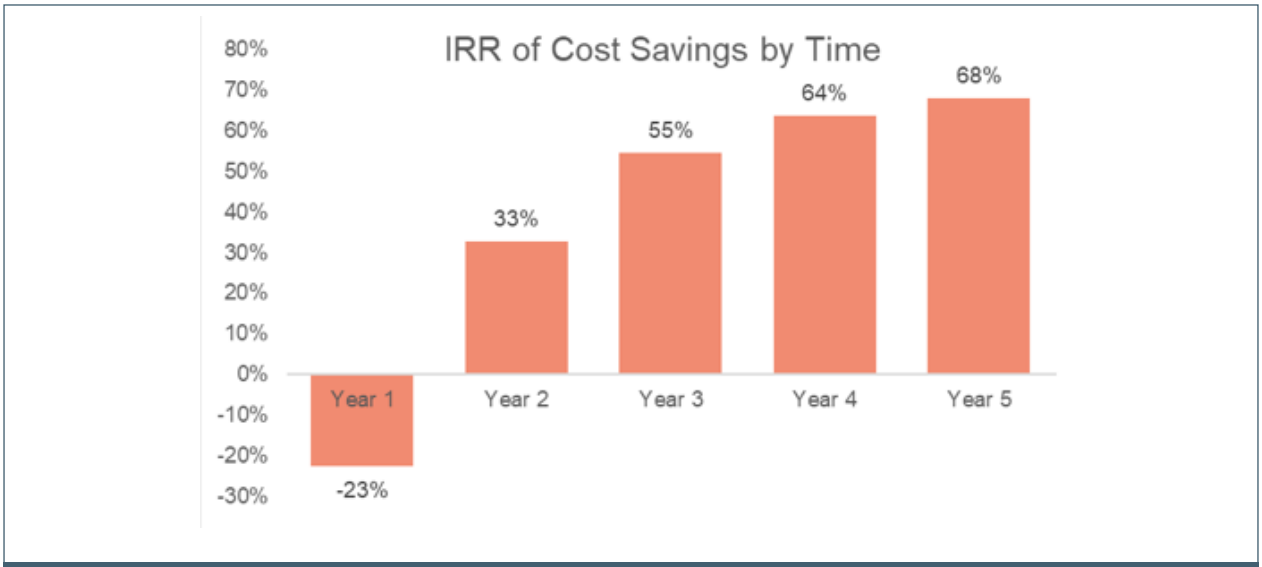


Figure 4: *The IRR of the project is at 33% after just 2 years of operational savings*
Note: Wet processor sample size of 67, located in Mainland China and Taiwan

8 Box plots divide the data into sections, with each section containing 25% of the data. This provides a visual summary of the data enabling the reader to quickly identify the mean value, as well as the 25th and 75th percentiles and the max and min values, the dispersion and skewness of the data. On these box plots, we also show the mean average.

9 Hurdle rate is the minimum rate that a company wants to earn when investing in a project. It is also called the required rate of return or the target rate.

The average annual cost savings of these 67 facilities over a 13.8 month period gives an average annualized Return on Investment (ROI) of 67.7%. This is impressive, more so when you consider the minimum annualized ROI in the Aii sample was over 20% and the maximum was over 200%. These are significant for the companies and their investors - see Figure 5.

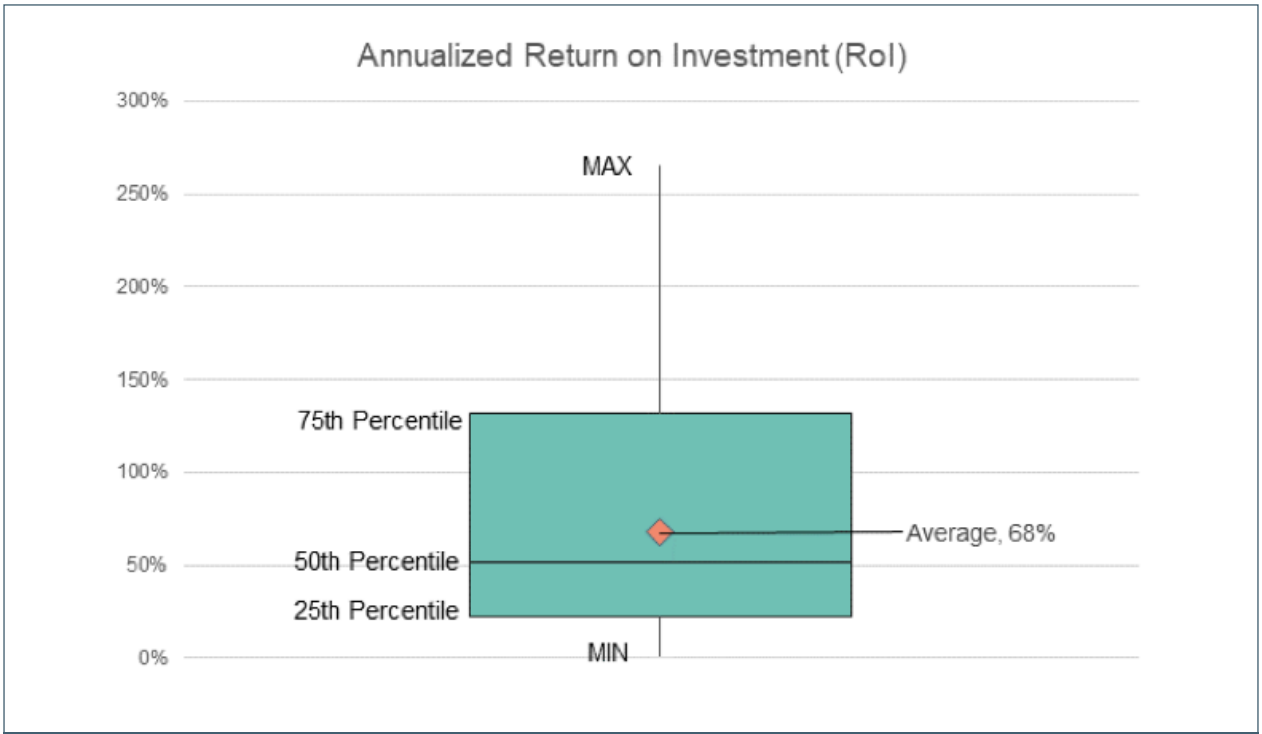


Figure 5: *Annualized Return on Investment (ROI) for the wet processor sample size of 67, located in Mainland China and Taiwan*

Press reports indicate that the operating margin for textile production in China was just 4.1% for the first three months of 2021.[viii] While this was for firms with profits of over USD 20 million yuan (USD 3 million), and this marked a significant improvement year-on-year, it is likely that single digit operating margins are normal. As such, any cost improvement will be extremely beneficial.

Double Digit Energy and Water Savings are Achieved

The average reduction in energy for the 67 wet processors is 12.6% per facility (with a range of energy reduction of 0.1-77%[10]).

In addition to these energy savings, there are commensurate water savings. The average steam saving is 7,500 tons/year, water consumption reduction 125,500 m^3 per year and wastewater discharge reduction of 61,500 tons per year. These don't always correspond due to water reuse efforts in the facility - see Figure 6.

10 Data from Aii

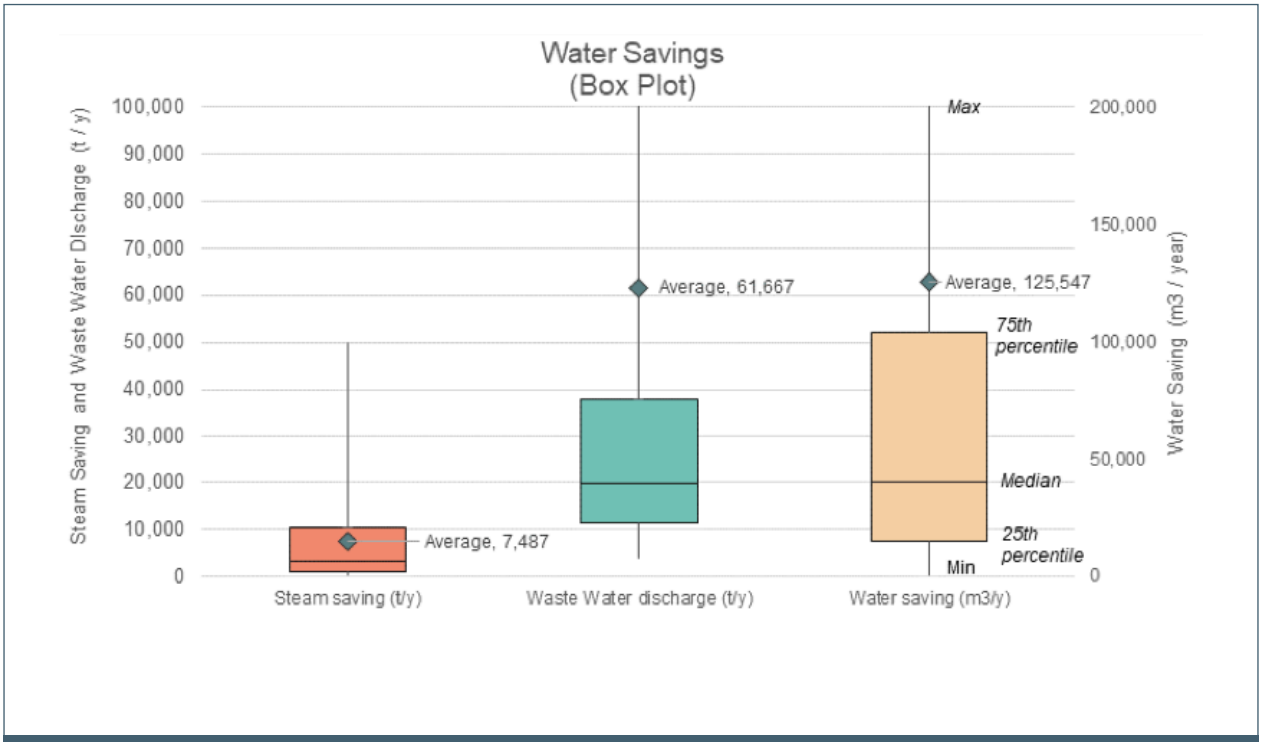


Figure 6: *Water-based savings from efficiency investment*
Note: Wet processor sample size of 67, located in Mainland China and Taiwan

These results are consistent with Aii's inaugural programme with Clean by Design focused on energy and water savings for wet processors[11] in Vietnam, performed in 2020, which resulted in 10.6% energy reduction and 12.9% water reduction.[x] Many of these savings come direct from capturing "low-hanging fruit" by implementing Aii's Clean by Design 10 Best Practices - see Table 2.

Table 2: *In this Stage 1, the average payback period was 19.5 months.*

	Clean by Design's top 10 practices
1	Metering & leak detection
2	Cooling water reuse
3	Recover heat from hot water
4	Maintain heat traps and systems
5	Recover heat from exhaust gas and heating oil
6	Improve boiler efficiency
7	Improve insulation
8	Condensate collection & recovery
9	Optimize Compressed Air
10	Process & Wastewater reuse

Source: Aii[xi]

11 In the Clean by Design programme, they refer to wet processors as Tier 2 and garment manufacturers as Tier 1. In this report we focus on Tier 2 manufacturers.

Aii doesn't just deal with wet processors, they have also worked with other facilities, including (but not limited to) cut & sew, and laundry and footwear facilities. For their Clean by Design Energy Efficiency Stage 1 Tier 1 programme for facilities without wet processing, they achieved an annual reduction in energy of 3.05% (with the maximum saving being 15%) and an average water reduction of 10%, for 13 facilities (across 4 brands) in Vietnam in 2020.[xii]

BOX 3 – EXAMPLE:
Suzhou Nanhua Textile Finishing Technology Co., Ltd. (Nanhua, China)[xiii]

Motivation

Ability to take swift action for environmental protection
Ongoing government requirements around the environment (including inspections and accountability for waste and chemicals usage)
Market pressure and expectations from customers

Achievements

Focused on projects around Water management, Chemical reuse, Equipment upgrades, and Process improvement

- Water savings of 70%: In 2019 alone, Nanhua saved about 1.2 million cubic meters of water and 2,300 tons of carbon dioxide from greenhouse gas emissions.
- Energy savings of 30%
- Greenhouse gas savings of about 30%, which has significantly reduced production costs and improved the market competitiveness of the plant.

Numbers

- One-time investment: USD 3 million USD (21.45 million RMB)
- Annual savings: USD 3.8 million USD (26.85 million RMB)
- Investment payback: ~10 months

Challenges

- Technical implementation (required some practical trial and error as well as support).
- Largest investment of time was due to retraining of personnel linked to process change.

A HUGE OPPORTUNITY FOR INVESTORS

The benefits of Aii's Clean by Design process are clear, with not only environmental improvements but financial gains as well. However, one of the most often cited issues amongst wet processing companies and facilities is how to get financing to fund their environmental transition.

Funding is required not just for new equipment, but also for management training about how to best optimise processes, as well as continuing further education for staff about (current and future) policies and organisations that can aid the transition. This training and education is vital to ensure long-term results. The actual transition consists of many "low-hanging fruit" opportunities when it comes to improving the environmental footprint of a wet processor.

However, a sticking point is getting access to the investment required. The amounts vary (in our data set from Aii the minimum investment was USD 0[12] and the maximum was almost USD 3.5 million), so while some wet processors may be able to afford some or all of these transition costs, the USD 455,000 average investment can be too high for some of the smaller wet processors.

In addition, for wet processors in South-East Asia, accessing funding through traditional financial institutions like banks can be difficult.[xiv] In China, small and medium enterprises (SMEs) face particular obstacles when it comes to accessing financing, along with other challenges such as taxes, local bureaucracy and complex regulation. A recent paper by Lam and Liu,[xv] showed these difficulties are more acute in smaller cities and that there are higher rates for SMEs when compared to large enterprises due to a higher credit risk and fees and charges. This same paper found that 60% of SMEs in China had bank borrowing costs between 5-10% and the rest over 10%. Meanwhile, investors are not necessarily aware of the funding opportunity and not sure how to get involved.

Currently Aii works to fund programmatic work (hiring an engineer to visit facilities and help them identify energy efficiency improvement opportunities) through a variety of methods, applying a mix of philanthropic (especially for pilot projects), brand and manufacturer funding. Philanthropic funding has been reserved mainly for the pilot and model (scale-up) projects, forming a third of funding for the feasibility work (with the rest being split equally between the brand and the manufacturer). The feasibility assessment typically costs USD 15,000 – USD 20,000 depending on the type of facility and location.

However, the capital cost of implementing the facility improvements (USD 455,000 on average) falls almost entirely on the manufacturers. Brands can be unwilling to fund the transition of their suppliers, often as their suppliers are serving several companies and brands. This creates a need for financial capital to help fund these capital improvements.

Below we outline some of the ways we believe can be used to help fund this critical work and speed up investment in an area that offers significant financial gains and environmental improvements.

12 We presume zero investment is capex-related and management time wasn't costed into this

INVESTOR CALL TO ACTION

We believe this is a huge opportunity for investors to facilitate a key environmental transition for wet processors through a range of funding mechanisms, as well as other parts of the textiles manufacturing chain such as garment manufacturers.

There is a clear role for international development banks in conjunction with these types of projects, either to provide capital directly, to operate in conjunction with other financial institutions, or to act as a facilitator of a collective funding vehicle such as a 'pooled bond'.

Indeed, we believe investors need to actively seek and be willing to set up vehicles to help fund wet processors in their transition to environmentally better practices given the cost saving benefits.

The numbers speak for themselves - overall investment opportunities are in the range USD 200,000 - USD 2 million, with the average being USD 455,000 and average annualised ROI[13] of 68%. Below we suggest a few ways we believe the investment community can help to facilitate this change.

SUSTAINABILITY LINKED BONDS AND OTHER GREEN BONDS

The continuing growth in ESG-labelled bonds[14] such as sustainability-linked bonds (SLBs) poses a significant opportunity for investors and manufacturers. Companies from Chanel to H&M have already raised debt through SLBs.[xvi] Both Chanel and H&M specifically mentioned reduction of supply chain emissions as one of the core KPIs they needed to meet to avoid triggering an increase in the coupon on the bonds.[15]

We see a more direct opportunity for a pooled green bond specifically linked to improving the environmental footprint of wet processing. The advantages of an external investment vehicle like this benefit multiple parties:

- For the investors:
  - Pools risks and returns by diversifying the group/region of wet processors they are exposed to
  - A way to support several wet processors at once
- For investee companies (wet processors):
  - Access to a greater range and type of investor funding
- For the brands:
  - Facilitate funding into wet processors
  - Cultivate longer-term relationships with suppliers to enable them to get secured financing

13 Return on Investment

14 Bonds where the use of the proceeds is connected in some way to an environmental, social, or governance-related purpose or the payment of the coupon is linked to a key performance measure.

15 Refer to 'Ethical debt is the new bespoke fashion' for more details on the Sustainability-Linked Bond issued by H&M in March 2021

INVESTORS CAN WORK WITH OUTSIDE INSTITUTIONS

Investors should work with institutions like Aii to identify opportunities to fund these transitions. Other institutions such as Fashion for Good have an associated investment fund, the Good Fashion Fund. This fund invests in the adoption of high impact and disruptive technologies and circular innovations in the textile & apparel production industry in Asia (India, Bangladesh, Vietnam), by helping manufacturers and operators to implement these technologies, through the use of recyclable and safe materials, clean and less energy, closed-loop manufacturing and the creation of fair jobs and growth. Both Aii and Fashion for Good have a unique position as being able to act as a conduit for investors and manufacturers.

EXCITING OPPORTUNITY FOR IMPACT INVESTORS

These investments present a specific opportunity for impact-led investors and funds. According to the Global Sustainable Investment Alliance (GSIA), as of 2020, global sustainable investment assets were measured at USD 35.3 trillion, up from USD 22.8 trillion in 2016 – a 55% increase. In 2020, 36% of total assets under management (AUM) were reported as sustainable investment AUM, up from 28% in 2016.[xvii]

Impact investing represents a much smaller portion of these assets, with impact/community investment[16] accounting for USD 352 billion AUM in 2020 (1% of total sustainable investment AUM).

Of the seven core sustainable investment strategies[17] defined by the GSIA, sustainability-themed investing represents the fastest growing strategy, accounting for USD 2 trillion AUM (5.5% of total sustainable investment) in 2020.

However, there is momentum behind impact investing. Its requirement to achieve positive social and environmental impacts necessitates measurement and reporting against clear performance indicators, which is attractive to investors wanting to reduce the risk of greenwashing.[xviii]

We see these types of funds and investors as being particularly interested in investing in the projects like the ones we outline in this report, as they have measurable and reportable outcomes, with clear financial and environmental impacts. As impact investing covers a range of asset classes, including public and private equity, as well as fixed income and real assets, a range of evidence-based impact investors across various asset types could be attracted to Aii's projects.[xix]

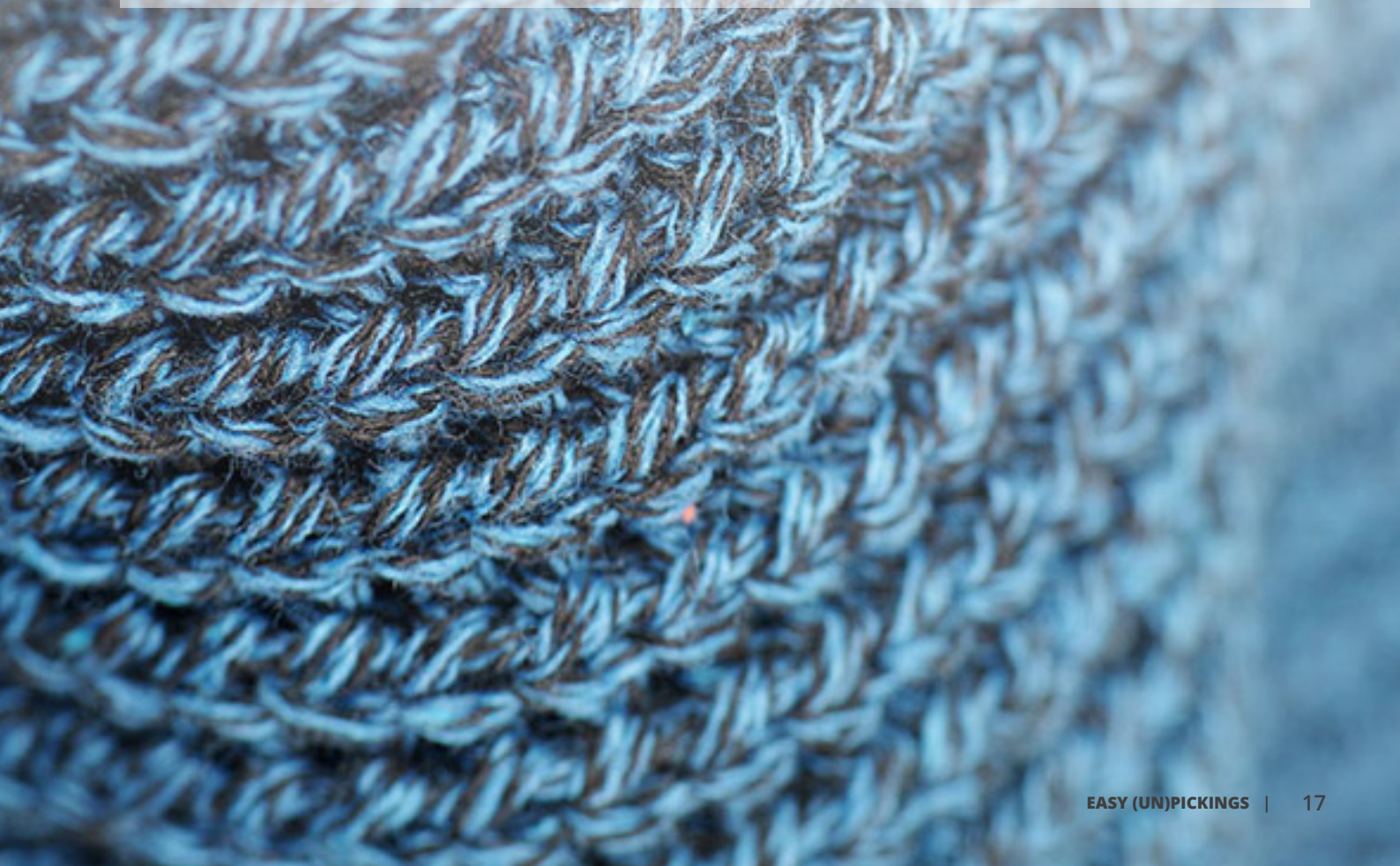
16 Impact investing is investing to achieve positive, social and environmental impacts - requires measuring and reporting against these impacts, demonstrating the intentionality of investor and underlying asset/investee, and demonstrating the investor contribution.

17 The seven sustainable investment strategies are ESG integration, corporate engagement & shareholder action, norms-based screening, negative/exclusionary screening, best-in-class/positive screening, sustainability themed/thematic investing and impact investing and community investing. For definitions please find on page 7 of this report.

IN SUMMARY
WE CALL FOR INVESTORS TO:

- **Actively seek opportunities to directly invest in the supply chain of textiles producers, and take advantage of JVs or pooled debt to affect change.**
- **Continue to pressure brands to insist on transparency from Tier 2 & 3 suppliers (as well as Tier 1) and to encourage them to invest in supply chain improvements.**
- **Seek partners such as Aii to help aid external investment opportunities.**

Impact investors are in a unique position to have an opportunity to invest directly into the wet processors themselves or into another vehicle that is directly investing.



COMPANY (INCLUDING BRANDS) CALL TO ACTION

BRANDS NEED TO TAKE MORE RESPONSIBILITY FOR THEIR SUPPLY CHAIN

The Working Group I contribution to the Sixth Assessment Report, *Climate Change 2021: The Physical Science Basis* released in August 2021 by the Intergovernmental Panel on Climate Change's (IPCC) has re-emphasised the urgent need for action across business sectors due to climate change.[xx] The implications for the textiles industry are stark and show that the industry is moving too slowly to combat climate change and needs to move faster.[xxi] To avoid the growing accusations around greenwashing, we also call for brands to really put their money where their mouth is and invest quickly and heavily in their supply chains.

Brands need to lead their suppliers by example and not only incentivise suppliers to transition to better practices but help them too – a carrot and stick approach. This may mean the traditional transactional brand-supplier relationships need to change and, for strategic suppliers, to become one of mutual risk mitigation, which can be perpetuated through the whole supply chain.

For wet processing, the opportunity for reducing costs in the supply chain is there, which also translates into reduced costs for those brands that help with funding. Another option is to facilitate funding through ESG-labelled bonds issued by the brands themselves which can go directly to fund the factories supplying them. We have seen some examples of these SLBs as discussed in our recent Blog, "Ethical debt is the new bespoke fashion".

The fact that wet processors and manufacturers serve a variety of brands and companies, can make the brands less willing to invest. Here we see an opportunity for pooled investments between brands to facilitate investment.

Brands can also act by helping suppliers secure external funding by signing long-term agreements. Cultivating longer term relationships with the majority of suppliers, throughout the supply chain needs to continue to be at the forefront for brands. In summary, we call for companies and brands to:

- Issue ESG-labelled bonds to specifically fund the transition and improvement of wet processing companies (could be SLBs but could be other GSS – Green, Social, or Sustainable bonds).

- Cultivate long-term relationships with suppliers to enable them to get secured financing – move supplier relationships to one of mutual risk mitigation as opposed to transactional

- Push for active and consistent environmental transparency from their own operations as well as those of their suppliers.

HOW BIG IS THE MARKET OPPORTUNITY?

Data from the Open Apparel Registry and HIGG FEM[xxii] shows there were 16,553 wet processing facilities globally in 2020.[xxiii] Assuming an average investment of USD 455,000 per facility, this represents a current USD 7.5 billion investment opportunity today. This doesn't account for facilities in developed markets, which according to Aii estimates could cost twice as much, so the actual investment required may be larger than USD 7.5 billion.

The possible cost savings are significant, assuming an average USD 370,000 per facility per year this amounts to industry cost savings of USD 6.1 billion annually.[xxiv] The present value of these savings for the industry could be more than USD 25 billion.[18]

If we assume a third of those savings could go to the Chinese textile industry (since it represents over a third of all textiles exports),[xxv] we could see an increase in profit of around USD 2 billion, or 8% increase, for Chinese textile companies resulting in an improvement in operating margin of 40bps from 4.1% to 4.5%.

The net present value (NPV) of these savings to the industry using an initial investment of USD 7.5 billion are worth USD 19 billion today.

WHAT ARE THE POTENTIAL ENVIRONMENTAL BENEFITS?

Estimating the aggregate environmental benefits in detail is beyond the scope of this report, but to illustrate the potential benefits that simple changes such as those we have discussed in this report could achieve, consider the following:

The Ellen McArthur Foundation estimates that water used for dyeing (a core part of the wet processing industry) is 6.3 billion cubic metres per year.[xxvi] If this consumption were reduced by 11.5% (the average saving across our sample), this would equate to a reduction of 720 million cubic metres of water annually – equivalent to almost 300,000 Olympic sized swimming pools in terms of annual reduction.[19] The added benefit is that this water would mainly be saved in areas where freshwater is scarce.

The Ellen McArthur Foundation estimates that the total GhG emissions for yarn production, dyeing, weaving and knitting are 550 million tonnes of CO_2e per year. If this were reduced by 10.8% (the average saving across our sample), this would equate to a reduction of 59 million tonnes of CO_2e annually, contributing to reducing the carbon footprint of the textile production industry by 5% per year.[xxvii]

18 Based on a 5% discount rate and 10-year payoff period. We assume all the investment is done in year zero.
19 An Olympic sized swimming pool holds 2,500 cubic metres of water

THESE ARE INCREMENTAL IMPROVEMENTS & MORE NEEDS TO BE DONE

It is important to note that these wet processing improvements are just the minimum the industry needs to do. The textiles industry as a whole needs to see more radical changes in order to improve its environmental impact.

With the number of wet processors continuing to grow, and with most of the growth coming in regions of high-water stress, the natural capital risks remain. We need to see a continued focus on not only improving the environmental impact of wet processors today but thinking about how they fit into a more circular (and net zero) economy in the future.

The risk remains that efficiency gains that reduce the wet processing industry's carbon footprint are neutralized by growth in the industry – whereas the industry as a whole needs to reduce its carbon footprint and its impact on natural capital.

In fact, even if all 16,553 wet processors saw a 15% improvement in water and energy consumption, this would be offset by a 1.7% p.a. industry growth by 2029. These environmental improvements are not insignificant but, ultimately, they are incremental and will be offset by industry growth unless we see bigger industry-wide changes.

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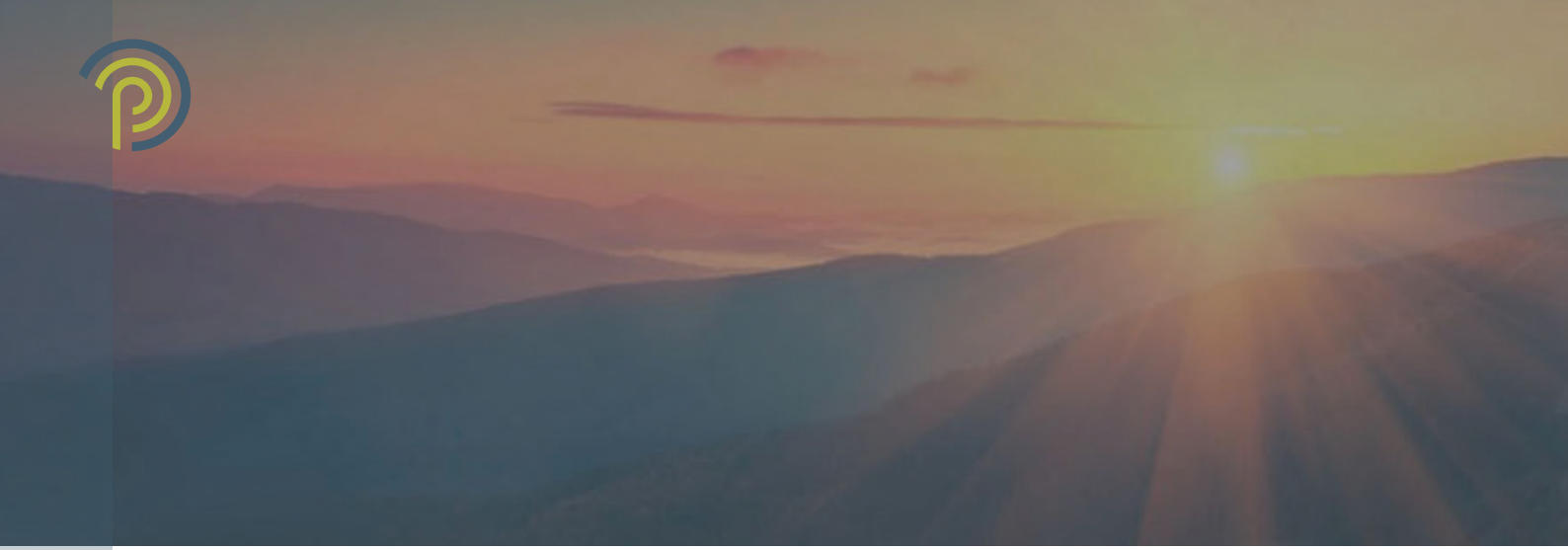

ABOUT PLANET TRACKER

Planet Tracker is an award-winning non-profit financial think tank aligning capital markets with planetary boundaries. Created with the vision of a financial system that is fully aligned with a net-zero, resilient, nature positive and just economy well before 2050, Planet Tracker generates break-through analytics that reveal both the role of capital markets in the degradation of our ecosystem and show the opportunities of transitioning to a zero-carbon, nature positive economy.

TEXTILES TRACKER

Textiles Tracker investigates the impact that financial institutions have in funding publicly listed companies across the Textiles, Apparel & Clothing sector.
Fast Fashion has created cheap and abundant clothing globally, but the natural capital cost has been high, with toxic production practices, degradation of natural resources, massive and growing waste as well as labour injustice. By providing information and analysis on these problems, placing a value on them and quantifying the negative impact on profits and investor returns, Textiles Tracker will support and stimulate a transition to greater sustainability in the industry. Textiles Tracker identifies the nodes in the textiles supply chain that are creating the greatest damage, analyses their financial value, provides transparency of ownership and, through owners and investors, pressures for change in industry practices.
In this report, we continue our work looking into wet processors, following on from our previous reports, Will Fashion Dye Another Day? and Threadbare Data, and focus on the investment opportunities associated with improving the water and energy efficiencies of wet processors. Textiles Tracker is a part of the wider Planet Tracker Group of Initiatives.

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xi https://apparelimpact.org/clean-by-design-for-tier-1-energy-efficiency-stage-1-tier-1-program-cbd-s1t1/

xii https://apparelimpact.org/nanhua-case-study/

xii Discussions with contacts indicate this is true especially in South East Asia

xiv Annals of economics and finance 21-1, 209–239 (2020), please find here.

xv https://planet-tracker.org/ethical-debt-is-the-new-bespoke-fashion/

xvi http://www.gsi-alliance.org/ The 2020 report can be found here.

xvii https://www.ft.com/content/b907d46f-1ca3-4cc8-9a59-da921da656e7

xviii https://www.bridgespan.org/insights/library/impact-investing/what-is-impact-investing

xix An article on what the August 2021 IPCC report means for the fashion industry can be found here.

The Working Group I contribution to the Sixth Assessment Report published in August 2021 can be found here.

xx https://www.voguebusiness.com/sustainability/fashions-takeaways-from-the-un-climate-change-report

xxi The Open Apparel Registry (OAR) is an open source map and database of global apparel facilities, their affiliations and unique OAR IDs assigned to each facility. More information can be found here. The HIGG aims to standardize the measurement of social and environmental impacts in facilities across the textiles and apparel space. More information can be found here.

xxii Date from Aii

xxiii Data from Aii

xxiv For the latest China export data see here. We use a third as a conservative estimate.

xxv The analysis that the Ellen McArthur Foundation used can be found on page 128 of the report A New Textiles Economy found here.

xxvi The analysis that the Ellen McArthur Foundation used can be found on page 127 of the report A New Textiles Economy found here.

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