

Green Choice Alliance Phase III Textile Industry Report

## New Standards Put **Brand** Responsibility to the Test



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# Summary

China is the world's main textile producer, and within China the five provinces of Zhejiang, Jiangsu, Guangdong, Fujian and Shandong account for more than 90% of national output of dyed textiles. Over the past few years, the printing and dyeing industry has become increasingly concentrated in areas such as Hangzhou Bay, the Taihu Basin, and the Pearl River Delta. Water pollution in these areas has become extremely severe, which shows that pollutant discharge is well in excess of the carrying capacity of the local environment.

This major concentration of manufacturing also creates concentrated discharge on a massive scale. Even if all this discharge were treated to the levels stipulated in the discharge standards formulated in 1992, the environment would not have the carrying capacity to cope. In order to break free of this predicament in which "discharge within the standard still pollutes", it is necessary to increase the number of pollutant discharge parameters, and make the discharge standards more stringent.

For this reason China formulated the "Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-2012)", and began to implement them on January 1<sup>st</sup> 2013. Discharge limit values for standard pollutant indicators like COD and BOD, as well as special pollutants like aniline, were substantially tightened, and for the first time, discharge standards were introduced for pollutants such as total phosphorus, total nitrogen and AOX (Absorbable Organic Halogens).

During the investigation we found that many regions have yet to comprehensively implement the new standard. In the five provinces where the dyeing and finishing industry is most concentrated, only Zhejiang and Fujian have implemented the new standards to a relatively strict degree, and Guangdong, Jiangsu and Shandong have not comprehensively implemented them. Furthermore, in Fujian and Shandong, the discharge standard limit values shown for supervisory monitoring and for online monitoring are not the same.

In Zhejiang Province, which accounts for half the country's total printing and dyeing industry, we found that local dye houses were violating the new discharge standards on a massive scale. In the first half of 2013, over 400 printing and dyeing enterprises had breached the discharge standards, which accounted for over 90% of enterprises that breached discharge standards within the whole province.

China's printing and dyeing industry plays a decisive role in the global textile industry. When a large number of dye houses violate discharge standards, not only will it pollute the local environment, it also means there is a high risk of environmental violations occurring in the supply chains of major textile brands.

Faced with these challenges, a number of leading brands including Esquel, Puma, H&M, Nike, Adidas, Walmart, Levi's and Gap have already started to use publically disclosed data to establish a search mechanism to check their suppliers, thus actively identifying pollution problems within their supply chain. They have then been using this information to push some suppliers to take

corrective actions.

However, there are some brands like Polo Ralph Lauren, Uniqlo, Youngor, Tommy Hilfiger, Abercrombie & Fitch, and Calvin Klein that even when faced with specific questions about pollution problems in their supply chain, have still only provided a very limited response or have not responded at all.

During the investigations we discovered that suspected suppliers to a number of brands, including Polo, Uniqlo and Youngor had been violating the new discharge standards. The violations were not only for indicators like COD and color, but were also related to special control pollutants like aniline, which shows that wastewater discharge from these enterprises contains toxic substances.<sup>1</sup>

Because the volume of water used and discharged by the textile industry is so huge, when pollutant concentrations are seriously in breach of the standards, it means that the total quantity (or mass) of pollutants discharged is also huge. During the investigation we discovered that some of the municipal wastewater treatment plants responsible for the centralized treatment of dye house wastewater were also breaching the new standards. Considering the enormous amounts of wastewater discharged by these treatment plants, if they violate discharge standards, it not only harms the environment, but can also have a detrimental effect on public health.

Brands like Polo, Uniqlo and Youngor continue to take a passive or evasive approach to violation problems in their supply chain, demonstrating that public pledges on environmental responsibility are not sufficient to ensure that enterprises in their supply chain are legal and compliant. This negative behavior by these brands violates their responsibilities to the environment, and is contrary to the pledges that they have made to consumers. At the same time, this behavior also violates the principle of fair competition based on legal compliance.

We recommend that those brands that have so far ignored violation problems in their supply chain should look to leading brands such as Esquel, H&M and Adidas for guidance, and immediately establish a search mechanism to identify violation risks in their supply chains.

For those brands that have already established regular searches, we recommend that they don't stop at just identifying risks, and should push suppliers that violate environmental regulations to carry out effective corrective actions, and also make public what those actions were. Furthermore, because pollution in the textile industry mainly comes from the upper reaches (second tier) of the supply chain, we suggest that brands extend their environmental management right into the upper tiers of the supply chain.

Disclosure of information from government inspections and monitoring is an important basis of green supply chain management. Starting this year (end of 2013), Zhejiang, Jiangsu, Guangdong, Fujian, and Shandong, where the printing and dyeing industries are largely concentrated, have begun to publish quarterly reports on key monitored enterprises. Furthermore, Zhejiang, Shandong and Fujian have already started to regularly disclose online monitoring data. We support and appreciate these new developments and recommend that they continue to be improved.

To address the problem whereby many local governments have not fully implemented the new

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<sup>1</sup> <http://www.zhb.gov.cn/gkml/hbb/bgth/201007/W020100705539323851864.pdf>

discharge standards, we recommend that Jiangsu, Guangdong, Fujian and Shandong should follow Zhejiang's example and immediately and comprehensively implement the new discharge standard. Furthermore, we recommend that both Jiangsu and Guangdong establish online platforms and push printing and dyeing enterprises to carry out the real-time disclosure of online monitoring data, thus allowing the public to play a role in their supervision.

Finally, we call on consumers to pay attention to the serious pollution problems in the supply chains of major apparel brands, push brands like Polo, Uniqlo and Youngor to improve their purchasing practices, use their own green choices to help clean up the fashion industry, and participate in the protection of China's environment!

# 1. Severe Water Pollution in some Areas where Textile Manufacturing is Concentrated

Textile manufacturing makes up an important part of China's economy with over 50,000 textile factories in the country.<sup>2</sup> Textile and Apparel manufacturing is mainly concentrated in the economically developed eastern coastal regions, especially some areas of Zhejiang, Jiangsu, Guangdong, Fujian and Shandong provinces. Furthermore, the sectors of the industry with the highest intensity of discharge, the dyeing and finishing sectors, are also mainly concentrated in Zhejiang, Jiangsu, Guangdong, Fujian and Shandong. The volume of printed and dyed fabric produced in these areas was 89.89% of the national total in 2005, and this had risen to 91.37% of the national total by 2010.<sup>3</sup> The industry is particularly concentrated in the areas of Shaoxing and Xiaoshan in Zhejiang, Wujiang and Changzhou in Jiangsu, and Shishi in Fujian.

Water pollution problems in the aforementioned areas are extremely serious and show that the total discharge loadings are well in excess of the carrying capacity of the environment.

## 1.1 The Hangzhou Bay Area of Zhejiang

Shaoxing County, Zhejiang province, has the highest production capacity for textile products in the whole of China.<sup>4</sup> It accounts for one third of China's dyeing and printing production and is home to Asia's largest textiles market.<sup>5</sup> The two textile industrial zones in Zhejiang where the industry is most concentrated are the Shaoxing Binhai Industrial Zone, and the Hangzhou Xiaoshan Linjiang Industrial Zone. Wastewater from these two zones eventually flows into the Hangzhou Bay.<sup>6</sup>

According to the "2011 China Coastal Area Environmental Quality Report", as one of nine main coastal bays, Hangzhou Bay's water quality was rated as extremely poor,<sup>7</sup> and was classified as category IV seawater. For the water quality of the main coastal bays please figure 1 below:

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<sup>2</sup> <http://finance.sina.com.cn/roll/20120720/094412624951.shtml>

<sup>3</sup> Development Plan for the Dyeing and Finishing Industry in the "12<sup>th</sup> Five Year plan" <http://news.chemnet.com/item/2012-02-14/1622278.html>

<sup>4</sup> <http://www.zgqfc.gov.cn/html/marketinfo/>

<sup>5</sup> <http://zjnews.zjol.com.cn/05zjnews/system/2010/09/08/016911651.shtml>

<sup>6</sup> <http://issuu.com/gpchina/docs/textile-park?e=2023844/1592662>

<sup>7</sup> <http://jcs.mep.gov.cn/hjzl/jagb/2011jagb/201301/P020130130347342283891.pdf>

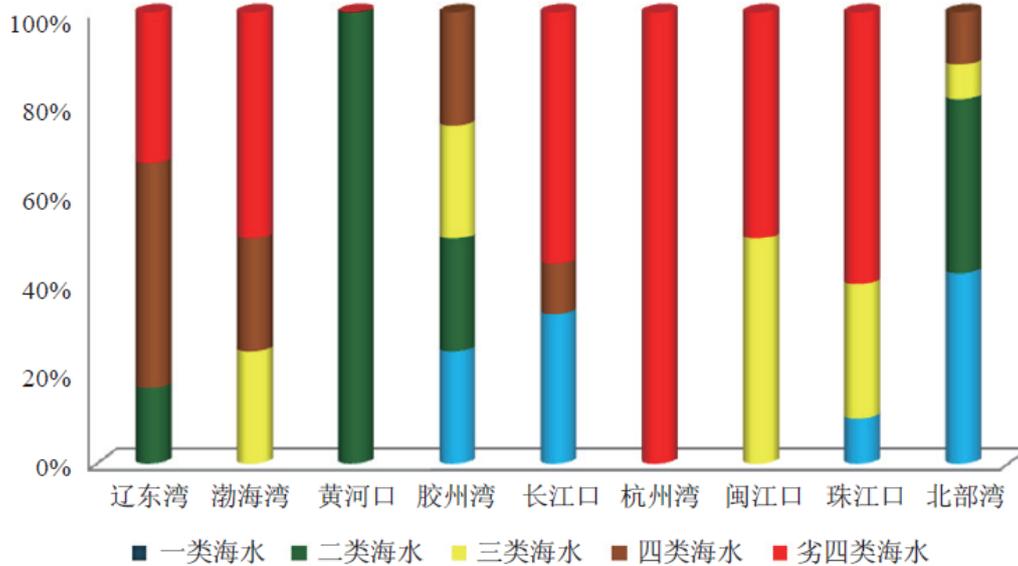


Figure 1 – Water quality of major coastal bays

Furthermore, the eutrophication index is greater than five, meaning the bay is suffers from serious eutrophication.<sup>8</sup> See figure 2 below for a comparison of the eutrophication status of Hangzhou Bay and other coastal areas of China.

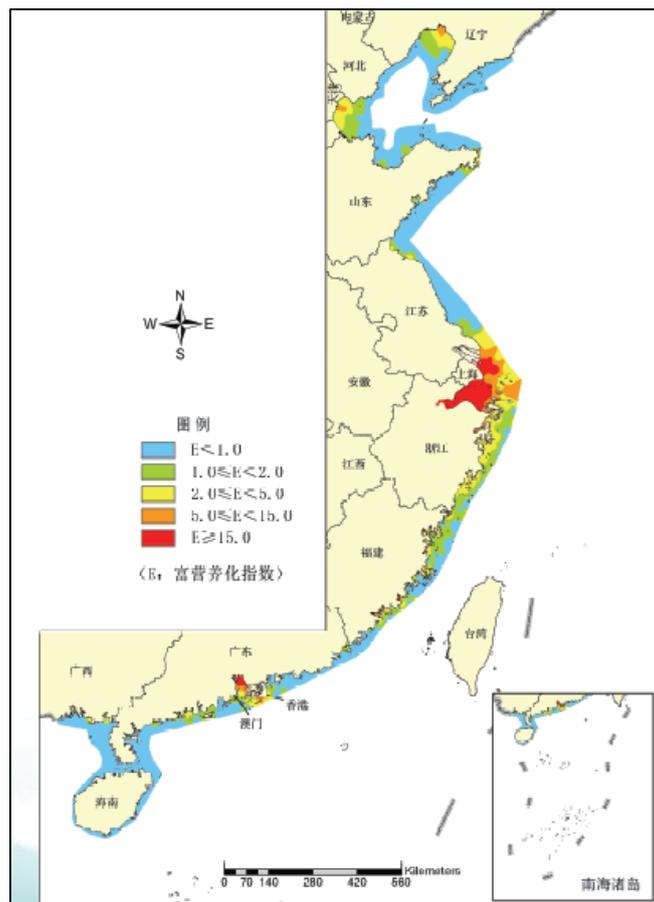


Figure 2 – Levels of eutrophication in Hangzhou Bay and other major coastal areas of China

<sup>8</sup> <http://jcs.mep.gov.cn/hjzl/jagb/2011jagb/201301/P020130130347086980714.pdf>

The “2012 State of the Environment in Zhejiang Report,”<sup>9</sup> describes water quality in Hangzhou Bay in a similar fashion stating that, “all water is inferior to Level IV Water Quality” and “the state of eutrophication of the water body is extremely severe”.

In Shaoxing, where printing and dyeing industries are concentrated, water pollution is equally severe. According to the “Shaoxing 2012 State of the Environment Report,”<sup>10</sup> in 2012, 65.7% of the surface area of Shaoxing City did not satisfy the function zone requirements. Please see figure 3 below for details of the quality of Shaoxing’s surface water.

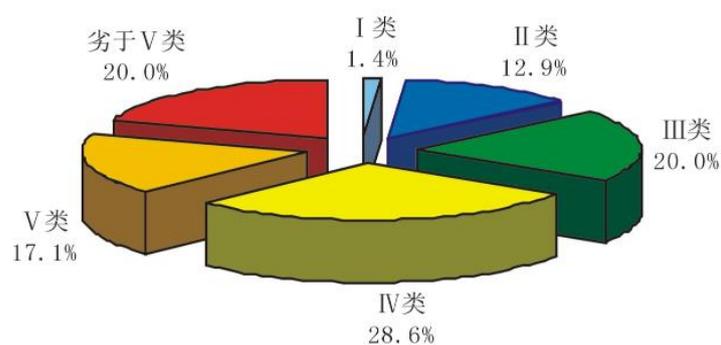


Figure 3 – Surface water quality in Shaoxing

## 1.2 The Taihu Basin area of Jiangsu and Zhejiang

The Taihu Basin covers Suzhou, Wuxi, Changzhou and Zhenjiang in Jiangsu; Jiaxing and Huzhou in Zhejiang, and also the municipality of Shanghai. Both Changshu and Wujiang, which are subordinate administrative areas of Suzhou, and Jiangyin, which is a subordinate administrative area of Wuxi, make up the three main bases for the area’s massive textile industry.<sup>11</sup> The textile industry in Jiaxing is also highly developed.

Pollution of rivers and lakes in the Taihu Basin is also widespread. According to the “2011 Bulletin on Taihu Basin and South-East Rivers Water Resources,” water quality for the whole year in the water function area only met the standard 14.2% of the time.<sup>12</sup> For a comparison of water quality in the Taihu Basin for 2011 please see figure 4 below:

<sup>9</sup> [http://www.zjepb.gov.cn/hbmtmhzw/gzfw/hjzl/hjzlkzgb/201306/t20130605\\_285810.htm](http://www.zjepb.gov.cn/hbmtmhzw/gzfw/hjzl/hjzlkzgb/201306/t20130605_285810.htm)

<sup>10</sup> [http://www.sxepb.gov.cn/rt/2013/7/24/art\\_4735\\_410447.html](http://www.sxepb.gov.cn/rt/2013/7/24/art_4735_410447.html)

<sup>11</sup> [http://news.timedg.com/2012-09/12/content\\_12061071.htm](http://news.timedg.com/2012-09/12/content_12061071.htm)

<sup>12</sup> <http://www.tba.gov.cn/tba/content/TBA/lygb/szygb/JCMS000000051415.html>



### 1.3 The Pearl River Delta and Pearl River Estuary in Guangdong

It's difficult to be optimistic about the river and estuary water quality in the area of the Pearl River Delta, where the printing and dyeing industry is concentrated.

The “2011 Pearl River Water Resources Bulletin”, published by the Pearl River Water Resources Commission, shows that for all the Water Resource Level II areas, the worst water quality can be found in the Pearl River Delta. 49.6% of the length of rivers is classified Level I-III and 24.7% is classified as inferior to Level V.<sup>13</sup>

The “2012 Report on the State of the Marine Environment in Guangdong,”<sup>14</sup> shows that 6.5% of coastal surface water is rated as inferior to the Level IV “Sea Water Quality Standard”. Most of this water can be found in the Pearl River Estuary and the local harbor areas. For details please see figure 6 below:



Figure 6 - 2012 State of Water Quality in Guangdong Coastal Waters

### 1.4 Fujian

According to the “2012 State of the Ocean Environment in Fujian Report”,<sup>15</sup> in January 2012, the sea water quality in all 13 main bays, and the Pingtan area, was category IV, or worse than Level IV. For more details please see figure 7 below:

<sup>13</sup> <http://env.people.com.cn/n/2012/1019/c74877-19319083.html>

<sup>14</sup> <http://www.gdofa.gov.cn/uploads/201304091212.pdf>

<sup>15</sup> <http://www.fjof.gov.cn/extra/col17/2012年福建省海洋环境状况公报.pdf>

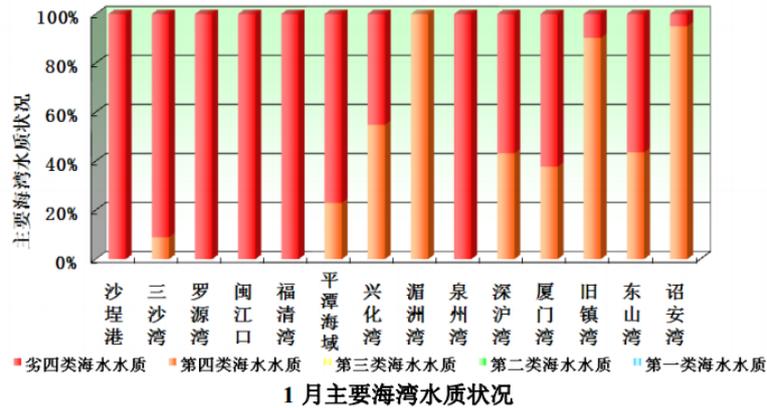


Figure 7 – January water quality for main bays in Fujian

In 2012, 69 discharge outlets were monitored. Looking at the instances when discharge standards for wastewater discharge were breached at the discharge outlets, it is possible to see that 22 outlets met the discharge standards all four times they were tested. The other 47 outlets all breached discharge standards a different number of times. Looking at the pollutant parameters that caused the breaches, the ones that were responsible for the most included total phosphorus and CODCr, with a rate of 44.9% and 26.1% respectively. The type of outlets with the highest rate of breaches were municipal discharge outlets and industrial discharge outlets, with exceedance rates of 80.6% and 70.0% respectively. For details on the pollutant parameters and type of outlets with breaches please see figure 8 below:

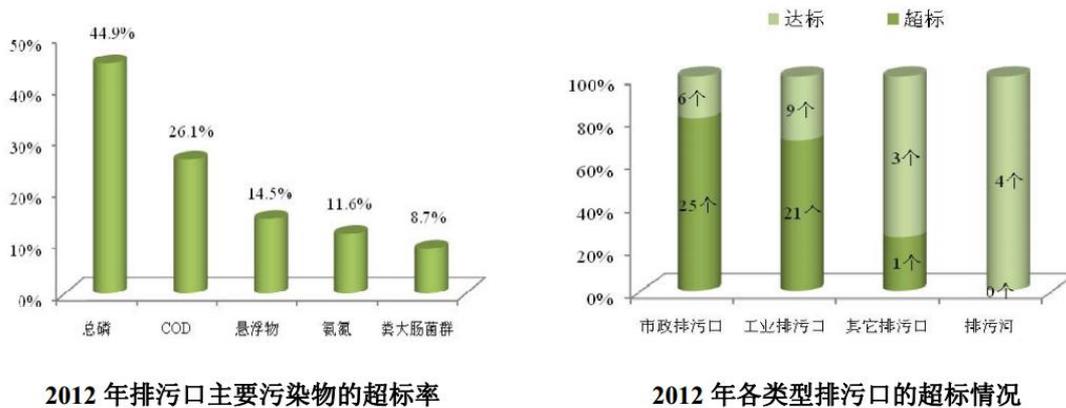
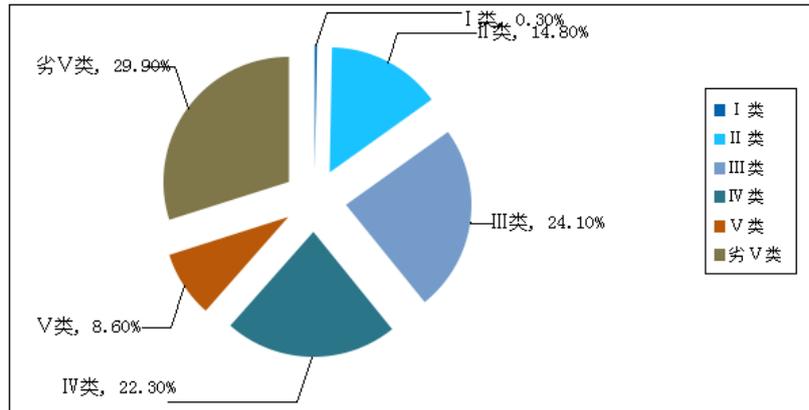


Figure 8 – Discharge channel exceedance rate for each pollutant, and discharge outlet compliance rate

## 1.5 Shandong

The “2012 Bulletin on Water Resources in Shandong”<sup>16</sup> shows that out of the 291 water function zones for 2012, 87, or 29.9%, were classified as inferior to Level V. Please see figure 9 below for details of each water quality classifications:

<sup>16</sup> <http://www.sdwr.gov.cn/sdsl/pub/cms/1/2092/2123/487/5004380.html?time=20131119040347>



The “2012 State of the Environment in Shandong Report,” shows that during routine monitoring of river sections, 60 (45.5%) were found to surpass the Level III water quality standard; 30 (22.7%) were classified as Level IV; 17 (12.9%) were classified as Level V, and 25 (18.9%) were inferior to Level V.<sup>17</sup>

Compared with Jiangsu, Zhejiang, Fujian and Guangdong, Shandong is the only northern province with a high concentration of printing and dyeing enterprises. At the same time as facing similar pollution problems, Shandong also faces serious water shortages. The average annual water resources for Shandong are 30.3 billion m<sup>3</sup>, meaning per capita resources of 334m<sup>3</sup>, which is one sixth of total national average water resource levels, and one twenty-fifth of global average water resource levels. This means it’s classed internationally as being an extremely water stressed area, because per capita average annual water resources are less than 500m<sup>3</sup>.<sup>18</sup> Shandong generally experiences an annual shortfall of around 4 billion m<sup>3</sup> of water annually and the capacity to exploit surface and ground water within the province is near its limit.<sup>19</sup>

<sup>17</sup> <http://news.sdchina.com/show/2633322.html>

<sup>18</sup> Acceleration in the system for more strict management of water resources, Shandong Water Conservancy Office, September 21<sup>st</sup>, 2010 [http://www.mwr.gov.cn/ztpd/2010ztbd/qgjsxshisijih/ilfy/201009/t20100920\\_237603.html](http://www.mwr.gov.cn/ztpd/2010ztbd/qgjsxshisijih/ilfy/201009/t20100920_237603.html)

<sup>19</sup> Per Capita water resources in Shandong are too low. Next year will see an introduction of water resources control, Jilu Evening News, 10-09-2010 <http://news.iqilu.com/shandong/shizhengcaijing/20101009/337040.shtml>

## 2. Discharge Standards for the Dyeing and Finishing Sectors have been Strengthened Substantially

On November 18<sup>th</sup>, 2012, The Ministry of Environmental Protection (MEP) and the General Administration of Quality Supervision, Inspection and Quarantine of PRC released the, “Discharge standards of water pollutants for dyeing and finishing of textile industry (GB 4287-2012)” (hereafter referred to as the “new standard”), which revised the discharge pollutant parameters, increased pollutant control discharge requirements, and ruled on special discharge limit values for water pollutants.

Pollutant discharge standards for textile dyeing and finishing industry wastewater were first released in 1992, and were revised for the first time in 2012. These revisions were implemented on January 1<sup>st</sup>, 2013. After the revisions came into force the discharge standards of water pollutants for dyeing and finishing of textile industry (GB4287-92) were annulled.

### 2.1 Different Stages of Implementation for the New Standard

The new standard has different limit value requirements for its two stages of implementation. For newly built enterprises the standard is stricter and requires that from January 1<sup>st</sup>, 2013 they must adhere to the Phase II limit values. For existing enterprises there is a transitional period. Furthermore, for particularly environmentally sensitive areas, even stricter discharge limit values for water pollutants have been formulated.<sup>20</sup>

### 2.2 Comparison of the Old and New Standards

For a comparison of the old standard, “Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-92)<sup>21</sup>”, and the new standard, “Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-2012)” please see figure 10 below:

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<sup>20</sup> Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-2012), [http://kjs.mep.gov.cn/hjbhzbz/bzwb/shjbh/swrwpfbz/201211/t20121109\\_241788.htm](http://kjs.mep.gov.cn/hjbhzbz/bzwb/shjbh/swrwpfbz/201211/t20121109_241788.htm)

<sup>21</sup> Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-92), [http://kjs.mep.gov.cn/hjbhzbz/bzwb/shjbh/swrwpfbz/199207/t19920701\\_66583.htm](http://kjs.mep.gov.cn/hjbhzbz/bzwb/shjbh/swrwpfbz/199207/t19920701_66583.htm)

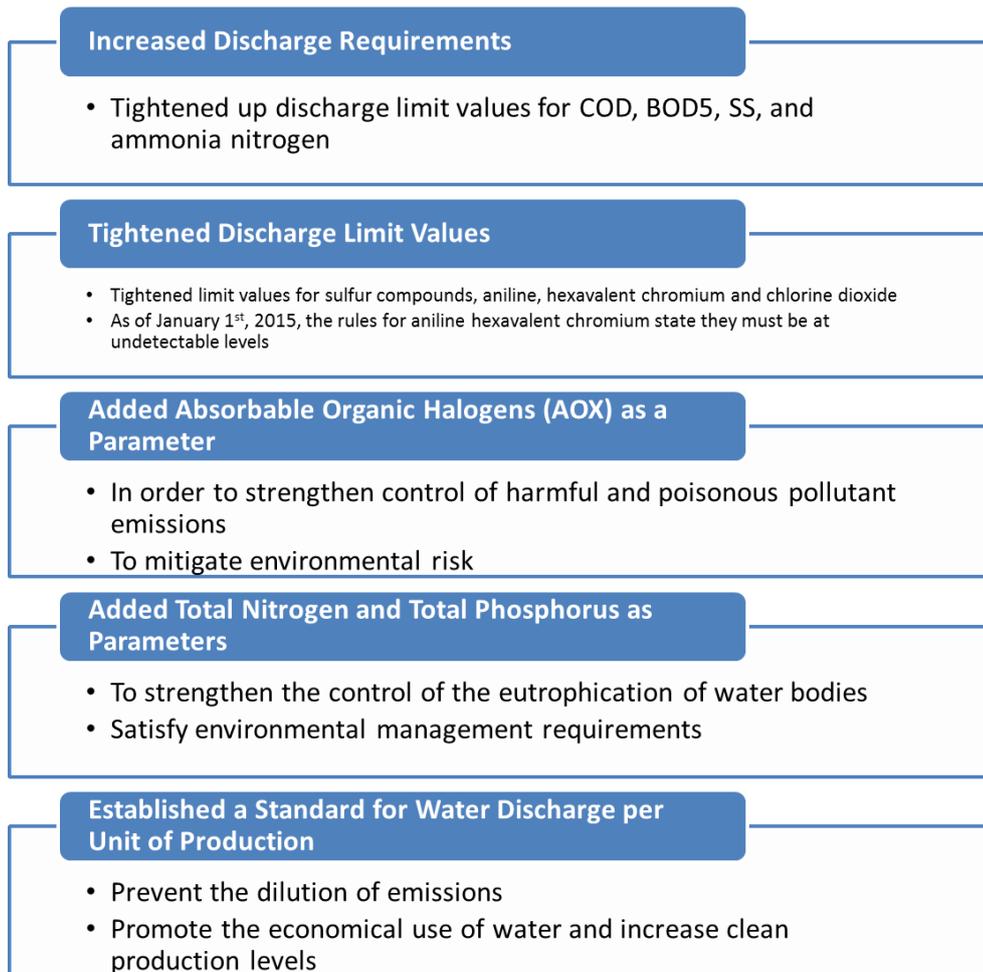


Figure 10 – Comparison of main differences and additions within the old and new standards

Special notice should be taken of the fact that the new standard has seen the removal of the Level II and III discharge standards that were included in the old standard. These have been replaced with direct and indirect discharge standards, thus substantially increasing the stringency of the discharge standard requirements, and especially the requirements on discharge into the municipal sewerage network.

Figure 11 below shows a comparison of the discharge standard for direct discharge from existing enterprises, from the new standard, compared with the Level III standard for factories constructed and put into operation after July 1<sup>st</sup>, 1992 from the old standard. The extent of the reduction in limit values between the two standards can be seen below:

Pollutant	Indirect Discharge Standard for Existing Enterprises in the New Standard (All units mg/L except pH and color)	Level III Standard for Enterprises established after July 1 <sup>st</sup> , 1992, in the Old discharge Standard (All units mg/L except pH and color)	Reduction in discharge limit values (%)	Note
pH	6-9	6-9	0	Discharge Limit Value unchanged
COD <sub>cr</sub>	200	500	<b>60</b>	
BOD <sub>5</sub>	50	300	<b>83</b>	
SS	100	400	<b>75</b>	
Color	80	—	NA	Newly added to the new standard
Ammonia Nitrogen	20 30 <sup>(1)</sup>	—	NA	Newly added to the new standard
Total Nitrogen	30 50 <sup>(1)</sup>	None	NA	Newly added to the new standard
Total Phosphorus	1.5	None	NA	Newly added to the new standard
Chlorine Dioxide	0.5	0.5	0	Discharge Limit Value Unchanged
Absorbable Organic Halogens (AOX)	15	None	NA	Newly added to the new standard
Sulfides	1.0	2.0	<b>50</b>	
Aniline	1.0	5.0	<b>80</b>	
Hexavalent Chromium	0.5	0.5	0	Discharge Limit Value Unchanged
Wastewater Discharge per standard unit of production m <sup>3</sup> /ton of standard product	175-640	NA	NA	Newly added to the new standard
Copper	None	2.0	NA	Not in the new standard
Maximum Permitted Wastewater Discharge m <sup>3</sup> /100m of cloth	NA	2.5	NA	New Standard Changed to Water discharge per standard unit of production

Figure 11 – Specific reductions in limit values in the new standard compared to the old standard

Standard Reference No. Pollutant		GB 4287-2012						GB4287-92									Pollutant Discharge Monitoring Location
		Existing Enterprises: January 1st, 2013 - December 31st, 2014		Existing Enterprises: From January 1st, 2015 Newly Built Enterprises: From January 1st, 2013		Water Pollutant Special Limit Value		Factories Completed before January 1st, 1989, and Enterprises put into Production after Construction was Complete			Factories Completed Between January 1st 1989 and June 30th, 1992 as well as Enterprises put into Production after Construction was Complete			Factories completed before July 1st, 1992, and enterprises put into production after construction was complete			
No.	Pollutant	Direct Discharge	Indirect Discharge	Direct Discharge	Indirect Discharge	Direct Discharge	Indirect Discharge	Level I standard	Level II Standard	Level III Standard	Level I Standard	Level II Standard	Level III Standard	Level I Standard	Level II Standard	Level III Standard	
1	pH	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-9	Enterprise's Combined Final Wastewater Discharge Outlet
2	COD <sub>cr</sub>	100	200	80	200	60	80	180	240	500	100	180	500	100	180	500	
3	BOD <sub>5</sub>	25	50	20	50	15	20	60	80	300	30	60	300	25	40	300	
4	Suspended Solids (SS)	60	100	50	100	20	50	100	150	400	70	150	400	70	100	400	
5	Chroma	70	80	50	80	30	50	80	160	-	50	100	-	40	80	-	
6	Ammonia Nitrogen	12 20 <sup>(1)</sup>	20 30 <sup>(1)</sup>	10 15 <sup>(1)</sup>	20 30 <sup>(1)</sup>	8	10	25	40	-	15	25	-	15	25	-	
7	Total Nitrogen	20 35 <sup>(1)</sup>	30 50 <sup>(1)</sup>	15 25 <sup>(1)</sup>	30 50 <sup>(1)</sup>	12	15	None	None	None	None	None	None	None	None	None	
8	Total Phosphorus	1.0	1.5	0.5	1.5	0.5	0.5	None	None	None	None	None	None	None	None	None	
9	Chlorine Dioxide	0.5	0.5	0.5	0.5	0.5	0.5	None	None	None	None	None	None	0.5	0.5	0.5	
10	Absorbable Organic Halogens (AOX)	15	15	12	12	8	8	None	None	None	None	None	None	None	None	None	
11	Sulfides	1.0	1.0	0.5	0.5	Undetectable	Undetectable	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	
12	Aniline	1.0	1.0	Undetectable	Undetectable	Undetectable	Undetectable	2.0	3.0	5.0	1.0	2.0	5.0	1.0	2.0	5.0	
13	Hexavalent Chromium	0.5		Undetectable		Undetectable		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Workshop or Production Equipment Wastewater Discharge Outlet
14	Water discharge volume per base unit production. m3/ton of standard product	175-640 <sup>(2)</sup>		140-575 <sup>(2)</sup>		140-575 <sup>(2)</sup>		NA	NA	NA	NA	NA	NA	NA	NA	NA	
15	Copper	None	None	None	None	None	None	0.5	1.0	2.0	0.5	1.0	2.0	0.5	1.0	2.0	Enterprise's Combined Final Wastewater Discharge Outlet
16	Maximum Allowable Discharge per 100m2 of Cloth Produced	NA	NA	NA	NA	NA	NA	2.5			2.5			2.5			

Notes: (1)The batik industry should follow this limit value. (2) Different standard values are for different types of cloth. NA indicates not applicable.

Figure 12 – Comparison of old and new standards (all units mg/L except for pH and color)

# 3. Technical Challenges in Implementing the New Standards

## 3.1 The Need for New Standards to be implemented

Taking into consideration the document describing the new standard, as well as various development and emissions reduction plans, the following describes the background behind the new standards:

- **Production capacity has become excessively concentrated, meaning total local pollutant discharge loadings are now in excess of the carrying capacity of the environment.**

For example, in the areas of Zhejiang, Jiangsu, Shandong, Guangdong and Fujian, where the dyeing and finishing industries are highly concentrated, the water pollution situation is grim, which shows that total local pollutant discharge is already in excess of the carrying capacity of the environment.

- **Existing Standards unable to Protect the Aquatic Environment**

Pollution in China's aquatic environment continues to worsen, and water pollution incidents occur frequently. In the areas where the textile industry is concentrated, including Hangzhou Bay, and some parts of the Taihu Basin and the Pearl River Delta, the situation is grim. Under these circumstances, if all treated wastewater were to reach the GB4287-92 standard, then it would still be difficult for the environment to cope with this discharge.<sup>22</sup>

In order to remedy the situation whereby "adherence to discharge standards still results in pollution", it has become necessary to increase the number of pollutant discharge parameters and strengthen the discharge standards.

- **Controlling Pollution Caused by Centralized Treatment**

Over the past few years an increasing number of textile enterprises have started to discharge into municipal sewerage systems. After some initial treatment the discharge is sent to a wastewater treatment plant for centralized collection and treatment. Because most of the enterprises discharging into the sewerage system use the Level III discharge levels from the original standard, which is fairly relaxed, this often causes a situation whereby the centralized treatment plant does not have the capacity to carry out effective follow-up treatment, which leads to the point of centralized treatment becoming the site of centralized pollution.

This problem occurs in all of the main textile producing areas of Zhejiang, Jiangsu, Shandong,

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<sup>22</sup> <http://www.zhb.gov.cn/gkml/hbb/bgth/200910/W020080421492770113357.pdf>

Guangdong and Fujian.<sup>23</sup> For example, in the Xiaoshan Linjiang Industrial Zone in Hangzhou where a lot of dyeing and finishing enterprises are concentrated, the treatment plant responsible for treating the wastewater from the industrial zone, the Linjiang Wastewater Treatment plant, had multiple records for wastewater discharge exceedances for ammonia, total nitrogen, and aniline.<sup>24</sup> In the Shaoxing County Binhai Industrial Zone in Shaoxing, where a lot of dyeing and finishing enterprises are concentrated, there is one of the biggest dyeing and finishing wastewater treatment companies in the world, the Shaoxing Water Treatment and Development Co., Ltd.<sup>25</sup> In 2013, they also had a number of instances where wastewater discharge breached standards for pH, total phosphorus, ammonia nitrogen and COD.<sup>26</sup> Furthermore, in one of China's famous silk producing towns, Jiangsu Province's Shengze town in the Wujiang city area, a specialist printing and dyeing wastewater treatment plant run by Shengze Water Treatment Development Co., Ltd. had multiple instances where COD<sup>27</sup> discharge breached the regulatory standards.<sup>28</sup>

To reach the necessary standards, the pre-treatment requirements for textile enterprises had to be made stricter, and so the standard on discharge to municipal sewerage systems needed to be strengthened.

- **National Requirements for the Textile Industry to Substantially Improve Energy Efficiency and Emissions Reduction**

The "National 12<sup>th</sup> Five Year Plan for Environmental Protection" clearly states that there should be a reduction in the overall discharge of COD and ammonia nitrogen, and sets a target to reduce their discharge by no less than 10% compared to 2010 levels.<sup>29</sup>

At the same time, the newly released 12<sup>th</sup> five year plan energy efficiency in the textile and dyeing industries has even more ambitious requirements. It states that by 2015, energy use per unit of industry added value should be 20% less than in 2010.<sup>30</sup>

If unable to reduce the scale of the textile industry then discharge standards must be tightened substantially.

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<sup>23</sup> [http://www.xsnet.cn/2013\\_subject/gjjstq/ldgczs/1839556.shtml](http://www.xsnet.cn/2013_subject/gjjstq/ldgczs/1839556.shtml)

<sup>24</sup> 2013 1<sup>st</sup> and 2<sup>nd</sup> Quarter Zhejiang Key Monitored Pollution source Report, <http://www.zjepb.gov.cn/hbtmhwz/gzfw/wryjdxjcx/>

<sup>25</sup> [http://www.sxepb.gov.cn/wrt/2010/11/3/art\\_4713\\_200163.html](http://www.sxepb.gov.cn/wrt/2010/11/3/art_4713_200163.html)

<sup>26</sup> <http://app.zjepb.gov.cn:8089/nbjcsj/>

<sup>27</sup> [http://www.gkong.com/zt/olympics/news\\_detail.asp?news\\_id=31045&lm=95](http://www.gkong.com/zt/olympics/news_detail.asp?news_id=31045&lm=95)

<sup>28</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=705587](http://www.ipe.org.cn/pollution/com_detail.aspx?id=705587), [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=705590](http://www.ipe.org.cn/pollution/com_detail.aspx?id=705590)

<sup>29</sup> National Environmental Protection 12<sup>th</sup> Five Year Plan, [http://www.gov.cn/zwgk/2011-12/20/content\\_2024895.htm](http://www.gov.cn/zwgk/2011-12/20/content_2024895.htm)

<sup>30</sup> 12<sup>th</sup> Five Year Plan for the Textile Industry,

<http://www.miit.gov.cn/n11293472/n11293832/n11293907/n11368223/14439904.html>

## **3.2 Feasibility of the New Standard**

Whether looking at it from the perspective of the level of development in the textile dyeing and finishing industry, or from technical aspects of treating dyeing and finishing wastewater, the strengthening of wastewater discharge standards is feasible.

### **3.2.1 The Dyeing and Finishing Industry has the Capacity to Substantially Reduce Emissions**

The old standard was enacted 20 years ago, and at that time the scale of the industry, the quality of the aquatic environment, and pollution control technologies, were very different to how they are now.

Since the implementation of the old standard, there has been great progress in control technologies for water pollutants released by the textile dyeing and finishing industries, and the wider use of some of this technology has caused a significant reduction in the total emission of wastewater and pollutants. At the same time, the steady improvement of technology used in the treatment of wastewater produced from dyeing and finishing processes makes it possible for each textile enterprise to choose a treatment technique according to the wastewater's characteristics, giving the textile industry the complete ability to increase their investment in pollution control, and to reduce their emissions substantially.

### **3.2.2 Pollution Control Technology**

In response to concerns amongst the business community about the feasibility of technological requirements, an official from the Standards Department of the Ministry of Environmental Protection has stated that for each of the control limit values in the new standard, there is mature and reliable control technologies available to ensure adherence to the standard is possible. Textile dyeing and finishing wastewater can be treated using existing biochemical processes, along with strengthened pre-treatment and deeper follow up treatment, to meet all the requirements in the newly revised standard. Furthermore, the implementation of the new standard can help to promote the use of, as well as the research and development of, new textile industry pollution control technologies.<sup>31</sup>

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<sup>31</sup> MEP Releases new Wastewater Standards for the Textile Industry, Xinhua, [http://news.xinhuanet.com/health/2012-11/28/c\\_124017846\\_2.htm](http://news.xinhuanet.com/health/2012-11/28/c_124017846_2.htm)

### 3.2.3 Efforts are still needed to reach the Requirements of the New Standard

Basic outlook for treatment processes for each pollutant indicator:<sup>32</sup>

- **COD and BOD**

At present, average COD from cotton pretreatment wastewater is about 3000mg/L and about 1000mg/L from dyeing and printing wastewater; after mixing, average COD is about 2000mg/L.

Pretreatment for polyester mainly involves alkali deweighting, which is split into two processes: continuous and batch. Using batch dyeing techniques, for example, COD can be up to 20000mg/L-60000mg/L. Typical dyeing and finishing businesses with alkali deweighting processes account for only 5% of wastewater volume but account for 60%, or even more, of total COD load.

The ratio of BOD/COD in dyeing and finishing wastewater is generally less than 0.2, which makes biological degradation very difficult. If BOD is less than 500mg/L and biochemical treatment is used then the discharge can reach the value set in the standard.

However, with the development of large volumes of new materials, and new auxiliary agents in the textile industry, wastewater treatment has become more difficult as chemical components contained in discharged wastewater become increasingly complex. For instance, PVA, alkali degradation substance for synthetic fiber (mainly terephthalic substances), and new auxiliary agents and other large amount of organic compounds, which are not easily biochemically degradable and often remain in dyeing wastewater, all contribute to the fact that COD concentration has increased substantially. COD removal rates for biochemical treatment systems used to be 70%, but have now decreased to 50% or even lower. Conventional chemical precipitation and floatation techniques can only remove 30% of COD from this type of dyeing and finishing wastewater.<sup>33</sup>

- **Color**

Color is a characteristic of dyeing and finishing wastewater, and is the pollutant which often catches people's attention. Average dye uptake in dyeing and finishing is more than 90%, so the rate of residual dye left in wastewater is about 10%, which is the main cause of color in wastewater. With different dyes and techniques, color is commonly 200 to 500 times higher before it is treated compared to post treatment.

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<sup>32</sup> Explanation of "Discharge Standards of Dyeing and Finishing Wastewater".

<http://www.zhb.gov.cn/gkml/hbb/bgth/200910/W020080421492770113357.pdf>

<sup>33</sup> New Treatment Technology for Dyeing and Finishing Wastewater, dyeing and printing industry association of Zhejiang Province, [http://www.zjyr.net/33680-1416/67062\\_23319.html](http://www.zjyr.net/33680-1416/67062_23319.html)

Through hydrolytic acidification and aerobic treatment, color can be reduced to 70-80 times the standard limit value; with strong hydrolytic acidification and a bleaching agent added at the necessary time, it can reach 40 times the standard limit value. No matter what kind of bleaching agent is used, ultimately there may still be a slight yellow color which is difficult to completely remove.

- Sulfides

Sulfides mainly come from sulfur dyes which are cheap, and are also relatively good quality. This type of dyestuff is, however, prohibited in developed countries as it is toxic. It is currently still being used by some companies in China, so it is listed in wastewater standards. The volume of sulfide contained in this wastewater is around several dozen mg/L.

Existing companies can meet discharge requirements through physicochemical pretreatment. New companies and companies located in particular emission zones are required to stop using this type of dyestuff to meet emission standards.

- Aniline

Aniline primarily comes from dyestuffs, and the dye's color is formed from chromophore, part of the dye has benzene and amino acids. During the wastewater treatment process, it can be broken down into basic elements. The new standards for existing businesses have been significantly tightened, and require that from January 1<sup>st</sup>, 2015 at the latest, aniline should be at undetectable levels.

- Hexavalent Chromium

Hexavalent chromium can come from the potassium dichromate auxiliaries used in stainless steel cylinder press printing and wool dyeing. Stainless steel cylinder processes are already being phased out. Hexavalent chromium is rated as a category 1 pollutant in the "Integrated Wastewater Discharge Standards." New enterprises and those in special emission zones cannot use processes or auxiliaries in this category. Existing businesses, from January 1<sup>st</sup>, 2015, at the latest, cannot have hexavalent chromium at a detectable level in discharged wastewater. Furthermore, the new standard requires that hexavalent chromium should be monitored at the workshop or production installed wastewater discharge outlet.

- AOX (Adsorbable Organic Halogens)

Under normal conditions, AOX (adsorbable organic halogens) can combine with the total amount of activated carbon adsorption of organic compounds in halogen elements, (including fluorine, chlorine, and bromine), and are a part of the total organic halides. AOX is highly toxic and causes teratogenic, carcinogenic, and mutagenic effects.<sup>34</sup>

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<sup>34</sup> Explanation of the "Discharge standard of water pollutants for pulp and paper industry" (For Comments),

Pretreatment, printing, dyeing, and finishing are four sources of AOX from textile dyeing and finishing processes. Chemicals contributing to AOX are widely used for synthetic textile production, such as: flame retardants, biocides, anti-viral agents, dry cleaning, bleaching agents, and for degreasing wool. Dangers to the environment and human health from AOX are comparatively large.<sup>35</sup>

Furthermore, halogen-containing chemicals used in wastewater treatment processes, such as sodium hypochlorite in bleaching agents, also cause high concentrations of AOX in wastewater created by dyeing processes.<sup>36</sup>

Presently, there are two main ways of dealing with AOX, clean production, and end of pipe treatment management. For the majority of halogen-containing organic compounds, including dyes, additives and other chemical treatment products, clean production methods should be adopted. This includes the use of halogenated compounds for shrinkproof and softened finishing, non-chlorine shrink finishing processes, and halogen-containing active dyes.

End of pipe treatments include: microfiltration methods, which can reduce AOX by up to 40%; flocculation, which can reduce AOX levels by 50%. However, because the amount of flocculants required is extremely large, and some flocculants do not contain halogens, it is not a particularly good method of treatment. Activated carbon absorption is a valid treatment but costs are higher. In addition to this there is alkaline hydrolysis and microbial degradation of active dyes. These types of matter can be degraded by particular microorganisms. This kind of treatment can be carried out in the lab, but these strict conditions are much harder to implement in factory conditions.

#### ● **Total Nitrogen and Ammonia Nitrogen**

Total nitrogen and ammonia nitrogen come from dyes, for instance azo dyes, and raw materials. Nitrogen and ammonia levels in normal dyeing wastewater is not particularly high, at 10mg/l and below. However, if batik processes are used then urea must be present, which can bring the level of total nitrogen up to 300mg/l, causing difficulties in getting treated wastewater to meet the necessary standards.

Ammonia nitrogen and total nitrogen levels in wastewater can be reduced through nitrification and de-nitrification, while reducing the use of nitrogen containing compounds can help with adherence to the standard. However, batik processing employs urea, which can cause total nitrogen in wastewater to be up to several hundred mg per liter. This type of wastewater is difficult to bring into compliance unless the process uses less urea, or nitrification and denitrification processing is used. Furthermore, the capacity of wastewater treatment facilities must be greatly increased.

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<http://www.zhb.gov.cn/gkml/zi/bgth/200910/W020071022278211098865.pdf>

<sup>35</sup> AOX - A category of textile pollutants that deserves close attention to identify their source, China Textile Index,

<http://www.cntma.com/Articles/2008-1-14/126555.html>

<sup>36</sup> An Analysis of Textile Dyeing Industry Pollution, Xueshu Zazhi Wang, <http://www.zhazhi.com/lunwen/gyjs/fzplw/29712.html>

- **Total Phosphorus**

Total phosphorus has been newly added to the standard. Considering how serious China's surface water eutrophication problems are, the pollutant needs to be controlled. Phosphorus in dyeing and finishing wastewater comes from detergents containing phosphorus. Some companies use high levels of trisodium phosphate, which means the reaching tens of milligrams per liter, this kind of wastewater requires pre-treatment.

High concentration phosphorus wastewater can go through physical and chemical pretreatment to reduce total phosphorus. By not using phosphorus surfactant compounds the standard can also be reached.

- **Chlorine dioxide**

In the textile dyeing and finishing industry, bleaching is an important process. Normally wastewater from bleaching contains concentration levels of chlorine dioxide of 10-200mg/L. Because chlorine dioxide is a strong oxidant, it has highly corrosive and toxic properties and requires strict emission control. Chlorine dioxide through pre-aeration can reach emission standards.

- **Per Unit Production Benchmarks for Water Discharge Volumes**

Per unit production benchmarks for water discharge volumes are made by setting the maximum permissible level of wastewater discharge per unit of textile product produced. The new standard is expressed in wastewater produced per ton of product, this standard is used to promote water conservation to increase the level of clean production, and to prevent the dilution of emissions.<sup>37</sup>

Newly constructed enterprises, and enterprises with special discharge limits, can reach the standard limit value, which is set at 210m<sup>3</sup>/ton, through the selection of more environmentally friendly chemicals, the use of cleaner production processes, reducing water consumption, installation water saving equipment and reusing water after treatment (reuse rate of 30%).

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<sup>37</sup> On average around 300 tons of water are used to produce one ton of product in China. However, over the past few years, because of efforts to reduce energy use and emissions, environmental enforcement becoming stricter, and more advanced technology being rolled out, total volumes of water used have been decreasing, but highly unevenly. Both polyester and cotton output is very large, accounting for 80% of total fiber output in 2006, which created around 250-300 m<sup>3</sup> of wastewater per ton of product. For this reason the new standard set the water discharge limit value per ton of product to 250m<sup>3</sup>.

### **3.3 The New Standards will promote the Continuous and Healthy Development of the Textile Industry**

Implementing the new standards will increase the requirements, in terms of environmental protection, for entry into the textile industry. It will also help reduce the discharge of water pollution, and promote the industry's healthy and sustainable development. "The release and implementation of the four standards will strongly promote the reduction of pollution emissions in the textile industry. After existing businesses implement, and reach, the phase 2 emissions limits, the discharge of pollutants will be substantially reduced, significantly benefiting the environment, with COD and ammonia discharge expected to be reduced by 68 and 70 percent, compared with 2010 levels."

## 4. Implementation of the New Standard

### 4.1 The New Standard Still yet to be Universally Implemented

The new standard should have been implemented on January 1<sup>st</sup>, 2013. In order to look into how the standard has been implemented in different areas, as well as the incidents of textile dyeing and finishing enterprises' wastewater discharge breaching the standards after the new standards came into force, we looked at the results of the key state monitored enterprises pollution source monitoring, administrative punishment records, and online monitoring data in Zhejiang, Guangdong, Fujian, Jiangsu, and Shandong.

We found that both Zhejiang and Fujian have implemented the new standard and regularly publish details about enterprise violations, with details of the violation. However, Guangdong, Jiangsu and Shandong have not fully implemented the new discharge standard. Furthermore, in Fujian and Shandong, the discharge limit values shown for supervision monitoring are different to the discharge limit values shown for online monitoring.

For details of how the new standard has been implemented in different provinces please see appendix 1.

For a summary of how the standard has been implemented in different provinces please see:

Province	Implemented the new Standard As of the (second quarter of 2013)	Disclosed the discharge status of each pollutant
Zhejiang	Yes	Yes
Jiangsu	Not Completely	No
Guangdong	Not Completely	No
Fujian (As of the 3 <sup>rd</sup> Quarter of 2013)	Yes, but the discharge standard shown on the supervision records and online monitoring information is not the same	Yes
Shandong	No. The discharge standard shown on the supervision records and for online monitoring information is not the same.	No

Figure 13 – Implementation status of the new standard in Zhejiang, Jiangsu, Guangdong, Fujian and Shandong

## 4.2 Textile Dyeing and Finishing Enterprises in Areas where the New Standard has been implemented are Breaching Discharge Standards on a Massive Scale

Our research focused mainly on the province of Zhejiang, where the new standard has been comprehensively implemented, and where there is an enormous concentration of textile mills. According to all the 2013 quarterly reports completed for Zhejiang’s key pollution sources, textile enterprises are breaching the new discharge standards on a big scale.

On May 15<sup>th</sup>, 2013, the “2013 1<sup>st</sup> Quarter Zhejiang Key Pollution Source Monitoring Report” published on the Zhejiang EPB website, showed that Zhejiang Province carried out supervisory monitoring of 1089 provincially (which included national) controlled industrial wastewater pollution source enterprises, and 423 breached the discharge standards. The reason the figure was so high was because textile enterprises are breaching the new standard on a massive scale. 391 textile enterprises were found to breach the new standard, which accounted for 92.4% of all companies breaching discharge standards in the province.<sup>38</sup>

The same occurred in the 2<sup>nd</sup> Quarter too. On August 27<sup>th</sup>, 2013, the “2013 2<sup>nd</sup> Quarter Zhejiang Key Pollution Source Monitoring Report” published on the Zhejiang EPB website, showed that Zhejiang Province carried out supervisory monitoring of 1091 provincially (which included national) controlled industrial wastewater pollution source enterprises, and 58.9% of these met the discharge standards. 419 textile enterprises were found to breach the new standard, which accounted for 92.4% of all companies breaching discharge standards in the province.<sup>39</sup>

Details of pollutant parameter that exceeded standards, and details of how many enterprises breached standards:

Pollutant Parameter		COD	BOD	Aniline	SS	Color	Ammonia Nitrogen	pH
		Date	Enterprise					
2013 – 1 <sup>st</sup> Quarter	No. of Enterprises Breaching the Standard	354	289	176	168	150	70	70
	% of Total	83.7	68.3	41.6	39.7	35.5	16.5	16.5

<sup>38</sup> 2013 1<sup>st</sup> Quarter Key Pollution Source Monitoring for Zhejiang Province, Zhejiang EPB, [http://www.zjepb.gov.cn/root14/hbt/lcyxxc/201305/t20130515\\_285242.html](http://www.zjepb.gov.cn/root14/hbt/lcyxxc/201305/t20130515_285242.html)

<sup>39</sup> 2013 2<sup>nd</sup> Quarter Key Pollution Source Monitoring for Zhejiang Province, Zhejiang EPB, [http://www.zjepb.gov.cn/root14/xgk/hjjg/wryjc/wkzjdxjcy/201308/t20130827\\_290841.html](http://www.zjepb.gov.cn/root14/xgk/hjjg/wryjc/wkzjdxjcy/201308/t20130827_290841.html)

2013– 2 <sup>nd</sup> Quarter	No. of Enterprises Breaching the Standard	385	326	98	197	169		
	% of Total	86.1	72.9	21.9	44.1	37.8		

Figure 14 – Details on how 2013 key pollution source enterprises in Zhejiang province have been breaching discharge standards

Because many of the key pollution source enterprises that showed up in the reports as having breached discharge standards were in Shaoxing and Hangzhou Bay, further research was targeted at these areas. The results were as follows:

- Shaoxing: For the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2013, nearly half of all industrial wastewater key pollution source enterprises in Zhejiang Province that were in breach of the standards were located here.

According to the “2013 1<sup>st</sup> Quarter Zhejiang Key Pollution Sources Monitoring Report”, the number of wastewater key pollution source enterprises in Shaoxing that breached the standards was 209, which was 49.4% of the total of 423 enterprises in the province that breached the standards.

On June 21<sup>st</sup>, 2013, the Shaoxing EPB replied to the post on the Shaoxing E-net Forum which stated, “A number of wastewater key pollution source monitored enterprises breached discharge standards in the 1<sup>st</sup> quarter”.<sup>40</sup> The contents was as follows:

“On May 15<sup>th</sup>, this year, the “2013 1<sup>st</sup> Quarter Zhejiang Key Pollution Source Monitoring Report” posted on the Zhejiang EPB website, stated that out of 249 enterprises in Shaoxing, in total 209 key monitored enterprises breached wastewater discharge standards. The main reason for this was their COD levels as evaluated against the Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-2012), which was implemented on January 1<sup>st</sup>, 2013. From the list it is possible to see that the number of enterprises in Shaoxing with COD levels above 500mg/L was 25, and the number with COD levels of between 200mg/L and 500mg/L was 141.

“After analyzing this monitoring data, the main reason why relatively few enterprises were in compliance was because there was only a three month period between the new standard being enacted and implemented. The majority of enterprises are still managing their COD discharge with a pre-treatment system designed according to the requirements in the Shaoxing Administrative Notice (2011) No. 38, where the standard for COD is 500mg/L.”

Furthermore, according to the “2013 2<sup>nd</sup> Quarter Zhejiang Key Pollution Source Monitoring Report”, the number of wastewater key pollution source enterprises in Shaoxing that breached discharge

<sup>40</sup> <http://www.e0575.cn/simple/?t4568017.html>

standards was 216, which was 48.3% of the total number for the province, which was 447. According to information released by the Zhejiang automatic monitoring information platform, Shaoxing Water Treatment Development Co., Ltd., which acts as a centralized treatment plant for a large volume of dyeing and finishing wastewater, also breached discharge standards numerous times.

- Hangzhou: In the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2013, many textile enterprises breached discharge standards.

The “2013, 1<sup>st</sup> Quarter Key Pollution Source Monitoring Report for Hangzhou,” showed that out of 210 enterprises monitored as industrial wastewater pollution sources, 66 breached discharge standards, and out of these, 53 were in the Xiaoshan area. Out of all industries, the textile industry accounted for the most enterprises breaching discharge standards, with 57 enterprises, accounting for 86.4% of the total.<sup>41</sup>

Pollutant responsible for breach of standard	COD	BOD	Color	SS	pH	Aniline	Ammonia Nitrogen
No. of Enterprises Breaching Discharge Standards	62	36	33	30	26	21	4
Percentage of Enterprises Breaching Discharge Standards	93.9	54.5	50	45.4	39.4	31.8	6

Figure 15 – 2013 1<sup>st</sup> quarter Hangzhou key pollution source textile enterprises and the percentage with violation records

The “2013, 2<sup>nd</sup> Quarter Key Pollution Source Monitoring Report for Hangzhou,” showed that out of 218 enterprises monitored as industrial wastewater pollution sources, 67 breached discharge standards, and out of these, 56 were in the Xiaoshan area. Out of all industries, the textile industry accounted for the most enterprises breaching discharge standards with 60 enterprises, accounting for 89.6% of the total.

<sup>41</sup> 2013 1<sup>st</sup> quarter Key Pollution Source Monitoring Report for Hangzhou, Hangzhou EPB, [http://www.hzepb.gov.cn/wryhjjkxxgk/wryjc/jcig/201307/t20130705\\_21728.htm](http://www.hzepb.gov.cn/wryhjjkxxgk/wryjc/jcig/201307/t20130705_21728.htm)

For details please see figure 16 below:

Pollutant responsible for breach of standard	COD	SS	BOD	Color	Aniline	pH	Ammonia Nitrogen
No. of Enterprises Breaching Discharge Standards	63	39	39	37	26	19	8
Percentage of Enterprises Breaching Discharge Standards	92.6	57.4	57.4	54.4	38.2	27.9	11.8

Figure 16 – Textile industry key state monitored enterprises that breached discharge standards in the 2<sup>nd</sup> quarter of 2013

To sum up, textile and dyeing enterprises operating in some of the areas where the new standard has been implemented are breaching discharge standards on a massive scale, and the number of enterprises breaching standards is actually increasing. Furthermore, according to the requirements in the new standard, as of January 1<sup>st</sup>, 2015, existing enterprises will have to implement the Phase II limit value requirements. At a scheduled time in the future the discharge requirements for a number of pollutant parameters will also be strengthened. If an enterprise cannot carry out the necessary preparations then instances of standards being breached will become much more serious.

Of particular note is the fact that the wastewater discharge compliance rate for the centralized wastewater treatment plant for the Xiaoshan area was 51.1% lower than the previous year. Evaluated against the new discharge standard for textile dyeing and finishing wastewater, Xiaoshan Linjiang Wastewater Treatment Plant's ammonia nitrogen, total nitrogen and amine pollutants were all in breach of the standards, which was the main reason why Xiaoshan's compliance rate dropped so substantially. For details of the on-site investigation into this wastewater treatment plant please see the Uniqlo case study.

Much of the wastewater discharged by dye houses into centralized sewerage networks does not meet the preliminary treatment standards. This means that the water flowing into the wastewater treatment plant is significantly in breach of the standards, which massively increases the treatment load, and leads to discharge by the wastewater treatment plant being even more severely in breach of the standards.

Because water discharged from the centralized treatment plant is discharged directly into a water body, and the volume of water being discharged is so huge, when it exceeds the discharge limit values it not only harms the environment but can harm communities and even public health.

## 4.3 New Standards Bring about New Challenges for the Disposal of Textile Dyeing Sludge

The current treatment of dyeing and printing wastewater essentially involves a combination of physicochemical and biochemical processes, among which activated sludge is widely employed; however, this process produces a large amount of waste sludge. After the implementation of the new standard, the higher requirements for the discharge of the dyeing wastewater has led to a further increase in the quantity of sludge.<sup>42</sup>

As a dyeing enterprise in Jinghu new district of Shaoxing made known through the media, “the present concentration of COD for wastewater entering the sewerage system from dyeing enterprises was previously reduced from 1000mg/L to 500mg/L, and has been further reduced to 200mg/L this year. However, as the standard has become more stringent, the quantity of sludge produced by wastewater treatments has also increased.” Mr. Dai, head of the company, has said that they used to produce one ton of sludge per day, and the company could generally dispose of it directly by incineration. However, with the current production of 5 to 6 tons of dyeing sludge per day, they need to find a new method of disposal.<sup>43</sup>

In those areas where the dyeing industry is most concentrated, sludge disposal capacity is obviously not sufficient.

Data from the Shaoxing EPB shows that, “there are more than 200 dyeing enterprises in Shaoxing County, producing approximately 2100 tons of sludge every day. In addition, Shaoxing's urban area has over 50 large scale dyeing enterprises, with a daily production of approximately 400 tons of sludge. Altogether, the sludge produced daily by the dyeing Shaoxing county and Shaoxing municipality is more than 2500 tons.”<sup>44</sup>

However, the only company in Shaoxing specialized in sludge disposal is Shaoxing Central Renewable Energy Development Co., Ltd, and the Shaoxing sludge disposal project is not yet running. Furthermore, according to the staff of the Shaoxing EPB Solid Waste Centre,<sup>45</sup> the sewage treatment plant can currently dispose of no more than 1000 tons of sludge per day, and has to deal with all the sludge produced by both domestic sewage and industrial sewage.

Sludge disposal capacity is obviously not sufficient, and the lack of a standard for the disposal of dyeing sludge, led in 2013 to the frequent and indiscriminate dumping of dyeing sludge in proximity

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<sup>42</sup> Accounting for 0.3-0.5% of wastewater treatment volumes, Differences exist with different types of wastewater treatment processes and treatment levels.

<sup>43</sup> Dyeing Sludge Tipped into Fields, Who carried out this immoral deed? Tiantian Shangbao Online Newspaper, [http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content\\_822484.htm](http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content_822484.htm)

<sup>44</sup> Dyeing Sludge Tipped into Fields, Who carried out this immoral deed? Tiantian Shangbao Online Newspaper, [http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content\\_822484.htm](http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content_822484.htm)

<sup>45</sup> Shaoxing EPB Solid Waste Center

to farmland and in the natural environment. With this in mind, an environmental NGO from Shaoxing, the Zhaolu Environmental Protection and Commonweal Service Center carried out a special investigation, discovering that in the areas with a concentration of dyeing enterprises, such as Paojiang and Shaoxing county, a large quantity of sludge had been dumped on the sides of the road, and even in proximity to bodies of water. For more information please see figures 17-18 below:



Figure 17 – Map showing where waste sludge has been dumped  
(Photo: Zhaolu Environmental Protection and Commonweal Service Center)



Figure18 – Fields close to where waste sludge has been dumped  
(Photo: Zhaolu Environmental Protection and Commonweal Service Center)

According to the staff from the Shaoxing EPB environmental monitoring station, “dyeing sludge, which is now indiscriminately dumped in Shaoxing, often contains an excessive amount of heavy metals”, including lead, mercury, chromium and cadmium.<sup>46</sup> Samples sent by the Zhaolu Environmental Protection and Commonweal Service Center for testing by a third party also showed high levels of heavy metals.

As soon as it rains, the hazardous substances contained in the sludge can enter into the soil, changing and harming its quality. These substances can even seep into ground water and harm its quality, affecting the life of the locals and their ability to farm.

The issue of indiscriminate dumping of dyeing sludge has already drawn the attention of the local media and government, and it has been reported that in Shaoxing, four dyeing enterprises were given the maximum punishment for the illegal dumping of dyeing sludge; these were Shaoxing Plush textiles Ltd., Shaoxing Zhiren Printing and Dyeing Co., Ltd., Yuecheng Fanjiang Printing and Dyeing Co., Ltd and Zhejiang Yukai Dyeing and Weaving Technology Co., Ltd.<sup>47</sup> In addition to these companies, Zhejiang Weiyi Shiye Group was also found to be illegally disposing of the sludge.<sup>48</sup>

Similarly, in the Xiaoshan district of Hangzhou, over a thousand tons of dyeing sludge has been dumped since may 2013, seriously threatening local water bodies and people’s livelihoods.<sup>49</sup>

The indiscriminate dumping of dyeing sludge shows that some printing and dyeing enterprises still can't deal effectively with the increasing amount of sludge brought about by the tightening of the standard. This also creates a new challenge for textile brands to ensure that their supply chains are in compliance.

## **5. Implementation of the New Standard has Greatly Increased non-Compliance Risks for Brands**

As shown so far in this report, discharge from the dyeing and finishing industry is huge, and is putting massive pressure on the environment in areas where the industry is concentrated. For these reasons the discharge standards must be strengthened to reduce the industry’s

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<sup>46</sup> Dyeing Sludge Tipped into Fields, Who carried out this immoral deed? Tiantian Shangbao Online Newspaper, [http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content\\_822484.htm](http://epaper.shaoxing.com.cn/ttsb/html/2013-07/23/content_822484.htm)

<sup>47</sup> [http://epaper.shaoxing.com.cn/sxrb/html/2013-08/12/content\\_830066.htm](http://epaper.shaoxing.com.cn/sxrb/html/2013-08/12/content_830066.htm)

<sup>48</sup> [http://epaper.shaoxing.com.cn/sxwb/html/2013-08/12/content\\_830158.htm](http://epaper.shaoxing.com.cn/sxwb/html/2013-08/12/content_830158.htm)

<sup>49</sup> Xiaoshan’s Printing and Dyeing Sludge Incident, Day 11, Xinlanwang, <http://www.cztv.com/s/2010/xiaoqiang/replay/2013/05/2013-05-223882393.htm>

environmental impact. However, a large number of dyeing and finishing enterprises have yet to fully prepare for the implementation of the new standard, to the extent that in the areas where the new standard has been implemented, there has been widespread breaches of the standard. This means that there exists a very large environmental violation risk in the supply chains of apparel brands.

Faced with this challenge, leading brands like Esquel, Puma, H&M, Nike, Adidas, Walmart, Levi's, Gap, Marks and Spencer, C&A, Burberry and Esprit (see table below) have already started to use disclosed information to establish supply chain search mechanisms, thus proactively understanding pollution problems in their supply chains. They have also started to push a number of suppliers to take corrective actions.

However, a number of brands, including Polo Ralph Lauren, Uniqlo, Youngor, Tommy Hilfiger, Abercrombie & Fitch, Calvin Klein, Carrefour and ANTA, when faced with pollution problems in their supply chains, still make little effort to respond, or do not respond at all.

## **5.1 Performance of 49 Textile Brands in terms of Supplier Management**

In April 2012, as part of our previous investigations, 49 apparel brands were contacted and asked whether they understood the environmental performance of their suppliers, including dyeing and finishing suppliers. In the following months we had contact with 30 different brands. In order to fully understand how brands were managing their dyeing and finishing suppliers, on September 25<sup>th</sup>, 2012, we once again sent a letter to the 49 brands, hoping that they could answer some questions about their main materials suppliers. As of October 16<sup>th</sup>, 2013, 33 brands had responded.

On November 25<sup>th</sup>, 2013, we contacted two more brands, Hugo Boss and MetersBonwe, to ask if they understood the environmental performance of their suppliers, including those that carry out dyeing processes. As of December 2<sup>nd</sup>, 2013, neither brand had responded.

In order to evaluate the extent to which brands have pushed their suppliers to improve their environmental performance, and to push brands to more extensively and substantially publish environmental information, IPE has conducted a preliminary "Corporate Information Transparency Index" score for 48 textile brands. (For a detailed explanation of the CITI please see section 6.3.)

For the CITI scores and rankings please see the table below:

**CITI Evaluation Table**

Ranking	Brand	Respond and Follow up		Push Suppliers on Compliance & Corrective Actions			Extend Green Supply Chain Practices		Data Disclosure		Emissions Reduction		Publicity for used product recycling plans	Total
		Respond to questions about Suppliers' Violation Records	Display an understanding of Industry Pollution Problems	Establish Supplier Screening Process	Push Suppliers on corrective actions and public explanations	Push Suppliers to Disclose Self-monitoring Data	Push suppliers to search their own suppliers	Identify main polluting sectors during a product lifecycle and push them to reduce pollution	Push Suppliers to Disclose Pollutant Discharge Data	Push Suppliers to Disclose Pollutant Transfer and Recycling Data	Push suppliers to reduce energy/water use	Push suppliers to reduce emissions		
	<b>Weighting</b>	<b>3</b>	<b>3</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>100</b>
<b>1</b>	Esquel	3	3	12	12	0	2.5	0	0	0	0	0	0	32.5
<b>2</b>	H&M	3	3	9	9	0	0	5	0	0	0	0	3	32
<b>3</b>	Puma	3	3	9	9	0	0	0	3	2	0	0	1.5	30.5
<b>4</b>	Adidas <sup>50</sup>	3	3	9	9	0	0	5	0	0	0	0	1.5	30.5
<b>5</b>	Nike <sup>51</sup>	3	3	9	9	0	2.5	2.5	0	0	0	0	1.5	30.5

<sup>50</sup> including Reebok

<sup>51</sup> including Converse

6	Walmart	3	3	9	9	0	5	0	0	0	0	0	0	29
7	Gap	3	3	9	9	0	0	0	0	0	0	0	1.5	25.5
8	Marks&Spencer	3	3	9	6	0	0	2.5	0	0	0	0	1.5	25
9	Levi's	3	3	9	9	0	0	0	0	0	0	0	0	24
10	Zara	3	3	9	6	0	0	0	0	0	0	0	1.5	22.5
11	C&A	3	3	9	3	0	0	0	0	0	0	0	0	18
12	Burberry	3	3	9	3	0	0	0	0	0	0	0	0	18
13	Esprit	3	3	9	3	0	0	0	0	0	0	0	0	18
14	Ann Taylor	2.25	2.25	6	3	0	0	0	0	0	0	0	1.5	15
15	Mizuno	3	1.5	6	3	0	0	0	0	0	0	0	1.5	15
16	Ikea	3	3	6	0	0	0	0	0	0	0	0	0	12
17	VF	2.25	3	3	3	0	0	0	0	0	0	0	0	11.25
18	Lee Jeans	2.25	3	3	3	0	0	0	0	0	0	0	0	11.25
19	Disney	3	1.5	6	0	0	0	0	0	0	0	0	0	10.5
20	Li Ning <sup>52</sup>	3	1.5	6	0	0	0	0	0	0	0	0	0	10.5
21	Target	2.25	1.5	3	3	0	0	0	0	0	0	0	0	9.75
22	Lafuma	2.25	1.5	0	0	0	0	0	0	0	0	0	0	3.75
23	Tesco	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3
24	Uniqlo	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3
25	Benetton	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3
26	Tommy Hilfiger	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3
27	Calvin Klein	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3

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<sup>52</sup> including Lotto

28	Armani	1.5	0	0	0	0	0	0	0	0	0	0	0	1.5
29	Fifth and Pacific <sup>53</sup>	1.5	0	0	0	0	0	0	0	0	0	0	0	1.5
30	Next	1.5	0	0	0	0	0	0	0	0	0	0	0	1.5
31	Polo Ralph Lauren	0	0	0	0	0	0	0	0	0	0	0	0	0
31	A&F	0	0	0	0	0	0	0	0	0	0	0	0	0
31	361	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Kappa	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Guess	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Youngor	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Sears-Roebuck	0	0	0	0	0	0	0	0	0	0	0	0	0
31	ANTA	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Cortefiel	0	0	0	0	0	0	0	0	0	0	0	0	0
31	DKNY	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Victoria'sSecret	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Macy's	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Kmart	0	0	0	0	0	0	0	0	0	0	0	0	0
31	J.C. Penney	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Giordano	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Carrefour	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Meters/bonwe	0	0	0	0	0	0	0	0	0	0	0	0	0
31	HUGO BOSS	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>53</sup> formally Liz Claiborne

## 5.2 Some Brands have Pro-actively Responded and pushed their Main Materials Suppliers to make Improvements

Out of the 33 brands that have responded, a number of them have been very active. Amongst these, H&M, Nike, Esquel, Levi's, Gap, Adidas, Reebok and Burberry's performance has been outstanding. They regularly use the pollution map database to carry out searches of their supply chain, including some of their main materials suppliers. Zara has already started to use the pollution map database to carry out initial searches of its suppliers, including a number of main materials suppliers. It should be noted that Walmart not only does regular searches of its supply chain, but has also pushed a number of suppliers (including some main materials suppliers) to provide explanations on their violation records.

As of October 31<sup>st</sup>, 2013, suppliers to Nike and M&S have been in contact to discuss problems related to the violation of the new standard. For details see below:

Brand	Supplier	Violation	Result of Communications
Marks & Spencer	Zhejiang Qingmao	<p>The 2013, 1<sup>st</sup> Quarter Zhejiang Key Pollution Source Monitoring Report showed that the concentration of pollutant discharge at the factory's discharge outlet breached a number of the limit values in the new standard. Details of each pollutant are shown below:</p> <p>BOD (1.2), COD (1.9), color (7), aniline (1.1).<sup>54</sup></p> <p>The 2013, 2<sup>nd</sup> Quarter Zhejiang Key Pollution Source Monitoring Report showed that, COD, BOD5, color and aniline were once again being discharged in breach of the standard.<sup>55</sup></p>	<p>Explained to IPE about the 1<sup>st</sup> quarter wastewater exceedances and provided wastewater treatment upgrade plan.</p> <p>The enterprise has already upgraded their wastewater treatment facilities and have put these into operation.</p>
ITG Group <sup>56</sup>	Jiaxing	The 2013, 1 <sup>st</sup> Quarter Zhejiang	Completed 3 <sup>rd</sup> party

<sup>54</sup> The value in brackets shows how far over the standard value the pollutant discharge was.

<sup>55</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=711290](http://www.ipe.org.cn/pollution/com_detail.aspx?id=711290)

<sup>56</sup> According the communications that IPE had with Jiaxing Kanglong, they were pushed by their international headquarters to

Brand	Supplier	Violation	Result of Communications
	Kanglong Textile Co., Ltd.	Key Pollution Source Monitoring Report showed that the concentration of pollutant discharge at the factory's discharge outlet breached a number of the limit values in the new standard. Details of each pollutant that exceeded the standard is shown below:  BOD (1.4) and COD (1.2). <sup>57</sup>	audit in September 2013.  Currently correcting problems discovered during the audit.
NIKE	Jimay Printing and Dyeing	The 2013, 1 <sup>st</sup> Quarter Zhejiang Key Pollution Source Monitoring Report showed that, pH, COD, BOD, color, aniline and SS at the company's discharge outlet were all in breach of the discharge standard.  The 2013, 2 <sup>nd</sup> Quarter Zhejiang Key Pollution Source Monitoring Report showed that many pollutant parameters were once again being discharged in breach of the standard. <sup>58</sup>	Verbal communication with IPE. Sent notices from two local wastewater management companies about their exceedances and corrective measures to be carried out within a specified time frame.

Figure 20 – How some brands have responded when suppliers have breached the new standards

These proactive brands still need to understand that following the strengthening of the standard, they need pay even closer attention to compliance issues in their supply chain.

- A number of brands, like Nike, Gap, H&M, Marks and Spencer and Levi's, have started to push suppliers. However, there has only been very limited communications with those suppliers in the most highly polluting dyeing and finishing sectors of the industry. There is also a lack of understanding of the root causes of these problems. Furthermore, independent audits have not been carried out to verify corrective actions.

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provide an explanation, rather than a brand pushing them. According to their official website Jiaxing Kanglong is a 2005 joint venture between International Textile Group and Hong Kong's NovelGroup. In 2011 this was transferred entirely to the US company, which remains a large scale denim manufacturer in the Jiaxing Economic Development Zone.

<sup>57</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=711049](http://www.ipe.org.cn/pollution/com_detail.aspx?id=711049)

<sup>58</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710930](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710930)

- Some areas have yet to implement or fully implement the new standard. In regards to these areas, brands have no way of ascertaining whether or not a supplier's wastewater satisfies the requirements of the new standard, and even suppliers themselves are not clear on whether their wastewater discharge meets the requirements in the new standard.
- From January 1<sup>st</sup>, 2015, existing enterprises will have to implement the Phase II limit value requirements from the standard in the same way as newly built enterprises. When this time comes, the discharge requirements for a number of pollutant parameters will be made more stringent. For example, aniline and hexavalent chromium will be required to be at undetectable limits.

### **5.3 Some Brands have not responded, even when faced with Questions over Suspected Compliance Problems in their Supply Chains**

Out of the brands that have responded negatively or have refused to respond, there is no shortage of high sounding promises on environmental protection. Furthermore, many of these companies are famous global brands much beloved by young people around the world. For example, Polo Ralph Lauren, Uniqlo, Tommy Hilfiger, Abercrombie & Fitch, Calvin Klein, and Youngor.<sup>59</sup>

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<sup>59</sup> Both Polo Ralph Lauren and Tommy Hilfiger were included as negative case studies in the Phase II GCA Textile Report. However, as of October 2013, no explanation from either company on their suspected suppliers with violation records had been received. Furthermore, since the implementation of the new standard more of their suspected suppliers now have violation records. For this reason we once again included them as negative case studies and hope that they will respond.

## Case Study 1: Polo Ralph Lauren<sup>60</sup>

The following table shows Ralph Lauren’s environmental commitments, as disclosed on their official website, and communications between Ralph Lauren and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
<p>“The Company is committed to conducting its business in compliance with all applicable environmental and workplace health and safety laws and regulations. The Company strives to provide a safe and healthy work environment for employees and to avoid adverse impact and injury to the environment and communities in which it conducts its business. Achieving this goal is the responsibility of all employees, officers and directors.”<sup>61</sup></p>	March 22 <sup>nd</sup> , 2012	Phase I letter sent to Polo alerting them to the fact that a supplier suspected of supplying to Polo had compliance issues.	Still no response
	September 25 <sup>th</sup> , 2012	Phase II letter sent to Polo once again alerting them to the fact that a supplier suspected of supplying to Polo had compliance issues.	Still no response

Figure 21 – Ralph Lauren’s environmental commitments and how they have responded to enquiries made by the NGOs

As Polo had so far been unresponsive, we decided to further investigate, and found that the company claims to abide by all environmental regulations. However, there are a number of unanswered questions about pollution problems in their supply chain.

Publically available information shows that Siris Knitting Co., Ltd. and Zhonghe Group are suppliers to Polo Ralph Lauren, and these companies have environmental violation problems.

### Suspected supplier

Siris Knitting Co., Ltd.<sup>62</sup>

<sup>60</sup> Polo Ralph Lauren’s official website states, “Ralph Lauren Corporation (NYSE: RL) is a leader in the design, marketing and distribution of premium lifestyle products in four categories: apparel, home, accessories and fragrances. For more than 45 years, Ralph Lauren’s reputation and distinctive image have been consistently developed across an expanding number of products, brands and international markets.” <http://investor.ralphlauren.com/phoenix.zhtml?c=65933&p=irol-irhome>

<sup>61</sup> Ralph Lauren, Code of Business Conduct and Ethics. <http://investor.ralphlauren.com/phoenix.zhtml?c=65933&p=irol-govhighlights>

<sup>62</sup> [Siris’s official website states that:](#) “SIRIS knitting Co., Ltd (SIRIS) is located in Shaoxing, a famous historic and cultural city in

Siris's official website states that Ralph Lauren is one of the famous brands that it works with.<sup>63</sup> See screenshot below:

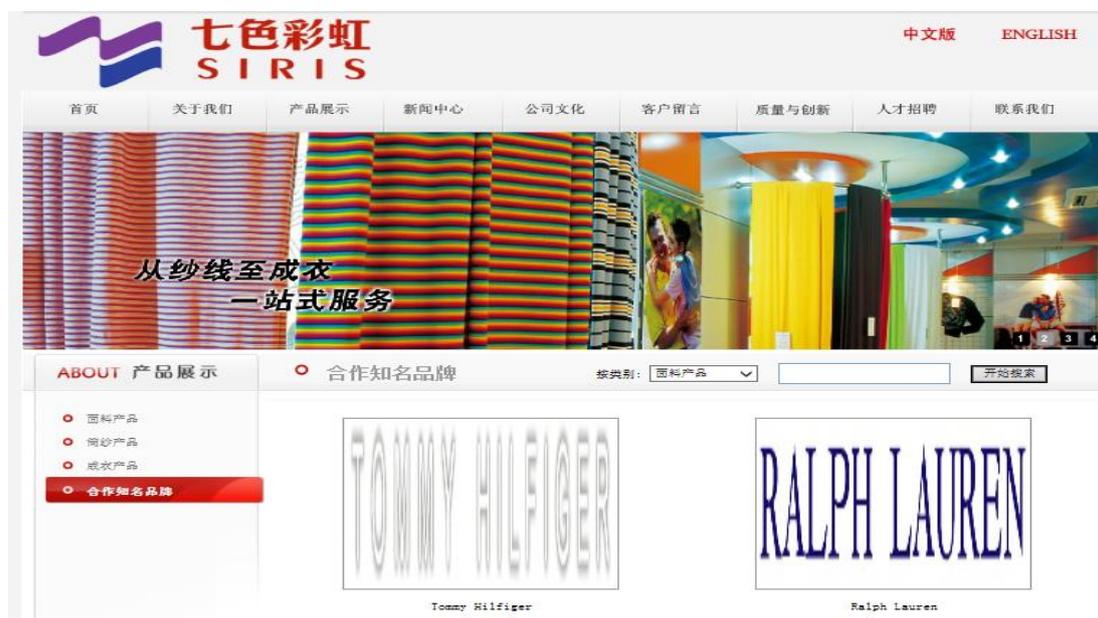


Figure 22 – Screenshot showing the relationship between Siris and Ralph Lauren

Our investigation found that Siris's subsidiary, Zhejiang Siris Printing and Dyeing co., Ltd., has violated the requirements of the new standard. For details please see:

Suspected Supplier	Date	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Any other violations?
Zhejiang Siris Printing and Dyeing Co., Ltd. <sup>64</sup>	2013 – 1 <sup>st</sup> Quarter	COD	200	838	No
		Color	80	800	
		Aniline	1	4.7	
		SS	100	135	
		Ammonia Nitrogen	20	29.2	

China. SIRIS has a total asset of more than 600 million RMB and a staff team of more than 1800 employees. SIRIS has new been forged into an all-round and foreign-oriented enterprises integrated knitting, piece dyeing and garments manufacturing. Covering a total area of 320,000 square meters, SIRIS is one of the backbone enterprises equipped with the most advanced, most complete knitting and dyeing machines in China. And "SIRIS has passed ISO9001:2000 Quality System Authorization, ISO14000 Environment System Authorization, Oeko-Text Standard 100as well as Intertek Ecology Authorization. SIRIS will stick to its operational tenet of "Regarding the Clients as God, Creating Value for the Users", actively promote its brand strategy and provide edge-cutting products and services." <http://www.siris.com.cn/en/page.asp?id=2>

<sup>63</sup> <http://www.siris.com.cn/pro3.asp?T=2&bigid=4&key=>

<sup>64</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=711340](http://www.ipe.org.cn/pollution/com_detail.aspx?id=711340)

	2013 – 2 <sup>nd</sup> Quarter	pH	6-9	9.6	No
		BOD	50	79.5	
		COD	200	496	
		Color	80	320	
		Sulfides	1	1.29	

Figure 23 - Zhejiang Siris Printing and Dyeing Co., Ltd. subsidiaries' violation records

**In addition to this supplier, Polo Ralph Lauren has a number of others with poor environmental records:**

Suspected Supplier	Date	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other violations?		
Zhejiang Qingfeng Textile Printing And Dyeing Co., Ltd.	2013 1 <sup>st</sup> Quarter <sup>65</sup>	BOD	50	91.5	2009 <sup>66</sup> 2010 <sup>67</sup> 2011 <sup>68</sup>		
		COD	200	362			
		Color	80	667			
		Aniline	1	1.96			
	2013 2 <sup>nd</sup> Quarter	BOD	50	114			
		Total Phosphorus	1.5	4.78			
		COD	200	448			
		Color	80	333			
		Aniline	1	2.84			
		SS	100	134			
		Total Nitrogen	30	34.1			
	Hangzhou Delicacy Textile	2013 1 <sup>st</sup> Quarter <sup>69</sup>	COD	200		333.67	2010 <sup>70</sup>

<sup>65</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710972](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710972)

<sup>66</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=648801](http://www.ipe.org.cn/pollution/com_detail.aspx?id=648801)

<sup>67</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=659835](http://www.ipe.org.cn/pollution/com_detail.aspx?id=659835)

<sup>68</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=686091](http://www.ipe.org.cn/pollution/com_detail.aspx?id=686091)

<sup>69</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710992](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710992)

<sup>70</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=659426](http://www.ipe.org.cn/pollution/com_detail.aspx?id=659426)

Suspected Supplier	Date	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other violations?
Co., Ltd.	2013 2 <sup>nd</sup> Quarter	COD	200	242	
		Total Phosphorus	1.5	4.93	
Dongguan Quality Knitwear Limited		None			2010 <sup>71</sup>
Dongguan Elite Garment Manufacturing Co., Ltd.		None			2011 <sup>72</sup> 2009 <sup>73</sup>
Ramatex Industrial (Suzhou) Co., Ltd.		None			2011 <sup>74</sup> 2009 <sup>75</sup> 2008 <sup>76</sup>
Jiangsu Jingmeng Knitting Co., Ltd.		None			2008 <sup>77</sup>
Chiao Kuang Group		None			2010 <sup>78</sup>
Suzhou Henglan Textile Co., Ltd.		None			2011 <sup>79</sup> 2010 <sup>80</sup>

<sup>71</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=677442](http://www.ipe.org.cn/pollution/com_detail.aspx?id=677442)

<sup>72</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=677080](http://www.ipe.org.cn/pollution/com_detail.aspx?id=677080)

<sup>73</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=611158](http://www.ipe.org.cn/pollution/com_detail.aspx?id=611158)

<sup>74</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=684125](http://www.ipe.org.cn/pollution/com_detail.aspx?id=684125)

<sup>75</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=617587](http://www.ipe.org.cn/pollution/com_detail.aspx?id=617587)

<sup>76</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=606305](http://www.ipe.org.cn/pollution/com_detail.aspx?id=606305)

<sup>77</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=593324](http://www.ipe.org.cn/pollution/com_detail.aspx?id=593324)

<sup>78</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=622540](http://www.ipe.org.cn/pollution/com_detail.aspx?id=622540)

<sup>79</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=684056](http://www.ipe.org.cn/pollution/com_detail.aspx?id=684056)

<sup>80</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=661378](http://www.ipe.org.cn/pollution/com_detail.aspx?id=661378)

Suspected Supplier	Date	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other violations?
Fujian Zhonghe Textile Co., Ltd.	For details please see Calvin Klein case study.				

## Case Study 2: Uniqlo<sup>81</sup>

The following table shows Uniqlo’s environmental commitments, as disclosed on their official website, and communications between Uniqlo and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
The company cares about minimizing the environmental impact of its global operations. 1. We respect and uphold all environmental laws and regulations with respect to UNIQLO's business operations, and do business based on established societal norms and common sense. 2. We increase customer satisfaction by offering products and services that are safe and environmentally friendly. 3. We monitor the potential environmental impact of UNIQLO's operations, conserve energy and resources, and reduce waste and CO <sub>2</sub> emissions..... <sup>82</sup>	March 22 <sup>nd</sup> , 2012	GCA sent the Phase I letter explaining that during the investigation some suppliers suspected of supplying to Uniqlo had breached discharge standards.	Received a response from Uniqlo stating that one of the suspected suppliers was their supplier and that they had confirmed with them that corrective actions had been carried out. Did not provide details of the corrective actions.
	April 20 <sup>th</sup> , 2012	The GCA sent a letter to Uniqlo hoping that they could push suppliers to explain the reasons for their violation and disclose any corrective actions taken.	So far no response.

Figure 25 – Uniqlo’s environmental commitments and how they have responded to enquiries made by the NGOs

<sup>81</sup> Their official website states that UNIQLO was the first company in Japan to establish an SPA (Specialty store retailer of Private label Apparel) model encompassing all stages of the business--from design and production to final sale. UNIQLO has around 70 partner factories, and roughly 70% of UNIQLO products are made in China.

<http://www.fastretailing.com/eng/group/strategy/uniqlobusiness.html>

<sup>82</sup> Their official website states “The company cares about minimizing the environmental impact of its global operations. 1. We respect and uphold all environmental laws and regulations with respect to UNIQLO's business operations, and do business based on established societal norms and common sense. 2. We increase customer satisfaction by offering products and services that are safe and environmentally friendly. 3. We monitor the potential environmental impact of UNIQLO's operations, conserve energy and resources, and reduce waste and CO<sub>2</sub> emissions.....

<http://www.fastretailing.com/eng/csr/environment/problem.html>

The NGOs decided to look more closely at Uniqlo and found that there were a number of pollution problems in their supply chain.

Publicly available information shows that Jimay Printing and Dyeing Co., Ltd. (hereafter referred to as Jimay), is a suspected supplier to Uniqlo. This supplier has a number of environmental violation problems.

Jimay's official website shows that well-known international and domestic brands that it works with include, Uniqlo, JC Penney, Guess, Gap, Esprit, DKNY, Target, M&S, Decathlon, Meters/Bonwe, ANTA and Yishion. Please see figure 26 below for details:



Figure 26 – Screenshot showing the connection between Hangzhou Jimay and Uniqlo

Further information shows that Jimay's other clients include Calvin Klein, Zara and Liz Claiborne.

After researching Jimay we found that they had a number of records for violating the new discharge standards. These can be seen in Figure 27 below:

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other Violations
Hangzhou Jimay Printing and Dyeing Co., Ltd <sup>83</sup>	2013 1 <sup>st</sup> Quarter	pH	6-9	12.08	None
		BOD	50	498	
		COD	200	4350	

<sup>83</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710930](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710930)

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other Violations
		Color	80	1667	
		Aniline	1	5.44	
		SS	100	1040	
	2013 2 <sup>nd</sup> Quarter	pH	6-9	9.27	
		BOD	50	692	
		Total Phosphorus	1.5	2.16	
		COD	200	4300	
		Aniline	1	10.1	
		SS	100	730	
		Total Nitrogen	30	202	

Figure 27 – Hangzhou Jimay’s violation records

The figures in this table show how badly the enterprise breached discharge standards. In the 1<sup>st</sup> quarter of 2013, levels of COD and color breached the discharge standards by 21 and 20 times respectively, and in the second quarter, aniline was 10 times over the permitted level. The fact that levels of aniline were in breach of the permitted level is particularly noteworthy. According to the explanation on “Water quality determination of aniline compounds by gas chromatography-mass spectrometry”<sup>84</sup> (For comments), “the toxicity of aniline is extremely high and can enter the body through the respiratory and digestive tracts, and can also be quickly absorbed by the skin. Aniline can cause harm to the body changing oxygen and hemoglobin to ferrihemoglobin, which can block off oxygen getting to the cells. Symptoms of chronic poisoning include nervous system problems and changes in the make-up of blood. Some forms of aniline can also be carcinogenic.”

### On-site investigation of Printing and Dyeing Enterprises

In response to the serious problems at Jimay regarding their non-compliance issues, in November 2013, the NGOs travelled to Hangzhou to conduct an on-site inspection of Jimay Printing and Dyeing’s pollution problems. Resident from Meidong Village, which is situated to the north and west of the factory site, have stated that air and water emissions, as well as noise from the site, affects nearby residents to differing degrees.

- Air Emissions, Wastewater and Noise

A villager explained that during their production processes, Jimay Printing and Dyeing, often discharged large amounts of noxious smelling gases that meant the local resident don’t dare open

<sup>84</sup> <http://www.zhb.gov.cn/gkml/hbb/bgth/201007/W020100705539323851864>.

their windows. They also said that at night they are sometimes woken by the terrible smells and also that, "It's really hard to put up with, really hard!"

Another resident stated that Jimay's chimney often discharges black colored smoke and the factory site often discharges a white sort of fluff, meaning that they don't dare air their bedding outside and their cropland and vegetable patches get covered in a layer of fluff too.

The residents stated that the factory also has wastewater and noise pollution problems.

- Residents have pointed out that pollution has impacted their cropland and health

With a look of frustration, one of the residents pointed to their blackened wheat crop and said, "We know that it's polluted and we shouldn't eat it but what choice do we have? What can we do?"

Residents stated that often vegetables will have a black colored dust and white colored fluff on them. When they see that their vegetables are contaminated, the residents are put in a difficult situation, and are in two minds whether to eat them or sell them. One resident stated that the villagers often try to sell the vegetables that they have grown, but residents from the town see their vegetables and won't buy them because they know that the village suffers from pollution from Jimei Printing and Dyeing. The villagers find it difficult to sell the vegetables so end up just taking them home to eat themselves. There are no immediate effects from eating the vegetables but there could be chronic poisoning, which very slowly harms the body, and only after symptoms appear and have been diagnosed do people realize.

Furthermore, residents have also said that there are many cases of people getting sick around the factory site.

### **On-site Investigation of the Centralized Wastewater Treatment Plant**

Jimei Printing and Dyeing's wastewater all flows into the Xiaoshan Linjiang Wastewater Treatment Plant. In November 2013, during the on-site investigation, the NGOs heard the water coming out of the discharge outlet making a rumbling sound and the water was a blackish red color. Close up heat could be felt coming off the surface of the river, and the wastewater had a smell that stung the nostrils. The amount of wastewater being produced was enormous and bubbles that were forming as the wastewater discharged were flowing several kilometers. The color of the wastewater formed a very obvious dividing line in the Qiantang River which disappeared into the distance.

Close up to this kind of discharge site, an experienced researcher stated that their, "heart almost jumped out of their chest on seeing it!" For a picture of the site please see below:



Figure 28 - Xiaoshan Linjiang Wastewater Treatment Plant discharge outlet. Photo: Lvse Jiangnan



Close-up of the Xiaoshan Linjiang Wastewater Treatment Plant discharge outlet. Photo: Lvse Jiangnan

According to local fisherman, the discharge outlet belongs to the Xiaoshan Linjiang Wastewater Treatment Plant. In the past, fishing in the Qiantang River has been plentiful with each catch bringing in a large amount of fish. However, each catch is now very disappointing and sometimes no fish are caught at all. It is obvious that industrial wastewater discharge has damaged the environment and harmed fish stocks in the area.

In the 1<sup>st</sup> quarter of 2013, the concentration of pollutants like ammonia nitrogen, total nitrogen,

and aniline in the wastewater discharged by the Xiaoshan Linjiang Wastewater Treatment Plant were in breach of the new discharge standards. At the same time, between April and November 2012, monitoring results showing the concentration of aniline in the influent flowing into the Xiaoshan Linjiang Wastewater Treatment plant were around 5mg/L, “indicating that enterprises are using banned azo dyes.”<sup>85</sup>

It is understood that under certain conditions, some azo dyes can break down into their original state of more than 20 different carcinogenic aromatic amines. If this type of dye comes into close contact with humans for long periods its harmful components can be absorbed by the skin and spread through the body. They can then mix with substances produced by normal metabolic processes in the body and break down to their original state. Under special circumstances they can break down to form more than 20 different types of carcinogenic aromatic amines, which can form carcinogenic aromatic amine compounds. Through activating and changing DNA in the human body these can cause pathological changes and malignant tumors, which can lead to terrible illnesses such as bladder cancer, cancer of the ureter, and cancer of the renal pelvis. In addition to harming human health, the production of these “banned dyes” also produces large quantities of wastewater which can seriously pollute the environment.

### **Other Suspected Suppliers**

Pacific Panyu is also a supplier to Uniqlo and has several violation records.<sup>86 87 88</sup>

Hangzhou Delicacy Textile Co., Ltd. – (Please see Polo Ralph Lauren case study)

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<sup>85</sup> <http://www.cien.com.cn/html/Home/report/77258-1.htm>

<sup>86</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=604852](http://www.ipe.org.cn/pollution/com_detail.aspx?id=604852)

<sup>87</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=614545](http://www.ipe.org.cn/pollution/com_detail.aspx?id=614545)

<sup>88</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=715956](http://www.ipe.org.cn/pollution/com_detail.aspx?id=715956)

### Case Study 3: Youngor<sup>89</sup>

The following table shows Youngor’s environmental commitments, as disclosed on their official website, and communications between Youngor and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
The clean production concept is playing an increasingly important role in Youngor’s cost-control. Youngor’s management is now fully aware of the importance of environmentally friendly production techniques. <sup>90</sup>	March 22 <sup>nd</sup> , 2013	Phase I letter to Youngor alerting them to the fact that a supplier suspected of supplying to them had compliance issues.	Still no response
	September 25 <sup>th</sup> , 2012	Phase II letter sent to Youngor once again alerting them to the fact that a supplier suspected of supplying to them had compliance issues.	As of November 6 <sup>th</sup> , 2013 there was still no response.

Figure 30 - Youngor’s environmental commitments and how they have responded to enquiries made by the NGOs

Further investigations into Youngor found that many pollution problems existed in their supply chain.

Publically available information shows that Shengzhou Shengtai Yarn-dyed Technology Co., Ltd. is one of Youngor’s subsidiaries, and that it has a number of environmental violation problems. For more details please see figure 31 below. Youngor is slightly different to many of those textile brands that outsource all of their production in that they also manufacture textile products. Supervision information shows that in 2013, Youngor also violated discharge standards on a number of occasions.

<sup>89</sup> <http://www.youngor.com/business.do?action=classinfo&pid=200811190950271540&cid=200811191014466357>

<sup>90</sup> <http://en.youngor.com/responsibility.do?action=display&cid=200811190221474000>

Subsidiary	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other Violations?
Shengzhou Shengtai Yarn-dyed Technology Co., Ltd. <sup>91</sup>	2013 1 <sup>st</sup> Quarter	COD	200	353	None
	2013 2 <sup>nd</sup> Quarter	COD	200	278	
Youngor Sunrise Textile and Dyeing Co., Ltd. <sup>92</sup>	In 2013 Data from the Zhejiang Automatic Monitoring platform showed that in 2013, COD levels in wastewater exceeded discharge standards on numerous occasions.				

Figure 31 – Violation records for Youngor’s subsidiaries

In addition to this company, Nature Group is also suspected of supplying to Youngor and also has a number of environmental violation problems.

**Suspected Supplier:**

**Nature Holding Group**<sup>93</sup>

Nature Holding Group’s official website shows that one of its subsidiaries, Nature Texline Co., Ltd., works with Youngor. Please see screenshot below:<sup>94</sup>

<sup>91</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=713344](http://www.ipe.org.cn/pollution/com_detail.aspx?id=713344)

<sup>92</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=724275](http://www.ipe.org.cn/pollution/com_detail.aspx?id=724275)

<sup>93</sup> <http://www.nature-group.com/About.aspx?Sid=13>

<sup>94</sup> <http://www.nature-group.com/Industry.aspx?Sid=5>

**集团产业**  
GROUP INDUSTRY

**大自然产业**

**纺织印染**

**国际贸易**

**酒店连锁**

**房产开发**

**生物化学**

杭州大自然轻纺有限公司是一家专业生产各类化纤、棉、麻、毛面料的大型织造企业，座落于萧山经济技术开发区东部工业园区内，占地面积13万平米，标准厂房9万平米，总投资5亿多元，在职员工2000多人。公司成立于1996年，在历年的技改投入中，先后引进意大利产喷气织机630多台，形成年产高档西服面料及混纺织物4000多万米的生产能力。

公司与多所大学及科研机构联合成立大自然研究所，以研发中心为依托，不断提高产品技术含量，先后与雅戈尔、杉杉、红豆、森等知名品牌建立了长期合作伙伴关系，产品远销美国、西欧、东南亚等发达国家，企业规模和经济效益名列华东地区前列。公司历年被评为“AAA级信用企业”，“全国工商联上规模民营企业”，“中国民营纺织企业五十强”，“浙江省重点私营企业”，“浙江省杭州市重点工业企业”，“区萧山区百强企业”等。公司创业以来，始终遵循“以人为本、科学管理、开拓创新、追求卓越”的经营宗旨，以创造优质产品，优质服务，优惠价格为经营理念，发挥品牌战略，以诚信招揽新老客户。公司竭诚欢迎广大用户前来考察洽谈、技术咨询及合作事宜。相信我们会有很好的合作前景！



Figure 32 – Screenshot showing connection between Nature Holding Group and Youngor

We discovered that Nature Texline Co., Ltd has a number of violation records in the IPE database. For details please see figure 33 below:

Subsidiary	Date	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other Violations
Nature Texline Co., Ltd.	2013 1 <sup>st</sup> Quarter <sup>95</sup>	BOD	50	130	2009 <sup>96</sup> 2007 <sup>97</sup> 2005 <sup>98</sup>
		COD	200	346	
		Color	80	2167	
	2013 2 <sup>nd</sup> Quarter	pH	6-9	9.14	
		BOD	50	286	
		Total Phosphorus	1.5	4.81	
		COD	200	1040	
		Color	80	500	
		SS	100	660	

<sup>95</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710607](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710607)

<sup>96</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656938](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656938)

<sup>97</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=576664](http://www.ipe.org.cn/pollution/com_detail.aspx?id=576664)

<sup>98</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=573489](http://www.ipe.org.cn/pollution/com_detail.aspx?id=573489)

Figure 33 – Nature holding Group’s subsidiary Nature Texline Co., Ltd’s violation record

**Other Suspected Suppliers**

Company Name	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other Violations	
Zhejiang Qingfeng	2013 1 <sup>st</sup> Quarter <sup>99</sup>	BOD	50	91.5	2011 <sup>100</sup> 2010 <sup>101</sup> 2009 <sup>102</sup>	
		COD	200	362		
		Color	80	667		
		Aniline	1	1.96		
	2013 2 <sup>nd</sup> Quarter					
		BOD	50	114		
		Total Phosphorus	1.5	4.78		
		COD	200	448		
		Color	80	333		
		Aniline	1	2.84		
Yiyuan Woyuan Textile Co., Ltd.	None				2009 <sup>103</sup>	
Wuxi Wool Spinning and Dyeing co., Ltd.	None				2011 <sup>104</sup> 2010 <sup>105</sup> 2009 <sup>106</sup> 2008 <sup>107</sup>	
Zhejiang Hangmin Co., Ltd.	Several subsidiary companies have violated the new standard					
Fujian Zhonghe Co., Ltd.	See Calvin Klein case study					

Figure 34 – Youngor’s other suppliers with violation records

<sup>99</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710972](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710972)

<sup>100</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=686091](http://www.ipe.org.cn/pollution/com_detail.aspx?id=686091)

<sup>101</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=659835](http://www.ipe.org.cn/pollution/com_detail.aspx?id=659835)

<sup>102</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=648801](http://www.ipe.org.cn/pollution/com_detail.aspx?id=648801)

<sup>103</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=609535](http://www.ipe.org.cn/pollution/com_detail.aspx?id=609535)

<sup>104</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=683016](http://www.ipe.org.cn/pollution/com_detail.aspx?id=683016)

<sup>105</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=657527](http://www.ipe.org.cn/pollution/com_detail.aspx?id=657527)

<sup>106</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=646330](http://www.ipe.org.cn/pollution/com_detail.aspx?id=646330)

<sup>107</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=605614](http://www.ipe.org.cn/pollution/com_detail.aspx?id=605614)

## Case Study 4: Tommy Hilfiger<sup>108</sup>

According to the official website of the world's largest apparel company PVH, Tommy Hilfiger is one of its subsidiaries and was bought by PVH in 2010.<sup>109</sup>

The following table shows Tommy Hilfiger's environmental commitments, as disclosed on their official website, and communications between Tommy Hilfiger and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
As one of the world's leading premium lifestyle brands, Tommy Hilfiger delivers superior styling, quality and value to consumers worldwide. The brand celebrates the essence of Classic American Cool and provides a refreshing twist to the preppy fashion genre. Since its debut in 1985, the Tommy Hilfiger Group has become a US\$ 4.6 billion apparel and retail company by offering consumers a breadth of beautifully designed, high quality products including men's, women's and children's apparel, sportswear, denim, and a range of licensed products such as accessories, fragrances and home furnishings.	March 22 <sup>nd</sup> , 2012	The GCA sent the Phase I letter to Tommy alerting them to the fact that a supplier suspected of supplying to Tommy had compliance issues.	No response
	September 25 <sup>th</sup> , 2012	The GCA sent the Phase II letter to Tommy once again alerting them to the fact that a supplier suspected of supplying to Tommy had compliance issues.	No response
	September 25 <sup>th</sup> , 2013		Received email from PVH stating they would like to meet. The two parties then agreed to meet for a face to face meeting.
	October 16 <sup>th</sup> , 2013	PVH and the GCA met. PVH stated that the same CSR standards are used for both CK	

<sup>108</sup> <http://global.tommy.com/int/en/About/overview>

<sup>109</sup> <http://www.pvh.com/>

		and Tommy. PVH stated that they were establishing a supply chain environmental management team to oversee supply chain.	
	October 17 <sup>th</sup> , 2013	GCA sent an email to PVH with previous textile reports and brand assessment table.	As of November 25 <sup>th</sup> , no response had been received from PVH.

Figure 35 – Tommy Hilfiger’s environmental commitments and how they have responded to enquiries made by the NGOs

The NGOs conducted further research into Tommy Hilfiger and found that there were many pollution problems in their supply chain. Publically available information shows that Zhejiang Zhongfeng is their supplier and it has a number of environmental violation problems.

### **Suspected Suppliers**

Zhejiang Zhongfang Holding Group Ltd.<sup>110</sup>

The Zhejiang Zhongfang Website states that Tommy Hilfiger is one of the brands that they work with.<sup>111</sup> Please see the screenshot below:

<sup>110</sup> <http://www.ztex.cn/about/?1.html>

<sup>111</sup> <http://www.ztex.cn/about/?45.html>

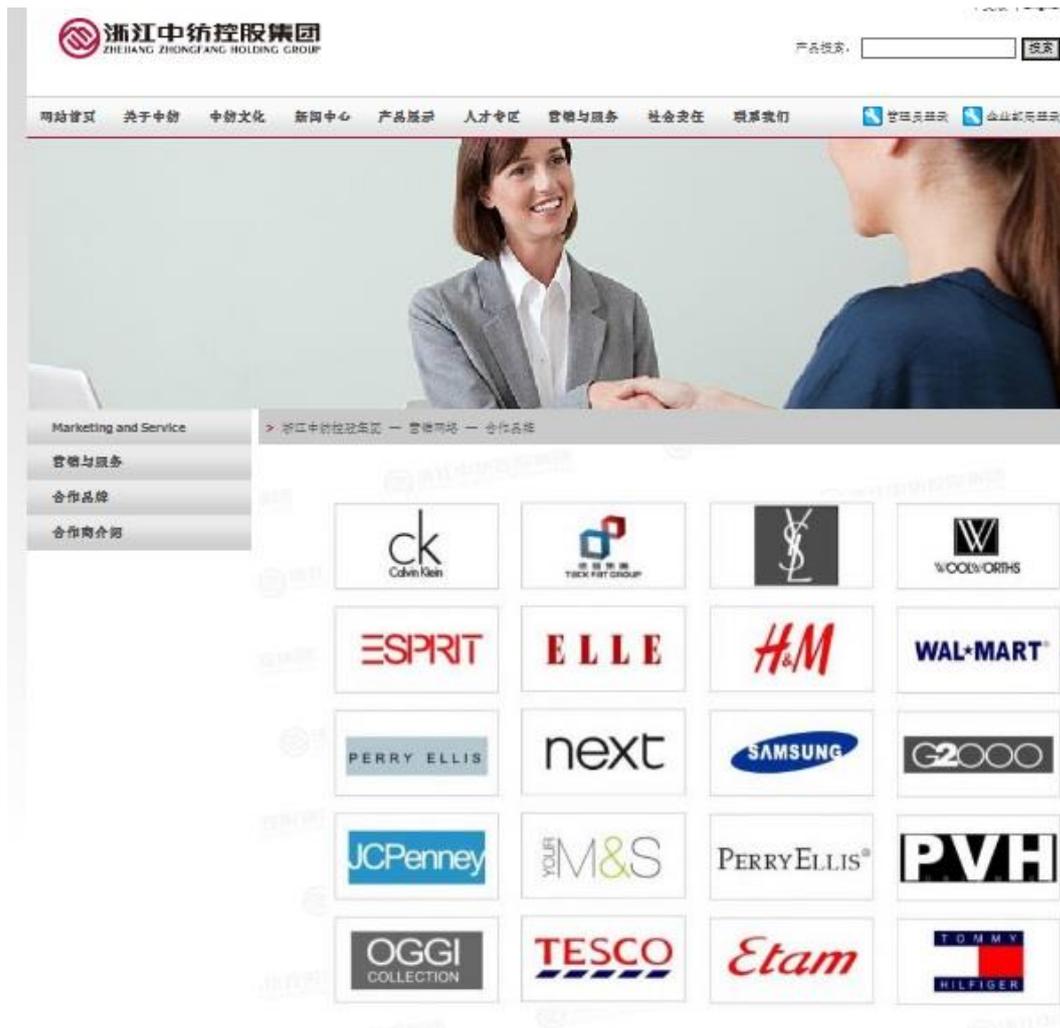


Figure 36 – Screenshot showing connection between Zhejiang Zhongfang and Tommy Hilfeger

The screenshot above shows that Zhejiang Zhongfang Holding Group works with well-known brands such as Calvin Klein, Esprit, Elle, H&M, Walmart, Next, G2000, J.C. Penney and M&S.

We found that Zhejiang Zhongfang and its subsidiaries have a number of records in the IPE database:

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other violations
Zhejiang Zhongfang Holding Group	2013 1 <sup>st</sup> Quarter <sup>112</sup>	BOD	50	146	None
		COD	200	371	
		Color	80	333	

<sup>112</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710982](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710982)

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units in mg/L except pH and color)	Discharge Level (all units in mg/L except pH and color)	Other violations
		Aniline	1	1.76	
	2013 2 <sup>nd</sup> Quarter	BOD	50	117	
		Total Phosphorus	1.5	2.46	
		COD	200	549	
		Color	80	500	
	SS	100	840		
Zhejiang New Ztex Industrial Co., Ltd.	2013 1 <sup>st</sup> Quarter <sup>113</sup>	BOD	50	87.9	2011 <sup>114</sup> 2010 <sup>115</sup> 2009 <sup>116</sup>
		COD	200	297	
	2013 2 <sup>nd</sup> Quarter	BOD	50	95.6	
		COD	200	623	
		SS	100	164	
Hangzhou Xiaoshan Ztex Textile Co., Ltd.					2009 <sup>117</sup> 2004 <sup>118</sup>

Figure 37 – Zhejiang Zhongfang’s environmental violation records

<sup>113</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710978](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710978)

<sup>114</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=686094](http://www.ipe.org.cn/pollution/com_detail.aspx?id=686094)

<sup>115</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=669852](http://www.ipe.org.cn/pollution/com_detail.aspx?id=669852)

<sup>116</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656964](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656964)

<sup>117</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656947](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656947)

<sup>118</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=593112](http://www.ipe.org.cn/pollution/com_detail.aspx?id=593112)

**Other Suspected Suppliers:**

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units mg/L except pH and color)	Discharge Level (all units mg/L except pH and color)	Other Violations
Yongxin Textile Printing and Dyeing Co., Ltd.	2013 1 <sup>st</sup> Quarter <sup>119</sup>	COD	200	344	2012 <sup>120</sup> 2010 <sup>121</sup>
		Ammonia Nitrogen	20	39.2	
		Total Nitrogen	30	50	
Guangzhou Kam Hing Textile Dyeing Co., Ltd. (a subsidiary of Kam Hing International Holdings Ltd.)			N/A		2011 <sup>122</sup> 2010 <sup>123</sup> 2007 <sup>124</sup>
Fountain Set (Holdings) Ltd. <sup>125</sup>			N/A		2012 <sup>126</sup> 2010 <sup>127</sup> 2009 <sup>128</sup> 2008 <sup>129</sup>
Zhejiang Siris Printing and Dyeing Co., Ltd. (See Ralph Lauren case study)					
Pacific Panyu (see Uniqlo case study)					
Jiangsu Jingmeng Knitting Co., Ltd. (See Polo Ralph Lauren Case study)					

Figure 38 – Other suspected suppliers to Tommy Hilfiger and their environmental violation records

<sup>119</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=711113](http://www.ipe.org.cn/pollution/com_detail.aspx?id=711113)

<sup>120</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=693505](http://www.ipe.org.cn/pollution/com_detail.aspx?id=693505)

<sup>121</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=642373](http://www.ipe.org.cn/pollution/com_detail.aspx?id=642373)

<sup>122</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=700603](http://www.ipe.org.cn/pollution/com_detail.aspx?id=700603)

<sup>123</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656040](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656040)

<sup>124</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=677481](http://www.ipe.org.cn/pollution/com_detail.aspx?id=677481)

<sup>125</sup> Yancheng Fountain Set and Dongguan Shatin Lake Side Textiles Printing & Dyeing Co., Ltd. are subsidiaries of Fountain Set Holding

<sup>126</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=705951](http://www.ipe.org.cn/pollution/com_detail.aspx?id=705951)

<sup>127</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656048](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656048)

<sup>128</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=621509](http://www.ipe.org.cn/pollution/com_detail.aspx?id=621509)

<sup>129</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=609107](http://www.ipe.org.cn/pollution/com_detail.aspx?id=609107)

## Case Study 5: Abercrombie & Fitch<sup>130</sup>

The following table shows Abercrombie and Fitch’s environmental commitments, as disclosed on their official website, and communications between Abercrombie and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
We recognize the importance of environmental stewardship, and we are committed to understanding the constantly evolving impact that our business and operations have on the communities where we make and sell our products. Through analysis, we intend to develop and implement practices, which reduce our environmental footprint while promoting long-term, sustainable partnerships throughout the world. We don't always have direct control over the manufacturing or logistics supply chain, but we can and have made improvements to those operations. We are committed to advancing our environmental initiatives by increasing education and awareness throughout our partnership base. We are committed to reducing our greenhouse gas emissions and to advocating for greater attention to environmental stewardship with all the companies who we work with. <sup>131</sup>	March 22 <sup>nd</sup> , 2013	The GCA sent the Phase I letter to A&F alerting them to the fact that a supplier suspected of supplying to A&F had compliance issues.	No response
	September 25 <sup>th</sup> , 2012	The GCA sent the Phase II letter to A&F once again alerting them to the fact that a supplier suspected of supplying to A&F had compliance issues.	No response

Figure 39 – Abercrombie & Fitch’s environmental commitments and how they have responded to enquiries made by the NGOs

After further research into A&F we found that there were a number of other environmental problems in their supply chain.

There is publically available information that shows that High Fashion Group is a supplier to A&F, and the company has a number of environmental violation problems.

### Suspected Supplier

<sup>130</sup> For Abercrombie’s official Weibo see: <http://e.weibo.com/abercrombiency?type=0>

<sup>131</sup> <http://www.anfcares.org/sustainability/environment/commitment.jsp>

## High Fashion International Limited

High Fashion International Limited is globally recognized producer of silk textile products. On their official website they state that brands like Columbia, JC Penney, Mango, Next, Zara, Target, Muji, Polo, Marks and Spencer, DKNY, Calvin Klein, Armani Jeans and Liz Claiborne are their customers.<sup>132</sup>

High Fashion International includes High Fashion (China) Co., Ltd. as one of its subsidiaries. The company structure can be seen below:



Figure 40 – Organizational structure of High Fashion Group

The High Fashion (China) Co., Ltd. website lists A&F, Lacoste, Ralph Lauren, G-Star, Max Mara as their clients. See below for details:

<sup>132</sup> <http://www.highfashion.com.hk/index.asp?id=62>

High Fashion(China)Co.,Ltd.  
达利(中国)有限公司

集团总公司 / 达利(中国)有限公司 / 达利丝绸(浙江)有限公司  
凤尚达利盛 / 英国分公司 / 美国分公司 / 欧洲分公司 / 荣晖

简体中文  
繁体中文  
English

搜索

以顾客为中心  
Customer-oriented

栏目导航 >>>  
 ✓ 公司简介  
 达利(中国)简介  
 ■ 主要客户  
 主要荣誉  
 顾客投诉热线  
 组织架构  
 未来目标  
 集团使命  
 公司文化  
 > 产品介绍  
 > 设计研发

主要客户 High Fashion(China)Co.,Ltd 达利(中国)有限公司 > 主要客户

- Catherine Malandrino CATHERINE MALANDRINO
- Theysken's Theory theyskens' theory
- Helmut Lang HELMUT LANG
- Abercrombie and Fitch **Abercrombie & Fitch**
- White House Black Market **WHITE HOUSE BLACK MARKET**
- G Star **G-STAR**
- comptoir des cotonniers **COMPTOIR DES COTONNIERS**
- Alexander Wang **ALEXANDER WANG**
- Max Mara-Studio **MaxMara STUDIO**
- Max Mara-Sport Max **SPORTMAX**
- Max Mara-'S Max Mara **'S MaxMara DESIGN FOR EASY LIVING**

Figure 41 – Screenshot showing connection between High Fashion (China) Co., Ltd. and A&F

Through further research we found that High Fashion International Limited and its subsidiaries had violation records on the IPE website. For more details please see:

Suspected Supplier	Date of Violation	Regulated Compound	Standard (all units mg/L except pH and color)	Discharge Level (all units mg/L except pH and color)	Other Violations
High Fashion (China) Co., Ltd.	2013 1 <sup>st</sup> Quarter <sup>133</sup>	COD	200	212	2009 <sup>134</sup>
		Ammonia Nitrogen	20	27.9	
	2013 2 <sup>nd</sup> Quarter	COD	200	239	
Fountain Set Group (see Tommy Hilfiger case study)					
Hangzhou Dalifu Silk Finishing Co., Ltd.	N/A				2009 <sup>135</sup>
Hangzhou Xihu Dali Industry Co., Ltd.	N/A				2005 <sup>136</sup>

Figure 42 – High Fashion Group and its subsidiaries’ environmental violation records

**Other Suspected Suppliers**

**Zhongshan Huadu Garment Co., Ltd.** <sup>137</sup> <sup>138</sup> <sup>139</sup> <sup>140</sup>

<sup>133</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=710603](http://www.ipe.org.cn/pollution/com_detail.aspx?id=710603)  
<sup>134</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=656960](http://www.ipe.org.cn/pollution/com_detail.aspx?id=656960)  
<sup>135</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=649012](http://www.ipe.org.cn/pollution/com_detail.aspx?id=649012)  
<sup>136</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=573549](http://www.ipe.org.cn/pollution/com_detail.aspx?id=573549)  
<sup>137</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=598463](http://www.ipe.org.cn/pollution/com_detail.aspx?id=598463)  
<sup>138</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=619543](http://www.ipe.org.cn/pollution/com_detail.aspx?id=619543)  
<sup>139</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=641873](http://www.ipe.org.cn/pollution/com_detail.aspx?id=641873)  
<sup>140</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=694446](http://www.ipe.org.cn/pollution/com_detail.aspx?id=694446)

## Case Study 6: Calvin Klein<sup>141</sup>

According to the official website of the world's largest apparel company PVH,<sup>142</sup> Calvin Klein is one of its subsidiaries and was bought by PVH in 2010.

The following table shows PVH's environmental commitments, as disclosed on their official website, and communications between them and the NGOs:

Environmental Commitment	Communication Record		
	Date of Correspondence	Contents of Correspondence	Brand Response
<p>At PVH Corp., we recognize that the protection of our planet's natural resources is one of the most important issues facing the world today. We are committed to incorporating environmentally responsible practices into all of our business activities and, over time, achieving environmental leadership in our industry.....“We recognize that our supply chain processes impact the environment. While we do not have direct control over our suppliers, vendors and service providers, we:</p> <ul style="list-style-type: none"> <li>• Require our suppliers and vendors to comply with applicable environmental laws in their countries.....<sup>143</sup></li> </ul>	March 22 <sup>nd</sup> , 2012	Phase I letter to them alerting them to the fact that a supplier suspected of supplying to them had compliance issues.	No response
	September 25 <sup>th</sup> , 2012	Phase II letter sent which once again alerted them to the fact that a supplier suspected of supplying to them had compliance issues.	No response
	September 25 <sup>th</sup> , 2013	PVH sent an email hoping to contact IPE.	The two parties then agreed to meet for a face to face meeting.
	October 16 <sup>th</sup> , 2013	PVH and the GCA met. PVH stated that the same CSR standards are used for both CK and Tommy. PVH stated that they were establishing a supply chain environmental management team to	

<sup>141</sup> [http://explore.calvinklein.com/zh\\_CN/corporate](http://explore.calvinklein.com/zh_CN/corporate)

<sup>142</sup> [http://explore.calvinklein.com/zh\\_CN/corporate](http://explore.calvinklein.com/zh_CN/corporate)

<sup>143</sup> [http://www.pvh.com/pdf/corporate\\_responsibility\\_environmental\\_policy.pdf](http://www.pvh.com/pdf/corporate_responsibility_environmental_policy.pdf)

		oversee supply chain.	
	October 17 <sup>th</sup> , 2013	GCA sent an email to PVH with previous textile reports and brand assessment table.	As of November 25 <sup>th</sup> , no response had been received from PVH.

Figure 43 - PVH's environmental commitments and how they have responded to enquiries made by the NGOs

After further investigations into Calvin Klein a number of other pollution problems were found in their supply chain.

Publicly available information shows that Zhonghe Group and Conedenim (Jia Xing) Ltd. are suppliers to Calvin Klein.

**Suspected Suppliers:**

**Fujian Zhonghe Group Co., Ltd.**<sup>144</sup>

Zhonghe's official website states that Calvin Klein is one of its global customers. For details please see:

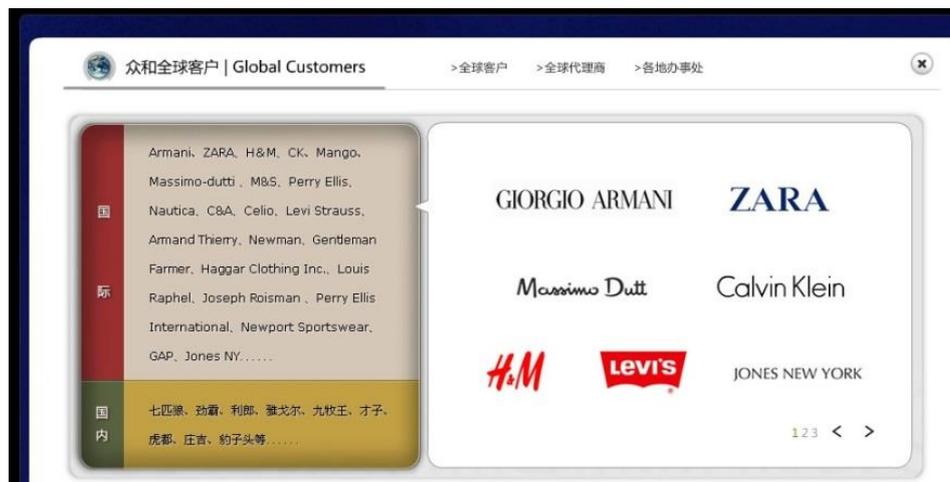


Figure 44 – Screenshot showing connection between Zhonghe and Calvin Klein

Other information on Zhonghe's official website shows that Giorgio Armani, Gap, Polo, Esprit, Target, Nautica, and Tommy Hilfiger are all international customers, and domestic customers include Septwolves, Youngor and Yishion.

We also discovered that a number of Zhonghe's subsidiaries had violation records on the IPE database:

<sup>144</sup> For more information see Zhonghe's official website: <http://www.zhonghe.com/2008/>

## Xiamen Hualun Printing & Dyeing (6 Records)

2013 – The company was included in a 2<sup>nd</sup> quarter list of violating companies given fines because concentrations of pollutants measured at its final discharge outlet were all in breach of the national discharge standards. Monitoring data from key state controlled pollution sources for the 2<sup>nd</sup> quarter of 2013 showed that BOD, as measured at their final discharge outlet, was 101mg/L, which was in breach of the standard limit value of 50mg/L. The 3<sup>rd</sup> quarter Fujian key state monitored pollution source monitoring results showed that the concentration of total nitrogen was 36.2mg/L, which was in breach of the standard limit value of 30mg/L.<sup>145</sup>

2010 – The company was included in Xiamen’s 2010, 1<sup>st</sup> quarter list of companies fined for having some kind of environmental violation because pollutant discharge concentrations were in breach of national and local discharge standards.<sup>146</sup>

2009 – Because their wastewater discharge concentrations were in breach of national and local standards, the company’s name was included in Xiamen’s 2013, 3<sup>rd</sup> quarter list of companies fined for having some kind of environmental violation.<sup>147</sup>

2008 – Residents living near the factory complained that the company’s wastewater treatment plant was causing a terrible smell. The Xiamen EPB issued a correction notice from March 2007 but the issue was not resolved.<sup>148</sup>

2006 – Listed as one of 27 companies with significant hidden environmental risks. These risks were that wastewater treatment facilities had not been constructed, and main pollutants were breaching discharge standards. Xiamen EPB proposed a municipal administration order stating that the factory should construct wastewater treatment facilities before the end of August 2006, and make sure that wastewater discharge meets all the necessary standards.<sup>149</sup>

2005 – A report in Dongnan Kuaibao titled “Xiamen Hualun Printing and Dyeing breached discharge standards” showed that:

“Jet black printing and dyeing wastewater from the factory flows continuously from the discharge outlet with a terrible stench emanating from the dark colored water. Within a few dozen meters of the water people find it uncomfortable to stand close by. Next to the discharge outlet, even though several million RMB have been spent, the wastewater treatment equipment that has never been used lies discarded. We joined the environmental protection special action No. 8 Propaganda Group on the tour and what we saw at Hualun Printing and Dyeing Co., Ltd in the Jimei industrial park shocked everyone in the group.”

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<sup>145</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=715405](http://www.ipe.org.cn/pollution/com_detail.aspx?id=715405)

<sup>146</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=613723](http://www.ipe.org.cn/pollution/com_detail.aspx?id=613723)

<sup>147</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=608906](http://www.ipe.org.cn/pollution/com_detail.aspx?id=608906)

<sup>148</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=629301](http://www.ipe.org.cn/pollution/com_detail.aspx?id=629301)

<sup>149</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=610068](http://www.ipe.org.cn/pollution/com_detail.aspx?id=610068)

“Xiamen Hualun Printing and Dyeing Co., Ltd was founded in 1985 and has been described as one of Xiamen’s leading printing and dyeing enterprises. However, in 2002, this enterprise was ordered to take corrective actions within a specific time frame; however, at the end of the deadline, they had still not completed them. They were then listed as a company under supervision for 2003, 2004 and 2005 and were ordered to complete rectifications by the end of the year.”

“When Hualun Printing and Dyeing’s factory is like this, the wastewater is not treated at all before being discharged, which puts a huge amount of pressure on the wastewater treatment plant, and adds to the burden on the municipal wastewater treatment plant.”

“An expert stated that the company had been under supervision for three years in a row, but at the end had still not done anything. There was only one company in the whole province like this, and that was Xiamen Hualun Printing and Dyeing. The problem actually lay in the fact that the company executives had a lack of environmental protection knowledge.”

### **Fujian Zhonghe Group**

2007 – Listed as a company that had breached discharge standards. The monitoring results showed that wastewater, air emissions and noise levels all breached standards.<sup>150</sup>

#### **Other suspected suppliers:**

Zhejiang Siris (please see Polo Ralph Lauren Case Study)

Zhejiang Zhongfang (please see Tommy Hilfiger case study)

Hangzhou Delicacy Textile Co., Ltd. (please see Polo Ralph Lauren case study)

## **6. Brand Responsibility Once Again Under Investigation**

The new standard (GB 4287 - 2012) comes at a time when the China’s environmental carrying capacity is under threat, more stringent “end of pipe” pollutant discharge standards have been brought in. The development and implementation of these standards has once again led to discussion around environmental responsibility in the supply chains of major apparel brands.

We feel that for those brands that obtain a large portion of their profits from apparel sales, the responsibility for control and supervision of the legal compliance of suppliers in their supply chain, as well as the improvement of their environmental management, cannot be shifted away from the brand.

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<sup>150</sup> [http://www.ipe.org.cn/pollution/com\\_detail.aspx?id=629454](http://www.ipe.org.cn/pollution/com_detail.aspx?id=629454)

## 6.1 Apparel Brands and their Responsibility to be in Compliance

1. The implementation of the new standard has put the environmental responsibility of brands to the test.

In our previous reports we discussed the fact that global procurement, and layers of outsourced manufacturing for textile products, has meant that environmental management of supply chains must be an essential part of an apparel brands environmental responsibility.

In the case studies in this report we have seen a number of brands make public commitments to legal environmental compliance within their supply chains. These apparel brands should therefore determine which processes during the manufacturing of their products produces the greatest environmental risk, and rank them according to this risk. When establishing a business relationship and completing purchases, for those products and suppliers that have a high environmental risk, their product and suppliers' environmental compliance must be a precondition for business.

After the new standard was implemented, the biggest polluting sectors of the textile industry, the printing, dyeing and finishing sectors, showed up as having widespread violations of discharge standards. This once again shows that public commitments made by brands cannot in reality ensure that their suppliers' environmental performance is in compliance with all laws and regulations.

In other words, the implementation of this new standard is a test of whether or not brands are really living up to the responsibilities that they laid out in their commitments to environmental compliance.

2. Passive brands have not established a mechanism for identifying risks in their supply chains.

Progress in environmental information disclosure in China means that apparel brands can now carry out screening to identify non-compliance issues within their supply chains. In the five provinces of Zhejiang, Jiangsu, Guangdong, Fujian, and Shandong, where much of the textile industry is located, good progress has been made in regards to environmental information disclosure. There have been particular breakthroughs with quarterly reports on key state monitored enterprises, and also the real time disclosure of online monitoring data.

More details on information disclosure in the five provinces:

Province	Publish Quarterly Reports on Key State Monitored Enterprises	Real-time Disclosure of On-line Monitoring Data
Zhejiang	Yes	Yes
Jiangsu	Yes	No
Guangdong	Yes (Only local and municipal)	No
Fujian	Yes	Yes
Shandong	Yes	Yes

Quarterly reports on key state monitored enterprises cover a number of different pollutants, and especially those pollutants, such as aniline and color, that are particular to the textile dyeing and finishing industries. Furthermore, monitoring by the EPB is authoritative.

The real-time disclosure of online monitoring data helps us to immediately understand the basic pollutant discharge from an enterprise, increasing the representativeness of information available, and in the long term, also increases the amount of data available.

As of November 2013, amongst the 48 textile and apparel brands investigated, 18 of them, or 37.5%, already make use of locally disclosed environmental information to investigate their supply chains.

Some of these brands have started using the search mechanism to look into the depths of their supply chains. It can be said that these brands have reached a key moment in understanding environmental risks within their supply chain.

What's surprising is that there are still over 30 brands that cannot publically confirm that they have established a search mechanism to help them pro-actively identify environmental violations in their supply chains. This negative behavior by these brands violates their responsibilities to the environment, and is contrary to the pledges that they have made to consumers. At the same time, this behavior also violates the principle of fair competition based on legal compliance.

Their purchasing practices could push more suppliers to lower their environmental standards in order to win orders. From the Polo Ralph Lauren, Uniqlo, Tommy Hilfiger, Youngor, ANTA and Calvin Klein case studies mentioned in the report we can see that this kind of behavior can harm the environment, and furthermore, the complex pollutants in dyeing and finishing wastewater can have a hidden impacts on nearby communities, and even on public health.

As the new national standard is formulated and implemented, responsible brands should not continue to purchase from those suppliers that breach discharge standards on a long term basis. We suggest that those brands that have so far ignored violations in their supply chains should look to leading brands for guidance, and immediately establish a search mechanism to identify risks within their supply chain. As leading apparel brands and retailers have strengthened their supply chain management requirements, the Institute of Public and Environmental Affairs, and the

Natural Resources Defense Council (NRDC), have developed a tool for conducting searches of supplier violation records. This tool can help international brands better understand the environmental performance of their Chinese suppliers and promote the implementation of responsible procurement practices. For details please see appendix 2.

### 3. Pro-active brands need to push suppliers in their supply chain to correct violation problems

From the CITI evaluations we can see that a number of brands have already established a screening mechanism and have identified suppliers with violation records. However, just understanding what problems exist is not enough.

From the perspective of brand's supply chain environmental management, we explored a number of different strategies. We split the actions taken by brands after they had discovered a problem within their supply chain into five categories: A, B, C, D and E. The following table shows that each category of action has a different force on the elimination of environmental impacts. Different levels of action on improving supply chain management generates a different impact which creates a big difference in their environmental management performance.

Brand	Actions taken after problems identified	Improvement in environmental management	Elimination of environmental impact	Supply Chain environmental management score
A	No action	No impact	No impact	0
B	Make a formal written commitment to push suppliers to carry out corrective actions and push a small number of suppliers to make public statements	Promotes a small number of suppliers to tentatively get a sense of corporate environmental responsibility	Limited Impact	3
C	Pushed some suppliers to carry out corrective actions and provide fairly complete written explanations	Helped some suppliers recognize the importance of improving their own environmental management systems	Reduces some environmental impact but difficult to confirm	6
D	Main problem suppliers all provide a corrective action explanation and a number of them go through 3 <sup>rd</sup> party audits with public supervision	Promote the ability of main problem suppliers to be able to respond to stakeholder concerns	Reduces some environmental impact and can be confirmed	9
E	All problem suppliers carry out third party audits and explain progress with	Pushes main problem suppliers to effectively understand their	Can confirm an effective reduction	12

Brand	Actions taken after problems identified	Improvement in environmental management	Elimination of environmental impact	Supply Chain environmental management score
	stakeholders	environmental risks, carry out corrective actions, and confirm environmental management systems.		

During communications with brands we found that out of the brands that established a search mechanism to identify problem suppliers, 32 could be ranked as A, four as B, three as C and eight as D. The only brand that was ranked as E was Esquel. Esquel not only does regular searches, but also carries out third party audits on all suppliers with violation records, sends regular written explanations to the NGOs and explains progress made by suppliers, which overall sets a good example in regards to information transparency.

From this it's possible to see that the performance of many brands in regards to pushing suppliers for explanations on corrective actions is still seriously lacking. Many brands have still not pushed suppliers to carry out practical corrective actions, and of course have failed to reduce the environmental impact created by these suppliers on the environment and local communities. From a long term perspective, these brands have also been unable to eliminate the risks that supply chain pollution poses to their brand values.

## 6. 2 The Extension of a Brand's Supply Chain Responsibilities

1. An in depth look into the environmental management of a brand's supply chain – Reflections on good performance

We feel that a brand has a responsibility to actively find out and fully understand environmental compliance problems within their supply chain.

They should:

- i.) For the main parts of a product's life cycle, identify the direct and indirect relationships between a manufacturing company and a brand.
- ii.) Understand and investigate those stakeholders within these supplier relationships that hold the most power, and understand how they have an impact.
- iii.) Analyze those mechanisms that have an influence on basic environmental compliance targets, and that have an effective impact.

Environmental risk factors from garment manufacture cut and sew sectors are relatively few. However, the areas with very big environmental risks often exist deep into a brand's supply chain.

The environmental management of suppliers, from final products to raw materials, as well as extending management deeper into the supply chain (such as fiber production and primary processing), and linking these type of management measures with improvements in pollution control, energy consumption, and biodiversity, all reflect the performance of a brand's supply chain environmental management.

The release of the new national discharge standard has sounded a warning to traditional textile brands that they need to pay very close attention to pollution discharge from the dyeing and finishing industries. The new standards also provide a new legal basis for the accurate measurement of dyeing and finishing emissions in terms of both quality and quantity. We feel that this is the perfect opportunity for those sociably responsible, conscientious, large scale, and well known textile brands to improve the environmental management of their supply chains.

1. Two ways that management can be spread deeper into the supply chain

i.) Tier one manages tier two

Brands can push their own tier one suppliers to conduct screening for violation records in their suppliers (which would be the brand's tier two), and when a violation is found push them to carry out corrective actions. We hope that through providing guidance and assistance on environmental management to their tier one suppliers, brands can gradually introduce these supply chain environmental management concepts into the management policies adopted by their tier one suppliers. This way a tier one supplier can understand and recognize these types of environmental management practices, and then willingly search for environmental violation records in tier two suppliers, and push them to carry out corrective actions when records are found.

As tier two suppliers gradually establish a comprehensive supply chain management system they can then act to influence tier three suppliers. In this way management can spread deep into the supply chain and eventually cover all levels.

ii.) Control of the most heavily polluting sectors

The most polluting sectors of a product's entire life cycle should be identified, and a brands influence on its supply chain should be used to strengthen the environmental management of these main materials suppliers.

Through progressive management of different tiers of their supply chain, and control of the most polluting sectors, textile brands can gradually understand and control the environmental risks in their entire supply chain, and move towards truly green procurement and manufacturing.

## 6.3 Quantitative Evaluation of a Brand's Environmental Information Disclosure

We feel that those brands that are not transparent cannot prove the validity of their commitments to environmental protection, and cannot carry out substantive communications with stakeholders.

The purpose of the preliminary “Corporate Information Transparency Index”<sup>151</sup> evaluation of textile brands, carried out by IPE, was to push companies to use open environmental information to carry out initial screening for violations, so that even more stakeholders can benefit from extensive and substantive environmental information disclosure, and provide a road map to brands showing how their responsibilities to environmental management can be ensured throughout their supply chain.<sup>152</sup> For details of the main CITI scoring criteria please see the table below.<sup>153</sup>

Ranking	Brand	Respond and Follow up		Push Suppliers on Compliance & Corrective Actions			Extend Green Supply Chain Practices		Data Disclosure		Emissions Reduction		Publicity for used product recycling plans	Total
		Respond to questions about Suppliers' Violation Records	Display an understanding of Industry Pollution Problems	Establish Supplier Screening Process	Push Suppliers on corrective actions and public explanations	Push Suppliers to Disclose Self-monitoring Data	Push suppliers to search their own suppliers	Identify main polluting sectors during a product lifecycle and push them to reduce pollution	Push Suppliers to Disclose Pollutant Discharge Data	Push Suppliers to Disclose Pollutant Transfer and Recycling Data	Push suppliers to reduce energy/water use	Push suppliers to reduce emissions		
	Weighting	3	3	12	12	8	10	10	12	8	8	8	6	100

Figure 50 – Main CITI evaluation criteria

We feel that brands publishing and actively disclosing supply chain management information has advantages, both internally and externally.

First of all, internally it can help to improve management levels by:

- Using real data and information to explain the necessity for corporate environmental policies, and the real importance of implementing those policies.
- Reflecting the degree to which a company's supply chain environmental management is integrated into the operations of the business, embodying the operating level of environmental management systems within the company.

It can also contribute externally to positive interaction between companies and stakeholders:

<sup>151</sup> This research has been carried out with the support of the SEE Foundation.

<sup>152</sup> IPE and NRDC (Natural Resources Defense Council) are currently developing the CITI scoring system and plan on officially launching it in 2014.

<sup>153</sup> In the spring of 2014, IPE and NRDC will release a report which will provide specific details on the rules and regulations of the CITI scoring system according to proven feasibility, specific evaluation content and logic, and the analysis of feedback received.

- A company has a responsibility to collect together all kinds of widely dispersed environmental data, set up a fair, interactive, two-way exchange platform to discuss a company's environmental and sustainable development commitments with stakeholders, and provide pre-conditions for those using the information to make choices, and to coordinate the relationship between the enterprise and stakeholders.
- Open information not only allows the possibility of public supervision, but also means that businesses can come together with industry and society and use their combined force to resolve environmental pollution problems.

## 7. Recommendations

The new discharge standards were formulated to prevent textile dyeing and finishing industry pollution discharge from having a serious effect on the aquatic environment. However, in our opinion, to realize this objective, merely promoting the new standard will not be sufficient and we must guarantee the new standards are enforced, which will require effort from all stakeholders.

### 7.1 Government

Our investigations found that many local governments have not fully implemented the new standards, and public disclosure of information remains unsatisfactory. We have the following recommendations in regards to this:

- Provinces with a large concentration of dyeing and finishing enterprises like Jiangsu, Guangdong, Fujian, Shandong, and Zhejiang, should immediately and comprehensively carry out monitoring in accordance with the new standards, and on these grounds publish enterprise supervision records. The five provinces should urge enterprises violating the new emissions standards to improve pollution control capacity.
- Jiangsu and Guangdong should quickly establish an online platform and push dyeing and finishing enterprises to publish their online real-time data, to allow for public supervision. At the same time, EPBs in all areas should guarantee that online monitoring discharge limits are the same as those in the new standard.
- Supervision departments should actively support all areas to move towards using market mechanisms, such as green supply chains, green credit and green securities, to help promote pollution control and emissions reduction in the textile industry.

The public disclosure of environmental supervision information is the basis of a green value chain. From this year, Zhejiang, Jiangsu, Guangdong, Fujian, and Shandong, where the dyeing and finishing industry is most concentrated, have already publish quarterly reports on the monitoring of enterprises. Zhejiang, Shandong and Fujian have already begun real-time publication of online monitoring data. Environmental organizations support and praise this new progress and urge all stakeholders to make good use of the data.

### 7.2 Enterprises

Environmental compliance should be the baseline for corporate responsibility. After the new standards were implemented, a large number of dye houses started to breach the new discharge standards. We suggest these dye houses implement and improve their processes, equipment and management as quickly as possible, both to ensure they adhere to the new discharge standards, and to lessen the impact of emissions on the local aquatic environment.

In the text above we looked more deeply at a brand's environmental responsibilities. We believe

that brands, as those formulating purchasing requirements, should improve and conscientiously implement responsible purchasing practices, which would help with the effective implementation of China's dyeing and finishing wastewater emissions standards.

- Those brands that have so far ignored violations within their supply chain should look to the leading brands for guidance, and immediately establish their own screening mechanism for identifying violation risks within their supply chain.<sup>154</sup>

They should also:

- Push companies that have violated the new standards to carry out corrective actions, and under public supervision, have third party verification of the effectiveness of rectifications.
- Push suppliers to systematically publish pollutant release and transfer data, including energy conservation and pollution reduction targets standards and their completion status.
- Extend and link supply chain environmental management to heavy polluters upstream.

## 7.3 Consumers

Many of the brands mentioned in this report have a massive consumer base. The fact that textile product supply chains have widespread problems adhering to discharge standards means that our consumption of these products harms the environment and even public health in many areas.

We believe that consumers would not be willing to exchange water pollution and the damage to public health to pay for their favorite fashion items. We hope that consumers can see that requirements for green production are even clearer now, and technological requirements are increasingly able to be fulfilled. The level of environmental information disclosure in China has also expanded, making green procurement more feasible.

However, brands like Polo Ralph Lauren, Uniqlo, Tommy Hilfiger, Abercrombie & Fitch, Calvin Klein, ANTA, MetersBonwe and Hugo Boss are still passive when faced with supply chain pollution problems, and some do not respond at all.

The reason why many of these brands do not respond to questions raised by NGOs is probably because they don't hear the voices of local communities, and don't care about media exposure. However, they cannot fail to take into account the feelings of consumers.

We therefore call on you as consumers to use your own purchasing power to express your dissatisfaction with those brands that ignore problems in their supply chain. We hope you can push your favorite brands to change their purchasing practices, use your own green choices to help clean

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<sup>154</sup> Please see appendix II for more details on the automatic comparison tool, The Ferret

up the fashion industry in China, and participate in the protection of China's environment.

Below are some specific suggestions:

- Write an email or card to your favorite brand explaining that you are concerned about pollution problems in the industry and would like them to improve their environmental work and supply chain management practices.
- To urge more consumers to get involved with cleaning up the fashion industry we encourage people to publish information about a brand's green procurement performance on the internet using social media such as a blog, twitter or Facebook.
- Check the CITI score of all the big name brands and only purchase from those with high scores and not from those with low scores.

# Appendix 1 – Detailed Analysis of how comprehensively the New Standard has been implemented in Different Provinces

## Zhejiang Province (as of 2<sup>nd</sup> quarter of 2013)

Already implemented the standard.

Information on key pollution source monitoring in Zhejiang Province<sup>155</sup> (which includes the cities of Shaoxing and Hangzhou), shows that a large number of textile mills are violating the new standard. However, information on exceedances for every newly added pollutant (such as chlorine dioxide) in the new standard have still not been comprehensively released, and it's not reported if the Category 1 pollutant, hexavalent chromium, was sampled at the workshop or production facilities' wastewater discharge outlet.

The Zhejiang Province Automatic Monitoring Information Disclosure Platform<sup>156</sup> shows discharge limit values for some enterprises. "Warning data" from the enterprise's automatic monitoring data are shown in red.

## Fujian Province (as of 3<sup>rd</sup> quarter 2013)

Has already implemented the new standard. However, the discharge standards shown for key state monitored enterprises and those shown on the automatic monitoring disclosure system are different.

Information on key state monitored enterprise pollution source enterprises in Xiamen, Fujian Province, show that the new standard has already been implemented. From the 3<sup>rd</sup> quarter of 2013, the bulletin on key state monitored pollution source enterprises shows the information for 13 of the pollutants in the new standard (including AOX and chlorine dioxide).<sup>157</sup>

The disclosure platform for publishing automatic monitoring data from key state monitored pollution source enterprises showed that Jinjiang Printing and Dyeing Co., Ltd's discharge standard for COD was 500mg/L (see figure 51 below). However, the "2013 3<sup>rd</sup> Quarter Status of Fujian Province Key State Monitored Pollution Source Enterprises," showed that the standard limit value was 200mg/L (see figure 52 below). Furthermore, automatic monitoring data for the enterprise showed that COD was monitored to be "234" but was said to be "within compliance levels", but in reality this COD concentration exceeded the limit value in the new standard.

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<sup>155</sup> <http://www.zjepb.gov.cn/hbthmwz/gzfw/wryjdxjcx/>

<sup>156</sup> <http://app.zjepb.gov.cn:8089/nbjcsj/>

<sup>157</sup> [http://www.fjepb.gov.cn/zwgk/zfxxgkzl/wrygk/wryjc/201310/t20131009\\_38346.htm](http://www.fjepb.gov.cn/zwgk/zfxxgkzl/wrygk/wryjc/201310/t20131009_38346.htm)

首页	基础信息	实时数据	历史数据	监测报告
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晋江市印染织造有限公司--历史数据

日期:  查询

企业名称及排放口	监测时间	COD(mg/L)			NH3-N(mg/L)				备注
		监测值	排放标准	是否超标	超标倍数	监测值	排放标准	是否超标	
晋江市印染织造有限公司	2013-11-15 00 时	211.4	500.0	否	-				
晋江市印染织造有限公司	2013-11-15 02 时	234.0	500.0	否	-				
晋江市印染织造有限公司	2013-11-15 04 时	220.4	500.0	否	-				
晋江市印染织造有限公司	2013-11-15 06 时	217.9	500.0	否	-				

Figure 51 – Fujian Province Automatic Monitoring Information Disclosure Platform

### 福建省2013年第3季度国控企业污染源废水监测数据审核表

行政区	企业名称	监测点名称	监测日期	监测点流量(吨/天)	监测项目名称	污染物浓度	标准限值	单位	是否达标	超标倍数
泉州市	福建省晋江市印染织造有限公司	废水出口	2013-7-25 0:00:00	680.00	PH值	8.94	6-9	无量纲	是	
					生化需氧量	30.5	50	mg/L	是	
					总磷	0.075	1.5	mg/L	是	
					化学需氧量	147	200	mg/L	是	
					色度	8	80	倍	是	
					苯胺类	0.207	1	mg/L	是	
					六价铬	0.024	0.5	mg/L	是	
					悬浮物	35	100	mg/L	是	
					氨氮	3.47	20	mg/L	是	
					总氮	3.73	30	mg/L	是	
					硫化物	0.033	1	mg/L	是	
二氧化氯	<0.27	0.5	mg/L	是						

Figure 52 –Jinjiang Printing and Dyeing Co., Ltd’s 2013 3<sup>rd</sup> quarter wastewater monitoring data verification form

**Guangdong Province** (as of 2<sup>nd</sup> quarter of 2013)

Not completely implemented

Monitoring data from Key State Pollution Sources in the cities of Shantou, Jiangmen, Zhongshan, Fuoshan and Guangzhou in Guangdong province, shows that some places have implemented the new standard. For example, the “2013 2<sup>nd</sup> Quarter Monitoring Results for Key State Pollution Sources in Shantou,” showed that the standards enforced for “Textile Dyeing Wastewater,” were the direct discharge limit values from form one of the “Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry (GB 4287-2012)”, and the second phase category II values from the “Water pollutant Discharge Limit Values (DB44/26-2001)”. The COD discharge “limit value” for Shantou Shengye Textile Dyeing co., Ltd. was stated as 110mg/L which is less strict than the 100mg/L requirement in form one of the new standard. See figure 53 below for more details:

企业名称	监测类别	排污口	污染物	排放浓度 (mg/m <sup>3</sup> )	标准值 (mg/m <sup>3</sup> )	达标情况	执行标准
金威啤酒(汕头)有限公司	食品废水	总排口	COD	61	500	达标	《水污染物排放限值》(DB44/26-2001) 第二时段三级标准。
			氨氮	2.55	--	达标	
汕头市潮南区永丰针织二厂	织染废水	总排口	COD	28	100	达标	《纺织染整工业水污染物排放标准》(GB4287-2012) 表一“直接排放”限值和《水污染物排放限值》(DB44/26-2001) 第二时段二级标准。
			氨氮	1.25	12	达标	
汕头市生业织染有限公司		总排口	COD	31	110	达标	
			氨氮	2.56	12	达标	
汕头市龙凤印染有限公司		总排口	COD	26	100	达标	
			氨氮	0.712	12	达标	
汕头市广信织染实业有限公司		总排口	COD	78	100	达标	
			氨氮	2.83	10	达标	

Figure 53 – Information from the 2013 2<sup>nd</sup> quarter Shantou key state pollution source monitoring data

Information for all the pollutants in the new standard are still not published. For example, Zhongshan, Shantou, and Guangzhou release ammonia nitrogen and COD discharge data, but none of the five cities release discharge information for AOX. The results also fail to show if the category I pollutant, hexavalent chromium, was sampled at the workshop or production facilities' wastewater discharge outlet.

The Guangdong EPB has no platform for publishing on-line monitoring data.

#### Jiangsu Province (as of the 2<sup>nd</sup> quarter of 2013)

Still not comprehensively implemented

The “2013 1<sup>st</sup> Quarter Monitoring Results for State Controlled Wastewater Pollution Sources,” showed that the discharge standard names used for some dyeing enterprises were still called the wastewater combined discharge standard, or Jiangsu Province discharge standard for enterprises, and the new standard had not been implemented. They have not published information for each pollutant from every enterprise, and furthermore, they have not stipulated whether the sample for measuring the category I pollutant, hexavalent chromium, was taken from the workshop or production facility wastewater discharge outlet. For example, the BOD and COD limit values for Yancheng Fountain Set Holdings were 300mg/L and 500mg/L respectively. The limit values for COD and color for Changshu Jinlong Printing and Dyeing Co., Ltd. were 200 and 1200mg/L respectively, which was less strict than the new discharge standard. For details please see the tables below.

企业名称	监测点名称	执行标准名称	监测日期	监测项目名称	污染物浓度	标准限值	单位	是否达标	超标倍数
磨料磨具有限公司	排污口	污水综合排放标准	2013-2-20	化学需氧量	360	500	mg/l	是	
				悬浮物	23	400	mg/l	是	
				氨氮	5.2		mg/L		
盐城福汇纺织有限公司	出水口	纺织染整工业水污染物排放标准	2013-1-22	硫化物	<0.005	2	mg/L	是	
				色度	3		倍		
				苯胺类	0.1	5	mg/L	是	
				六价铬	<0.004	0.5	mg/L	是	
				总铜	<0.05	2	mg/L	是	
				悬浮物	42	400	mg/L	是	
				氨氮	0.577		mg/L		
				PH值	7.95	6-9	无量纲	是	
				生化需氧量	64.4	300	mg/L	是	
化学需氧量	146	500	mg/L	是					
		太湖地区城镇污水处理厂及重点工业		硫化物	<0.005		mg/L		
				二氧化氯	<0.27		mg/L		
				氨氮	3.44	5	mg/L	是	
				总磷	0.02	0.5	mg/L	是	
				化学需氧量	32	60	mg/L	是	
常熟市金龙印染有限公司	接管口		2013-1-10	苯胺类	1.75		mg/L		
				六价铬	<0.004		mg/L		
				总铜	<0.05		mg/L		
				总氮	9.03		mg/L		
				硫化物	<0.005		mg/L		
		二氧化氯		<0.27		mg/L			
		色度		160	200	倍	是		
		生化需氧量		67.8	300	mg/L	是		
		总磷		0.49	2	mg/L	是		
		氨氮		4.85	25	mg/L	是		
化学需氧量	454	1200	mg/L	是					
		PH值	7.12	6-9	无量纲	是			
		江苏省接管企业标准		苯胺类	1.75		mg/L		
				六价铬	<0.004		mg/L		
				总铜	<0.05		mg/L		
				总氮	9.03		mg/L		
				硫化物	<0.005		mg/L		

Figure 54 – Information from the Jiangsu Province 2013 1<sup>st</sup> Quarter Monitoring Results for State Controlled Wastewater Pollution Sources

The Jiangsu online monitoring platform does not show pollutant monitoring results and discharge limit values

#### Shandong Province (as of the 2<sup>nd</sup> quarter of 2013)

The new standard has not been comprehensively implemented. Furthermore, the discharge standards shown in the Monitoring Results for State Controlled Pollution Sources and those in the online monitoring platform are not the same.

The “Bulletin on Shandong 2013 2<sup>nd</sup> Quarter Monitoring Results for Key State Monitored Pollution Sources,”<sup>158</sup> showed that the discharge standards for some textile dyeing and printing enterprises was stricter than the new standard, and the standards for some textile dyeing and finishing enterprises were much less strict compared to the new standard. However, the discharge standard being enforced is not shown. For example, for Jining Ruyi Printing and Dyeing Co., Ltd., the discharge standards for ammonia

<sup>158</sup> [http://jcc.sdein.gov.cn/jcyw/201307/t20130705\\_226801.html](http://jcc.sdein.gov.cn/jcyw/201307/t20130705_226801.html)

nitrogen and COD are 35mg/L and 500mg/L respectively, which is less strict than the requirements in the new standard. The ammonia nitrogen and COD discharge standards for Shandong Kingshore Tex were 10mg/L and 60mg/L, which is stricter than those in the new standard. Furthermore, Shandong only published data for COD and ammonia nitrogen. There is no information on concentrations or standard limit values for other pollutants. For details please see figure 55 below:

城市名称	详细名称	监测点名称	监测项目名称	污染物浓度(mg/L)	排放标准(mg/L)	是否达标
菏泽	郓城圣达如意印染有限公司	厂总排污口	氨氮	7.41	35	是
			化学需氧量	27	500	
聊城	山东金号织业有限公司	北厂排口	氨氮	2.93	10	是
			化学需氧量	37	60	
		南厂排口	氨氮	1.92	10	是
			化学需氧量	24	60	

Figure 55 – Information from the Shandong Province 2013 1<sup>st</sup> Quarter Monitoring Results for State Controlled Wastewater Pollution Sources

The automatic monitoring platform for provincial and state monitored pollution source enterprises in Shandong Province,<sup>159</sup> showed that the COD discharge standard for some dyeing and finishing enterprises and the values in the key state monitored pollution source results were not the same. Some of the discharge standard values were much less strict than the requirements in the new standard. For example the COD discharge concentration for King Tex was stated as 400mg/L, which is different to the 60mg/L limit value in the standard mentioned previously. The COD standard shown for Huada Weaving is 1500mg/L, which is far less strict than the requirements for existing enterprises in the new standard. For details please see figure 56 below:



Figure 56 – Automatic monitoring information for King Tex from provincial and state controlled pollution source monitoring in Shandong

<sup>159</sup> [http://58.56.98.78:8801/webgis\\_wry/webgis/#](http://58.56.98.78:8801/webgis_wry/webgis/#)



Figure 56 – Automatic monitoring information for Huada from provincial and state controlled pollution source monitoring in Shandong

## Appendix 2 – Introduction to “The Ferret” - an Automatic Tool to Screen Suppliers for Environmental Violations

IPE has established an online database of pollution sources which now contains over 130,000 corporate supervision records. These records include those for water, air and solid waste problems. Because of the demand from international apparel brands and retailers to strengthen the management of their suppliers, the IPE and the Natural Resources Defense Council (NRDC) developed an automatic search tool to screen suppliers for violation records. The tool helps international brands and retailers to understand the environmental performance of their suppliers in China so that they can implement responsible sourcing practices. The software was developed by Carbonstop.

The Ferret allows users to search the data base for multiple suppliers simultaneously and to save search records;

It also supports “fuzzy” searches to overcome certain discrepancies in formulation of factory names;

The Ferret also supports searches by year, location, and violation type;

Links to the Pollution Map Database for automatic updates.

To use the software please see: <http://www.ipe.org.cn/member/reg.aspx> and register as a corporate user. Your account will then be submitted for approval.

The screenshot displays the 'The Ferret: IPE-NRDC企业环境监管记录检索工具' (The Ferret: IPE-NRDC Corporate Environmental Supervision Record Search Tool) interface. The interface includes a navigation menu with '文件', '供应商名单', '分类查看', and '帮助'. A dropdown menu is open under '供应商名单', showing options like '导出供应商名单模板' and '加载供应商名单'. The search filters on the left include '地区' (Region) set to '全国', '行业' (Industry) set to '全部', '违法类型' (Violation Type) with buttons for '水', '气', '固废', '重金属', '程序违法', and '机动车尾气', and '监管年份' (Supervision Year) with buttons for years from 2004 to 2013. A '查询' (Search) button is at the bottom left. The search results on the right show '查询结果：共135206条环境监管记录' (Search Results: 135,206 environmental supervision records) and a table with columns for '序号' (Serial Number), '企业名称' (Company Name), '地区' (Region), '监管年份' (Supervision Year), and '环境监管记录' (Environmental Supervision Record). The table lists 12 companies, including '中石化南京交通石油发展有限...', '南京公用水务有限公司', '漳州市污水处理厂', '南京化建产业(集团)有限公司', '南京化学工业园热电有限公司', '南京高速齿轮制造有限公司', '南京博源医药科技有限公司', '南京恒昌生物医药有限公司', '上海拓力迅能源环保工程有限...', '南京皇厂河货运服务有限公司', '南京市城区防汛指挥部办公室', and '南京工业大学'. Each row has a '查看详情' (View Details) link.

序号	企业名称	地区	监管年份	环境监管记录
1	中石化南京交通石油发展有限...	江苏南京	2013	<a href="#">查看详情</a>
2	南京公用水务有限公司	江苏南京	2013	<a href="#">查看详情</a>
3	漳州市污水处理厂(漳州市恒...	福建龙岩	2013	<a href="#">查看详情</a>
4	南京化建产业(集团)有限公司	江苏南京	2013	<a href="#">查看详情</a>
5	南京化学工业园热电有限公司	江苏南京	2013	<a href="#">查看详情</a>
6	南京高速齿轮制造有限公司	江苏南京	2013	<a href="#">查看详情</a>
7	南京博源医药科技有限公司	江苏南京	2013	<a href="#">查看详情</a>
8	南京恒昌生物医药有限公司	江苏南京	2013	<a href="#">查看详情</a>
9	上海拓力迅能源环保工程有限...	上海上海市区	2013	<a href="#">查看详情</a>
10	南京皇厂河货运服务有限公司	江苏南京	2013	<a href="#">查看详情</a>
11	南京市城区防汛指挥部办公室	江苏南京	2013	<a href="#">查看详情</a>
12	南京工业大学	江苏南京	2013	<a href="#">查看详情</a>

Figure 57 – Screenshot showing “The Ferret” in action