

IMPACT SHEET • SWITCH-ASIA PROJECT
**SUSTAINABLE PRODUCTION IN THE PRINTING AND DYEING
SECTOR IN CHINA**

Introducing sustainability into China's printing and dyeing industry



**The project introduced sustainable production measures
into 350 SMEs in Zhejiang province to reduce their
environmental impacts**



The Challenge

China is the largest textile producing and consuming nation in the world. In 2010, national textile production was valued at EUR 570 billion and accounted for 6.56% of national industrial production. The development of the textile industry is vital to China's economic development. Printing and dyeing (P&D) is a key process (and an important sector) in the textile industry in China. In 2010, Chinese companies printed and dyed 54.8 billion metres of fabric. Of that, over 50% was produced in Zhejiang province and about 33% of total national production was produced in Shaoxing County in north-eastern Zhejiang Province. Industry insiders know that printing and dyeing is by far the most polluting stage of production in the textile industry, due to high water and energy consumption, and high water pollution or high chemical oxygen demand (COD) load due to the use of dyestuffs / chemicals.

Objective

The project sought to reduce the negative environmental impacts of the textile printing and dyeing (P&D) industry in China, supporting Keqiao District in establishing a 'Green Printing and Dyeing Industrial Park', and promoting a level playing field through capacity building of small- and medium-sized enterprises (SMEs) on the sustainable production requirements of the European Union (EU) and other developed countries. The **specific objectives** included:

- reducing negative environmental impacts of the textile printing and dyeing industry through promoting sustainable production among 350 SMEs in Zhejiang Province, with Keqiao District as a demonstration area;
- supporting the creation of an enabling policy environment;
- promoting the replication of project experience.

TARGET GROUPS

- 350 SMEs in the printing and dyeing industry in Shaoxing City and other cities in Zhejiang province (Jiaxing, Ningbo and Huzhou), and Wuxi City in Jiangsu Province
- Industry associations: Zhejiang Association of Printing and Dyeing Industry (ZAPDI)
- Zhejiang University (ZJU)
- Local/provincial governments
- Energy Service Companies (ESCOs)
- Banks

Activities / Strategy



Encouraging Technology Upgrade among SMEs

The project provided training to 350 SMEs and identified model SMEs. It worked with the local government to encourage many P&D companies in Keqiao District to move into the Green Printing and Dyeing Industrial Park in Binhai Industrial Zone. In the process of moving, many companies had to abandon outdated equipment and made investments in new technology. The project's environmental advisory team guided the SMEs in this process.



Providing Environmental Capacity Building and Technical Assistance

The leaders of P&D companies (99% of them SMEs) received training on Corporate Social Responsibility (CSR). Their factory managers received training on environmental management to learn about technological improvements and other adjustments to improve their environmental performance. The SMEs providing drafts of action plans for improvements have received one-on-one, in-depth supports to achieving the stated goals. The project's advisory team visited the SMEs and assisted in realising investments through matching them with banks and green lending schemes of ESCOs who support them with expertise, technology and finance.



Supporting the National and Local Policies

In 2009, the State Council announced the 'Restructuring and Revitalising Plan of the Textile Industry' to modernise the textile industry. Both Zhejiang Provincial Government (ZPG) and Keqiao District Government (KDG) translated this national policy into local programmes. In 2010, KDG initiated a five-year project to move 80% of all P&D companies to the Binhai Industrial Zone 'Green Printing and Dyeing Industrial Park'. The project supported KDG in realising the park. The project also engaged in policy consultations, recommendations and follow up work to support ZPG and to create favourable policy environment. The project submitted policy recommendations to KDG and other local governments, as well as to the national government.



Enabling Energy Service Companies (ESCOs) and Banks

The project provided ESCOs with business leads and produced a document summarising business opportunities of the P&D sector to attract new ESCOs into the business. Many Chinese banks had started offering green lending schemes, but loans to the P&D industry were still limited, because the sector was characterised by informal SMEs. The project assisted banks with green lending schemes by giving them business leads in the P&D sector, and supported them further through a document on the business case of green lending to the P&D industry.

Scaling-up Strategy



Engaging in Multi-stakeholder Dialogues

The project reached out to companies by engaging with various stakeholder groups. It consulted with fashion brands like Semir (China) and other relevant organisations, such as the Sweden-based Stockholm International Water Institute (SIWI) and Zhejiang Association of Printing and Dyeing Industry (ZAPDI) who were involved as project associates. The project encouraged them to take an active role in project activities and in particular to leverage their influence over their members and suppliers. The project also tried to expand the number of cooperative fashion groups and particularly focused on domestic brands who were not yet involved in greening the supply chains.



Working with Banks to Establish Preferential Lending Schemes

Banks in Keqiao District had reached an agreement that once a bank makes a loan to a P&D company in Keqiao, Keqiao District Government would make a saving in the bank equivalent to 30% of the loan amount. A number of international and Chinese banks collaborated with ESCOs and made loans to companies that install new, more efficient machinery and equipment through the ESCOs. The project helped make banks aware of the green nature of investments in equipment upgrades of the printing and dyeing SMEs, and sought to have them include such loans into preferential lending schemes.



Conducting Conferences and Leadership Training

The project organised high profile events, engaging senior government officials, media, and business leaders. During the events, the project gave recognition to well performing SMEs. Given the top-down nature of SMEs'



Within this project, I was able to put P&D equipment enterprises, environmental protection enterprises and solution providers in contact with each other, and invite both domestic and foreign P&D industry-related associations and experts to participate. I was able to use my rich work experience to contribute to the project and am happy to see its success.

Mr. Zheng Yifang,
Deputy director, Zhejiang Province
Economic and Information Committee



The project's SME engagement plan



management style in China, the project engaged with SME leaders. Through a CSR leadership training designed for SMEs, company leaders were encouraged to support and initiate a process of change within their companies. Once the SME leaders were convinced, project ownership improved and the development direction towards continuous improvement became more sustainable.



Reaching Out to a Wider Audience

The project established a comprehensive online open-access resource for environmental improvement of the P&D industry. The website will stay online five years after project completion, managed by project partners. Through the website, project results are made available to the public, showcasing project impacts to a wider audience. The project also produced a regular newsletter to keep all stakeholders informed of project results and progress. Engagement with the media included news items and a project documentary.



Results



Identified Four Model SMEs and Trained 350 SMEs

350 SME factory managers and/or chief engineers were trained in seven environment management trainings. About 900 factory managers and/or chief engineers attended 11 environment management training sessions. More than 60% of the visited SMEs made improvements to their equipment. 100 SME factory managers and/or chief engineers took part in one of eight networking meetings to foster cross learning and identify best practice.



Developed 39 Showcases

The project developed 39 case studies of successful improvements made by SMEs, and submitted the document to the government as well as distributing it online. The best case studies were selected and the SMEs received awards and recognition at conferences organised by the project, and were also mentioned in both online and offline media. The awarded SMEs serve as model companies that can be visited by domestic and international stakeholders.



Increased Awareness among SMEs, Fashion Groups, ESCOs and Banks

Through multi-stakeholder dialogue, the SMEs learned from fashion groups about the incentives of environmental performance, and from the ESCOs and banks that



This project has given us training to strengthen our technology, security and information management capabilities, and helped to improve our sense of corporate social responsibility. Shengxing has now eliminated a number of inefficient printing machines, dyeing machines and setting machines and bought more efficient models. We have also invested in a sewage treatment system that will treat 6 000 tonnes of sewage every day. High-quality waste gas collection and processing devices were installed on various machines such as the singeing, scrubbing, as well as printing machines, rendering the workplace odourless. Shengxing also collects and reuses the steam from the pipe condensate and cooling water.

Mr. Fu Jianlin,
Chairman of Shaoxing
Shengxin Printing and Dyeing Co., Ltd












commercial expertise and finance options could be drawn on to achieve more ambitious goals. At least 10 major fashion groups, 10 ESCOs, and two banks were made aware of new business opportunities in Zhejiang's printing and dyeing industry. They have already developed action plans and have started to implement them.



Submitted Policy Recommendations

The project conducted a policy study, using the inputs collected from policy consultations, technical committees, and the Business Advisory Group. The study analysed the best policy options for Zhejiang Province, Keqiao District, and China. Three policy studies and recommendations were submitted to Keqiao, Zhejiang, and national (MIIT) governments. The policy document also contains a chapter on ways to enhance local enforcement mechanisms. The main thrust of the policy recommendation covers economic instruments, required standardisation, industrial planning and zones, wastewater management, and voluntary agreements.

Impact in Numbers

<p>Economic Impact</p> 	<ul style="list-style-type: none"> • 200 SMEs achieved annual monetary savings of RMB 56 billion (EUR 7.2 billion) through technological improvements. • New business opportunities were created through increased business volume for ESCOs and promotion of a centralised treatment of waste water. • The project initiated the greening of printing and dyeing value chain by establishing communication between upstream and downstream companies, and promoting green technology, products and service providers. Digital printing product and technology were introduced to the Chinese market to increase the efficiency of printing and dyeing companies. 		<p>and Technology Park. The financing was given to companies from the high-end textile industry, water environmental protection industry, and IT industry in the technology park.</p>
<p>Environmental Impact</p> 	<ul style="list-style-type: none"> • Achieved reduction of 31 297 million tonnes of waste water; • Increased SMEs' resource efficiency, e.g. improvement of steam utilisation, utilisation of condensate recovery system (the afterheat generated by heat setting machine). • Positively impacted the environment by reducing odour pollution through the use of covered sewage treatment pool and reducing water contamination through upgrades in sewage treat equipment. 	<p>Target Group Engagement</p> 	<ul style="list-style-type: none"> • The project engaged with 300 SMEs and 20 stakeholder groups (business associations, NGOs, media, related government agencies) through some 30 activities including technical and CSR trainings, seminars and peer-to-peer training between SMEs. • Thousands of workers in SMEs in the P&D sector in Zhejiang; domestic and international retailers and consumers; as well as local communities: 700 000 citizens in Keqiao District and 4.3 million citizens of Shaoxing City, as well as communities in the vicinity of the printing and dyeing SMEs in Zhejiang Province and other areas in China benefitted from the project intervention.
<p>Social Impacts</p> 	<ul style="list-style-type: none"> • 86 000 new jobs were created as SMEs adopted new, sustainable production processes. • Working conditions at factories were improved as the level of odour, sewage and dust was lowered. • Surrounding communities benefited also from reduced odour and noise pollutions. 	<p>Women's Empowerment</p> 	<ul style="list-style-type: none"> • Women were encouraged to participate in project activities, with around 20 women being trained.
<p>Climate Benefits</p> 	<ul style="list-style-type: none"> • Individual SMEs now save 20% of their previous electricity consumption. • GHG mitigation measures implemented by SMEs include shifting to cleaner energy sources, such as gas instead of coal; use of renewable energy, such as biofuel; energy use and CO₂ emission reductions by upgrading machinery and equipment. • Companies' awareness on climate change risks was enhanced through the involvement of experts providing information to companies about their water footprint and metered consumption data for resources, fuel and water. 	<p>Policy Development</p> 	<ul style="list-style-type: none"> • Two policy events were organised and two policy recommendations were submitted to the provincial governments. The project also engaged policymakers in various training events, seminars, dialogues and the policy study tour to the EU. • Put forward policy recommendations such as a provincial-level report to Zhejiang Province Economic and Information commission, district-level report to Keqiao District Economic and Information Bureau, and Science Technology Bureau of Keqiao. A recommendation on national-level standard was submitted to Ministry of Industry and Information Technology (MIIT). • Refined one industrial standard after the project's recommendations.
<p>Green Finance</p> 	<ul style="list-style-type: none"> • Eight banks were involved in project activities (training events, visits to SMEs), and 50 SMEs benefitted from better access to finance. • RMB 500 million (EUR 62 million) of green finance was leveraged by the Bank of Hangzhou to the Keqiao District Science 	<p>Europe-Asia Cooperation</p> 	<ul style="list-style-type: none"> • Initiated one new EU-Asia partnership, conducted four events with European and Asian participants and one study tour. • Strengthened the cooperation through joint workshops and a project research report.



Legend

- Eligible countries for the SWITCH-Asia Programme
- Non-eligible Asian countries for the SWITCH-Asia Programme

Project implementation area

- City
- Region
- Country

The boundaries shown on this map do not imply on the part of the European Union any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.

OBJECTIVES

The project aimed at reducing environmental impacts from the textile printing and dyeing industry in China, through promoting sustainable production among 350 SMEs in Zhejiang Province, with Shaoxing County as a demonstration area, supporting the creation of an enabling policy environment, and promoting the replication of best practice.

DURATION



PROJECT TOTAL BUDGET

EUR 1 499 000 (EU contribution 80%)

PROJECT CONTACT

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PARTNER

Zhejiang Province Economic and Information Commission, China	Keqiao District Government, China	Zhejiang Association of Printing and Dyeing Industry, China
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Zhejiang University, China



Stockholm International Water Institute, Sweden