



# NRDC's Best Practices for Textile Mills How Redbud Company Saved Money, Curbed Pollution—and Gained Favor from a Major Buyer

NRDC and its partners in Clean by Design, an initiative to green the global textile supply chain, are recommending 10 practical, easy-to-implement best practices for textile mills that will not only improve manufacturing efficiency—but also save money and stem pollution. The Jiangsu Redbud Textile Company, a Chinese-owned mill that dyes cotton woven fabric supplying Wal-Mart among others put our best practices to the test. And the results were profound.

*From the operation supervisors to the CEO, Redbud's management made the difference. The positive attitudes were a cornerstone in making Redbud a leader in eco-efficiency and we are proud to use Redbud as a supplier.*

CHIEH CHEN,  
FABRIC DIRECTOR

NRDC evaluated textile mills in China and compiled a watch list of mills ranked poorly for performance in environmental compliance. Wal-Mart became aware that one of its suppliers, Jiangsu Redbud Textile Company, was ranked second worst in a five-tiered public ranking system. The Wal-Mart fabric team approached the CEO and Chairman of the mill, Mr. Liu Guozhong, expressing concern that the mill was polluting and urging the mill to improve if they wanted to continue business with Wal-Mart. Then Wal-Mart linked the mill with NRDC to provide technical expertise on improvement opportunities and NRDC arranged for on-the-ground support through its partner, the Jiangsu Academy of Environmental Sciences.

With only three best practices, Redbud achieved 23 percent reductions in water use and nearly 11 percent reductions in coal. Although the total one-time cost of these improvements was about \$72,000, that amount that was recouped in cost savings in one month. Combined with additional improvements to the wastewater treatment plant, these easy-to-implement changes in practice moved Redbud from second worst to second best in environmental compliance—and savings are now accruing at nearly \$840,000 annually.

### Verification

Walmart verified Redbud's implementation and success with visual inspections of equipment changes and an audit of metering records of water and coal.

For more information, contact **Linda Greer** at [lgreer@nrdc.org](mailto:lgreer@nrdc.org).



**Mr. Liu Guozhong, founder of Redbud Company,** was born into an ordinary peasant family in Changshu, China. At age 13, he began to make his living making clothes. Only six years later, at age 19, Mr. Liu began a fabric business in Shanghai to seek channels for foreign trade. He founded the Changshu Corduroy Factory, the predecessor of Redbud, in 1994.



[www.nrdc.org/cleanbydesign](http://www.nrdc.org/cleanbydesign)

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## How Redbud Company Saved Money, Curbed Pollution—and Gained Favor from a Major Buyer

NRDC 10 Best Practices	Water Saved (tons per day)	Coal Saved (tons per day)	Upfront Cost (US \$)	Monthly Savings (US \$)	Payback Period
Leak detection, preventive maintenance					
<b>1</b> Reuse cooling water (from singeing and air compressor)	238	0.54	\$1,911	\$3,373	17 days
<b>2</b> Reuse condensate (from dryers)	140	7.14	\$36,613	\$21,326	53 days
<b>3</b> Reuse process water (from mercerizing, & rinsing)	360	1.72	\$33,443	\$45,289*	23 days
Recycle heat from hot rinse water					
Prescreen coal					
Maintain steam traps					
Insulate pipes, valves, and flanges					
Recover heat from smokestack					
Optimize compressed air system					
Totals from Best Practices	738	9.41	\$71,967	\$69,988	32 days
Percentage reduction	23%	11%			

\*Includes savings of \$37,000/month alkali purchases

**1** Redbud saved more than 70,000 tons of water per year by capturing non-contact cooling water from the singeing and air compressor machines. It plans to capture cooling water from the preshrink machines as well in the near future.

**2** Redbud saved 42,000 tons of water per year by collecting steam condensate from its dryers. Dryer operations proved a very valuable source of condensed water from steam, which is high in both quality and temperature. This water could be returned directly to the boiler to be reprocessed back into steam.

**3** Redbud saved 108,000 tons of water per year by reusing process water from mercerizing and rinsing. Process inspection and testing revealed that water from the bleaching process could be re-used in scouring. Water from “mercerizing”, a process that uses a caustic chemical, proved a particularly valuable resource—the caustic it contained could be beneficially re-used in pretreatment and dyeing machines, resulting in water savings and chemical use reductions, a great opportunity for both profitability and the environment. Each of these opportunities required nothing more than the purchase and installation of holding tanks, pipes, hot water pumps, and filtering systems; extra equipment was required to recycle caustic from the mercerizing wastewater.

**Redbud also saved more than 2,800 tons of coal per year by reusing its steam condensate and hot process water**

Large amounts of heat and steam are used in most operations making textiles. Redbud creates this heat and steam by burning substantial amounts of coal. Discharging high volumes of very hot water also caused stress to the wastewater treatment plant, which was undersized and vulnerable to upsets. By recycling hot water generated by the various textile processes, the heat could be re-used—delivering valuable savings in coal. And, reducing the amount of hot water going to wastewater treatment also reduced heat stress on the treatment plant. These changes provided a win-win for both the environment and the bottom line.