

SAVE

Sustainable Action & Vision
for a better Environment

CASE STUDY BOOK

WE KNOW
HOW
TO
SOLVE IT

CO-FINANCED BY

KFW DEG

CO-FINANCED & IMPLEMENTED BY

PUMA
puma.com

IN PARTNERSHIP WITH

H&M



PROJECT OVERVIEW

Industrialization has the potential to help achieve a variety of social objectives such as employment, poverty eradication, gender equality, labor standards, and greater access to education and healthcare. At the same time, industrial processes can have negative environmental impacts, causing climate change, loss of natural resources and ecosystem services, air and water pollution and extinction of species. These threaten the global environment as well as economic and social welfare. The confluence of global economic and environmental crisis that has occurred in recent years has provided a new impetus to international efforts to promote the transition towards more sustainable industrial systems. Such transition through the implementation and diffusion of Resource Efficient Practices and Waste Management Programs is crucial to advance Green Industry and Green Economy.

Industrial processes play a major role in the degradation of the global environment. In industrialized countries, environmental regulation and new technologies are reducing the environmental impact per unit produced, but industrial activities and increasing demand are still putting pressures on the environment and the natural resource base. In developing countries a double environmental effect is occurring: old environmental problems, such as deforestation and soil degradation, remain largely unsolved. At the same time, new problems linked to industrialization are emerging, such as rising greenhouse gas (GHG) emissions, air and water pollution, growing volumes of waste, desertification and chemical contamination. Many developing and transition countries are also suffering from resource constraints such as electricity failures resulting in a loss of productivity and the use of more expensive fuel alternatives such as oil generators. Industries in developing and transition countries have significant potential to reduce the material, energy and pollution intensity per unit of industrial output. This achieves a reduction of the overall ecological footprint (carbon, water, etc.) while at the same time improves productivity and competitiveness. This is essential for the ultimate goal of decoupling economic growth from environmental degradation.

PROJECT OBJECTIVE

The project goal is to help the supply chain factories of the footwear, apparel and accessories (FAA) sectors in developing countries of Asia (Bangladesh, Cambodia, Indonesia, China) to reduce their energy, water, waste and CO₂ by 25% compared to a 2011 baseline by 2015 and contribute to a green economy and sustainable industrial development. A further aim is to develop and enhance local capacities of industries and establish two sustainable Centres of Excellence in the areas of waste management, energy management, water management, GHG management and renewable energy technologies, in order to influence all stakeholders through practical implementation and knowledge sharing sessions.

Another aspect of the project is to consider social standards. Therefore the project also aims to improve the working conditions of the workers and their local environment. A fully independent, trained and competent sustainability team will be established within each participating factory, who will be primarily responsible for engaging in this project and continuing the factories sustainability efforts once the project has been completed. This will in most cases lead to a direct creation of jobs and significantly improve any existing roles with new skill sets.

BENE-FITS

Free distribution of Sustainability Guidelines



Computer Based Training



5 Knowledge Sharing Forums



Trainings



Free Onsite Assessment



Free Technical Assistance



Direct Savings for Water and Energy



Reduce Waste Production



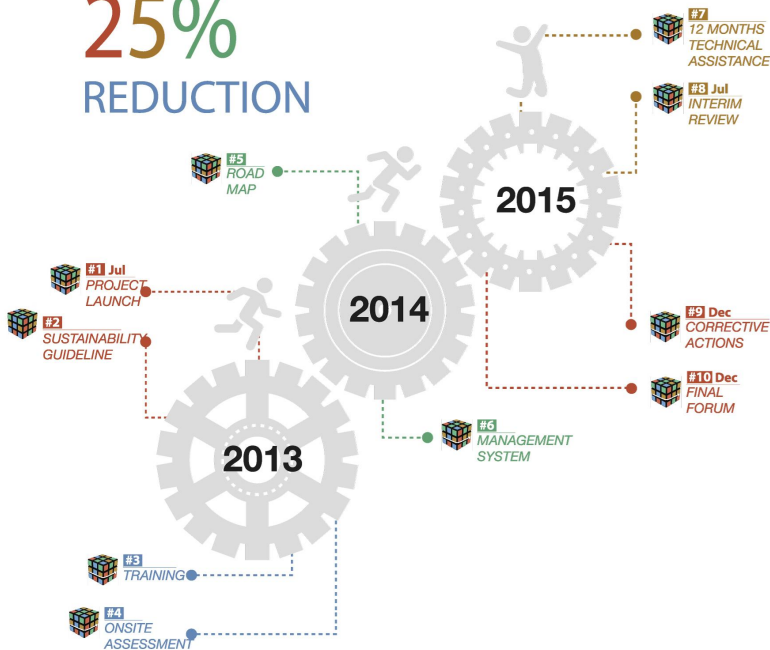
Mitigate CO₂ Emissions



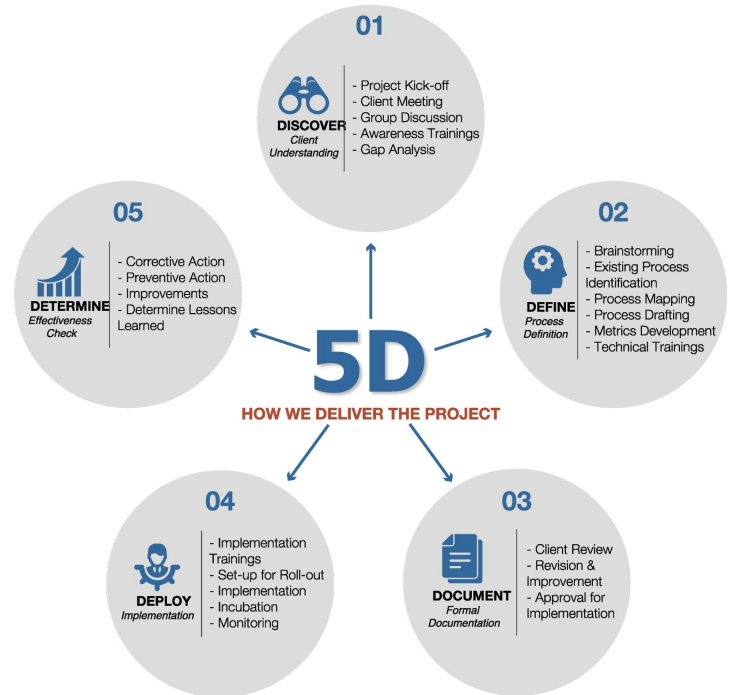
Achieve Green Recognition

PROJECT TIMELINE

25%
REDUCTION



OUR METHODOLOGY



PROJECT HIGHLIGHTS

More than **500** attendees trained.



4 volumes of Sustainability Guidelines and solid training materials.



48 factories joined to onsite assessment.



35 factories submitted action plans



24 knowledge sharing forums.



Case Study Book



Computer Based Training System



SAVE

Reduction

Energy 3.44

Water 3.21

Waste 2.20

%

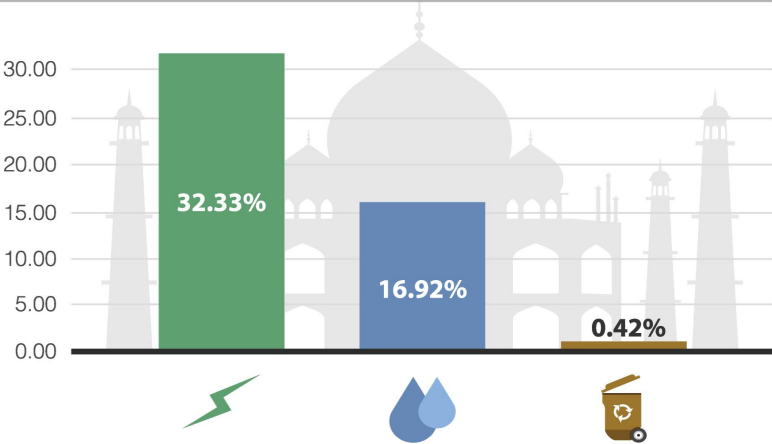
PROJECT ACHIEVEMENTS



BANGLADESH

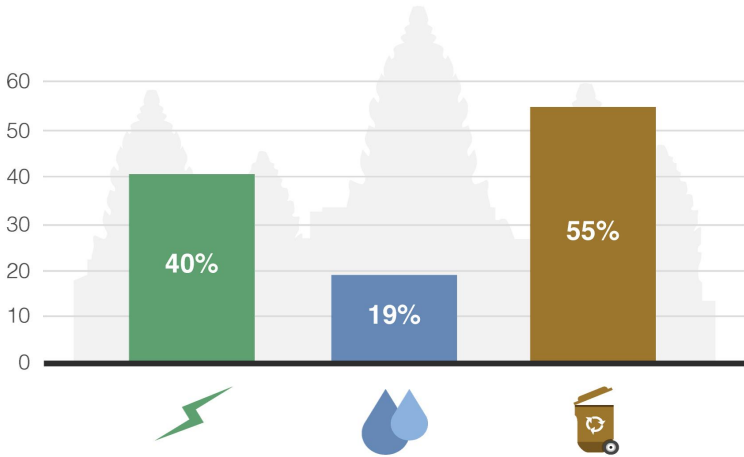
% REDUCTION

Factories	5
Investment (USD)	782,350
Annual USD saving	520,321
Paypack time	1.5 Years



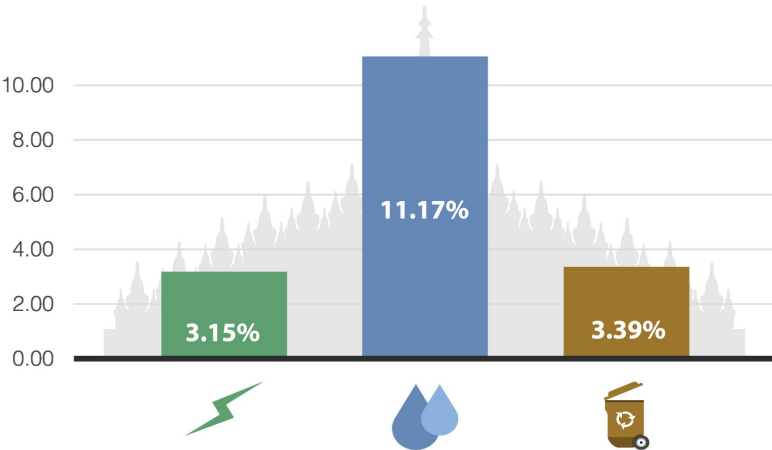
CAMBODIA

Factories	6
Investment	1,002,358 US\$
Annual saving	1,410,537 US\$
Paypack time	0.711 Years



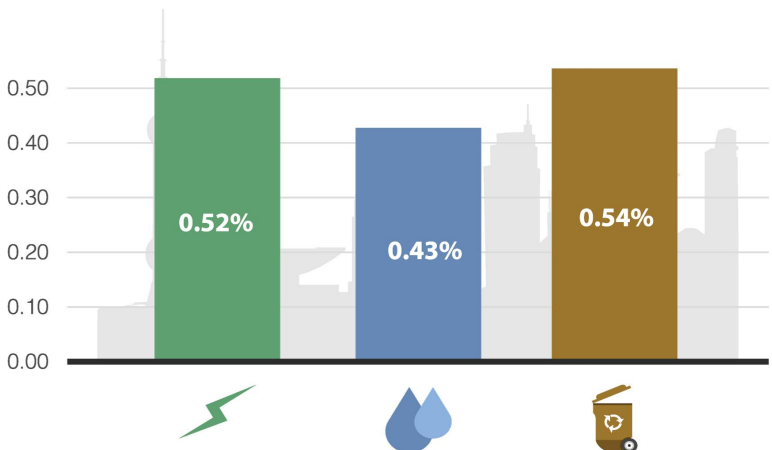
INDONESIA

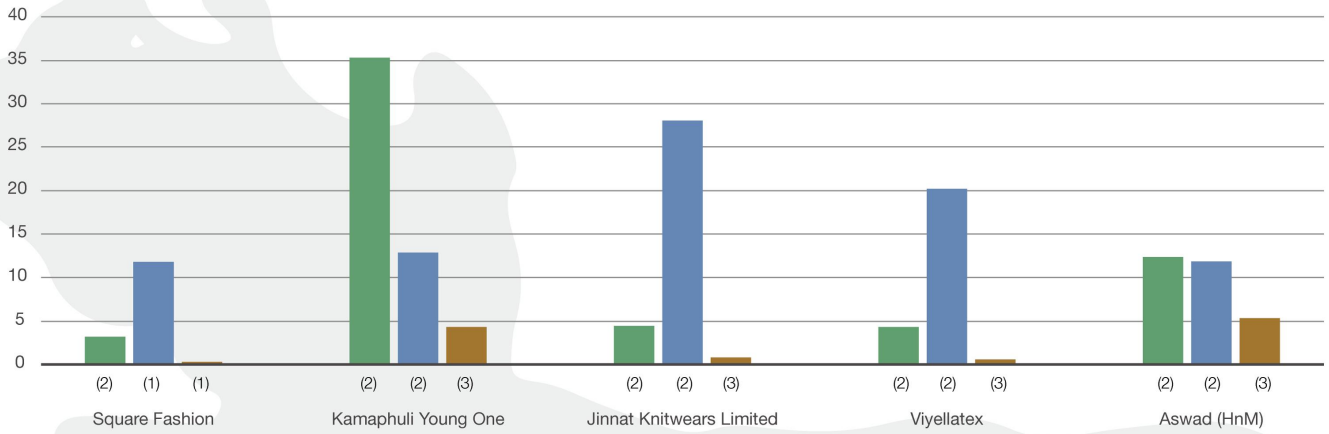
Factories	2
Investment	143,445 US\$
Annual saving	58,544 US\$
Paypack time	2.45 Years



CHINA

Factories	22
Investment	8,643,212 US\$
Annual saving	3,225,191 US\$
Paypack time	2.7 Years



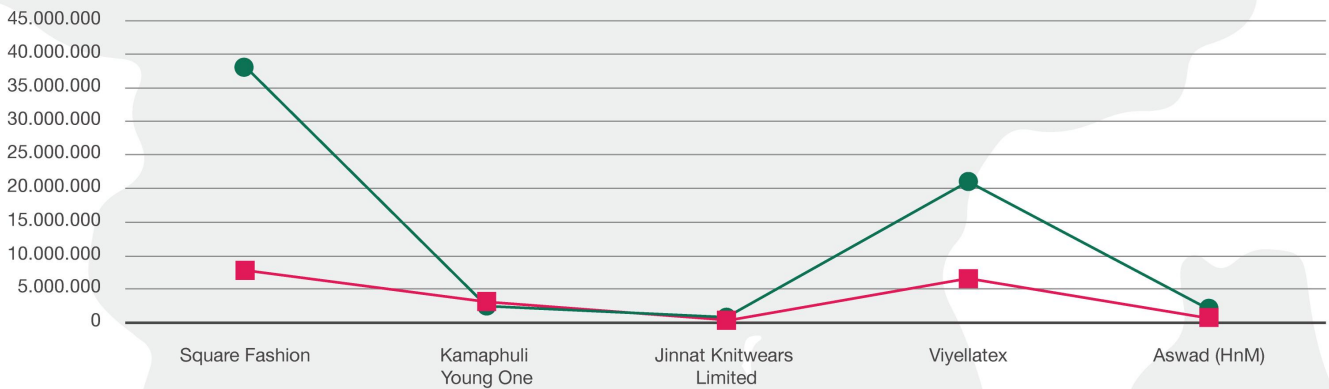


BASELINE YEAR

(1): 2011 (2): 2013 (3): 2014

Energy Waste Water

ENERGY (kWh)



WATER (m³)



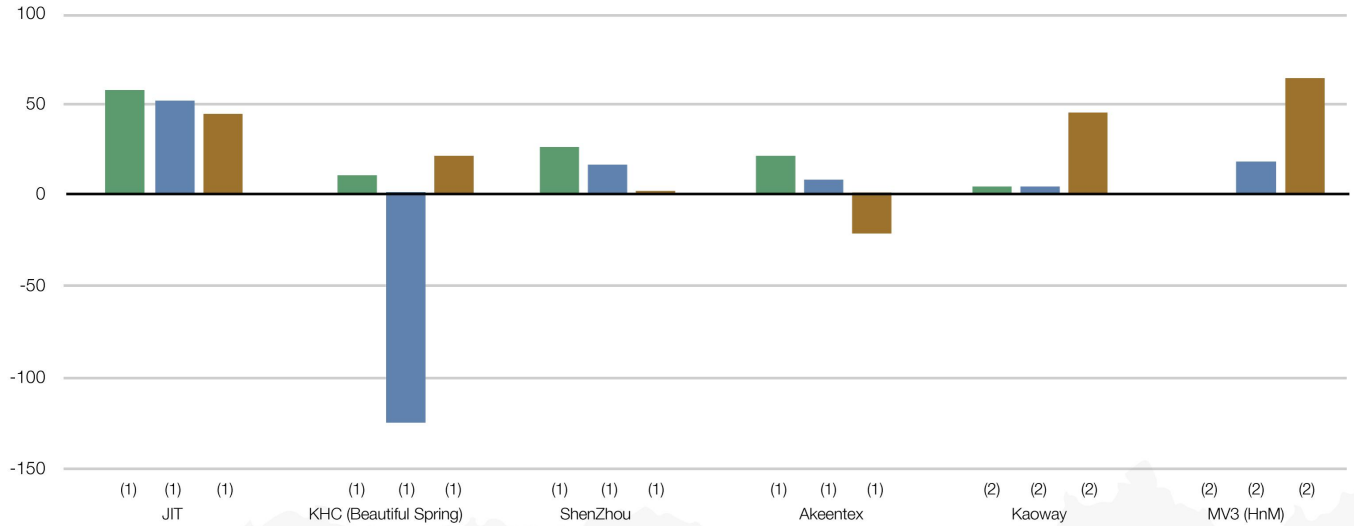
WASTE (Ton)





CAMBODIA

% REDUCTION

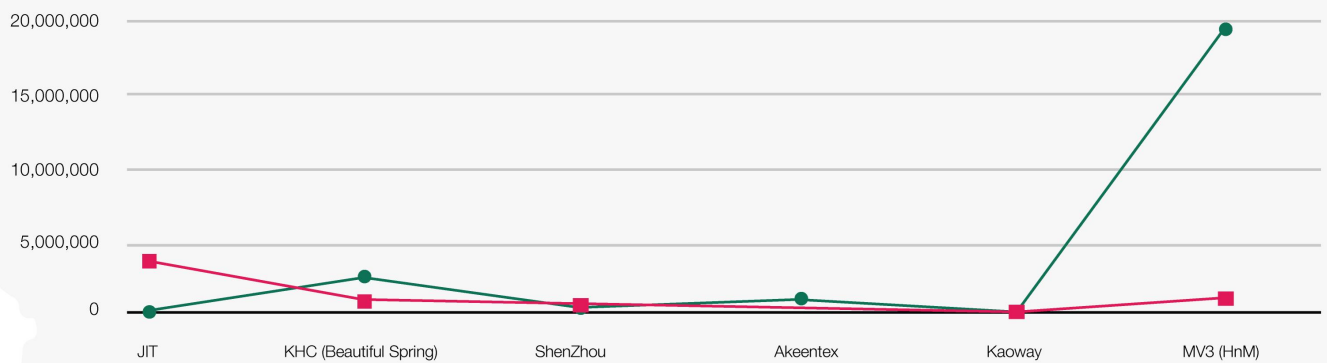


BASELINE YEAR

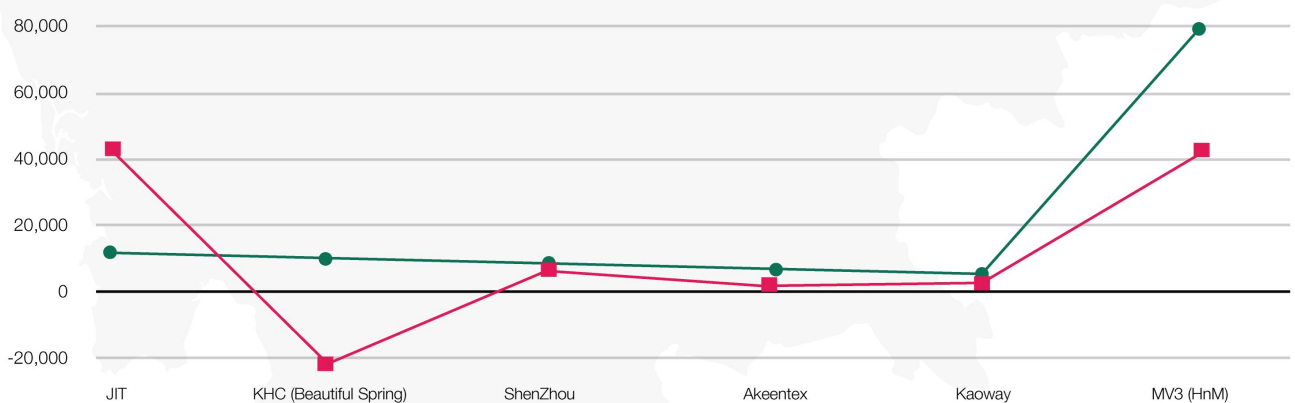
(1): 2011 (2): 2013

Energy Waste Water

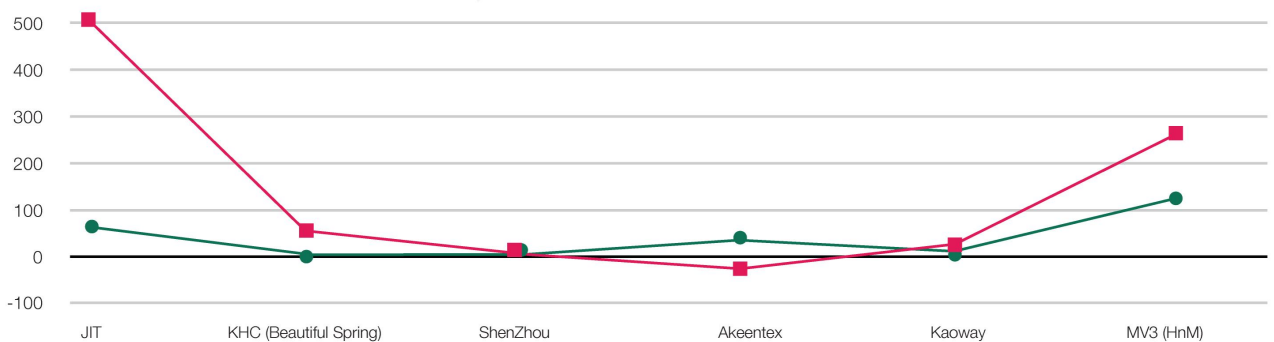
ENERGY (kWh) Implemented Saving Available Saving



WATER (m³)



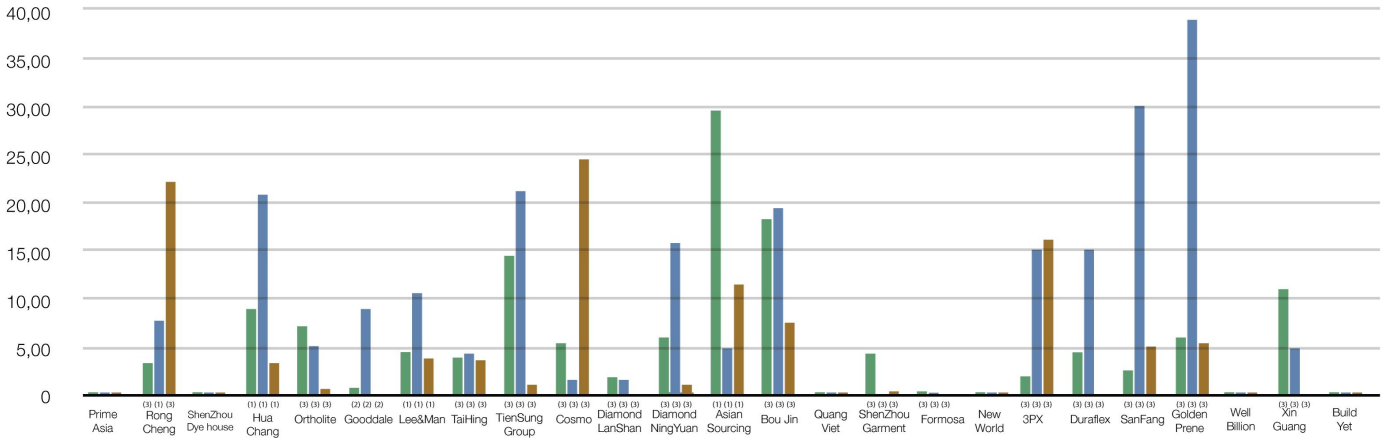
WASTE (Ton)





CHINA

% REDUCTION



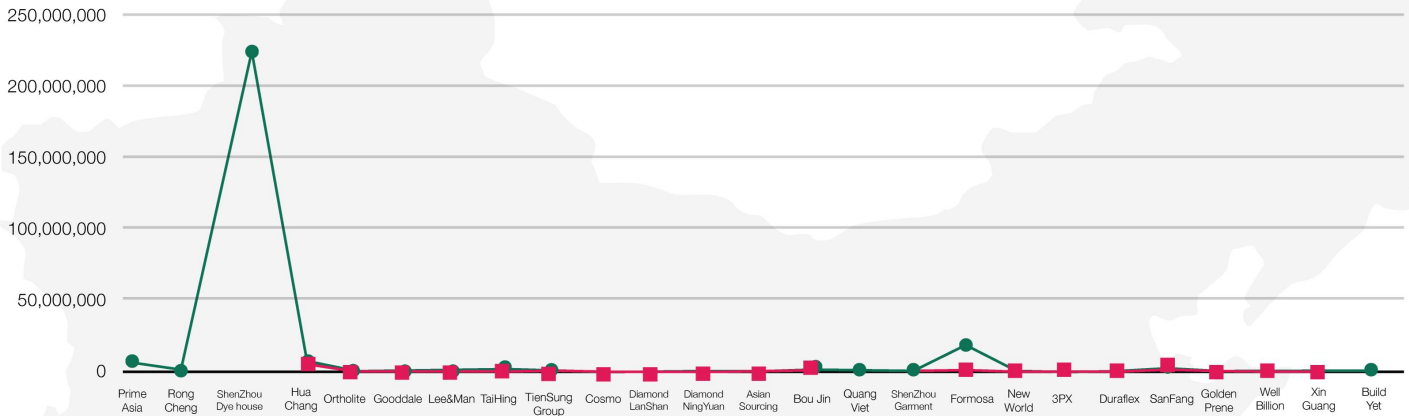
BASELINE YEAR

(1): 2011 (2): 2012 (3): 2013

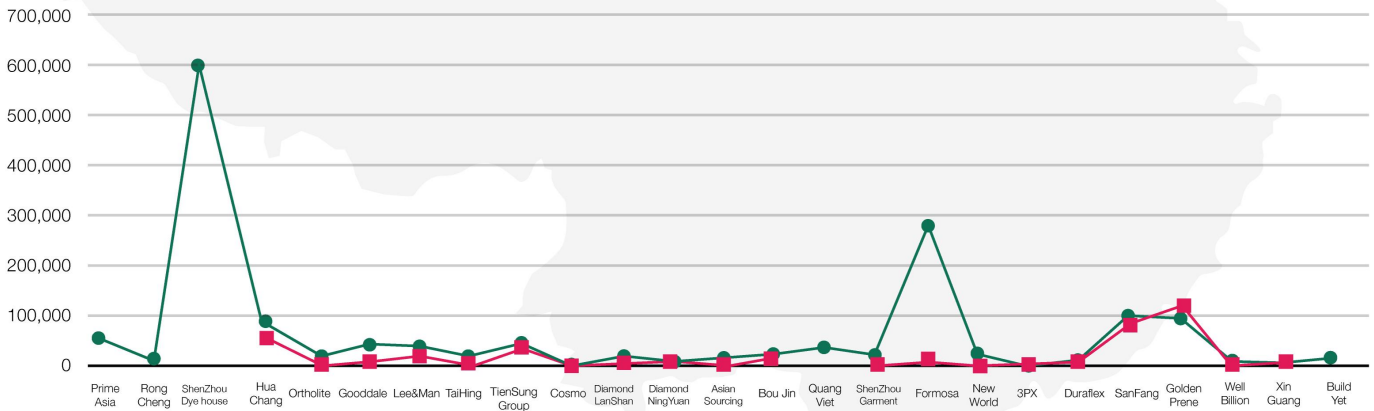
Energy Waste Water

ENERGY (kWh)

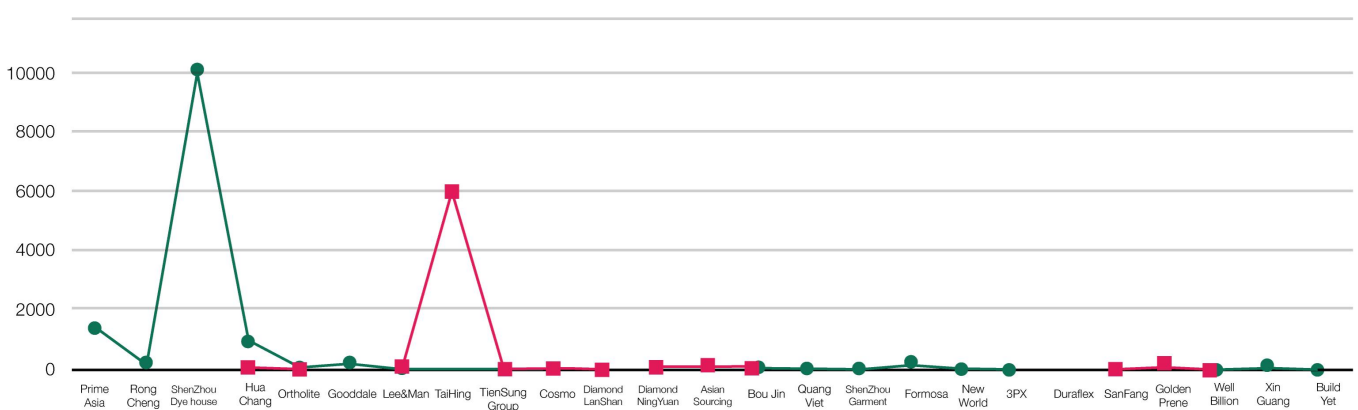
Implemented Saving Available Saving



WATER (m³)



WASTE (Ton)





INDONESIA

% REDUCTION

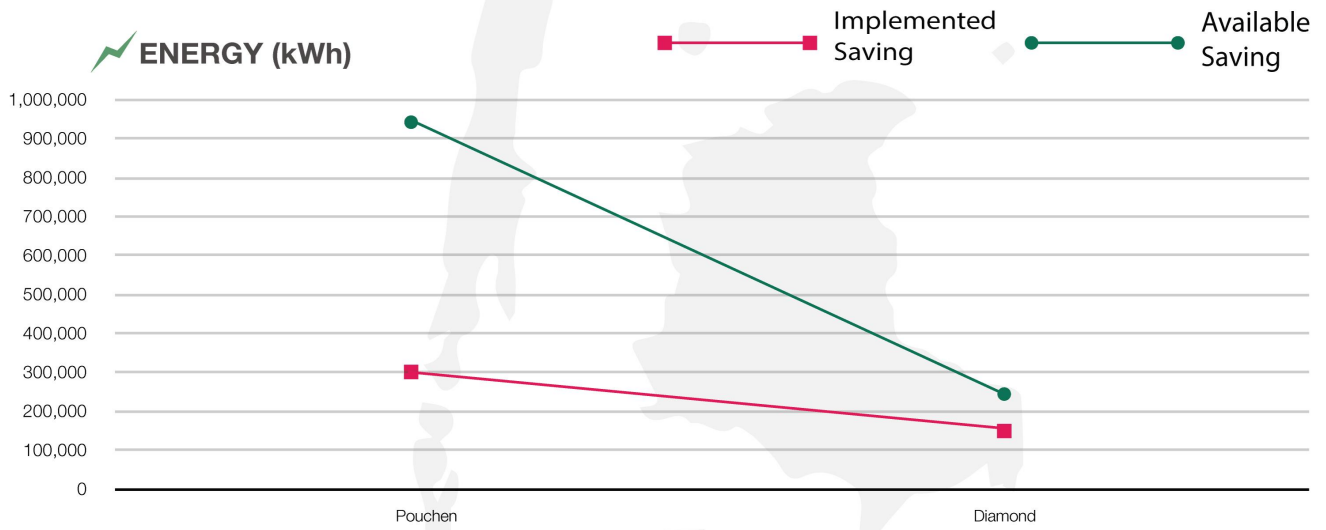


BASELINE YEAR

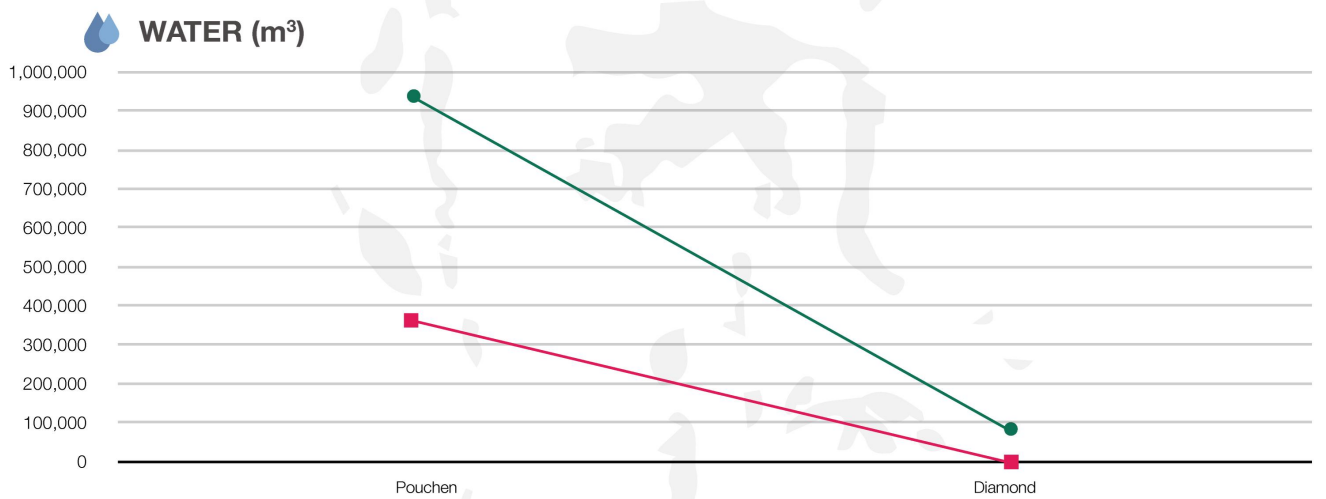
(1): 2011

■ Energy
 ■ Waste
 ■ Water

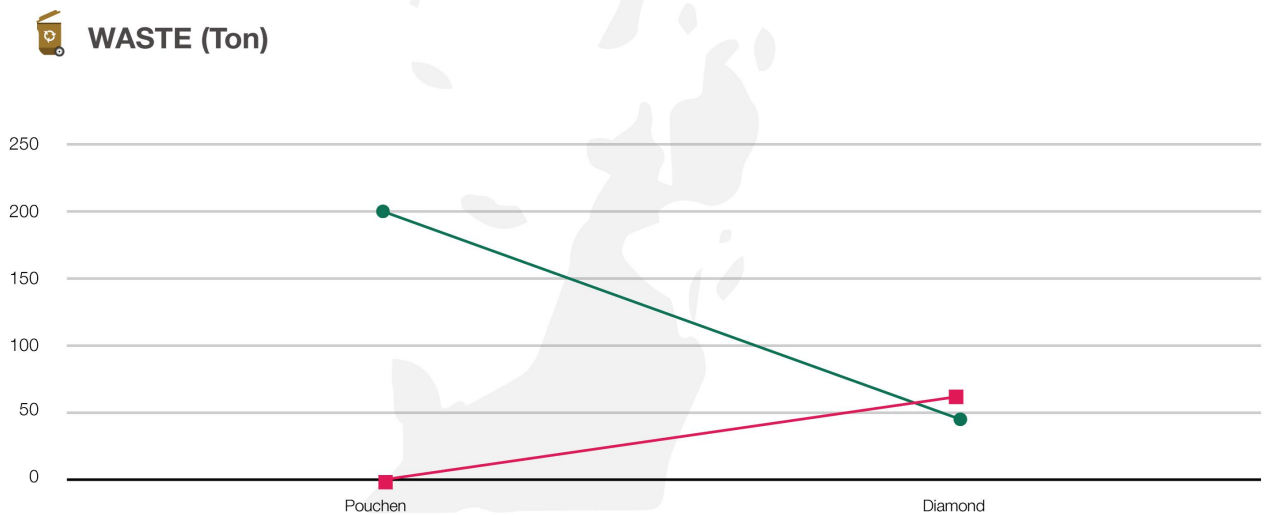
ENERGY (kWh)



WATER (m³)



WASTE (Ton)





ENERGY

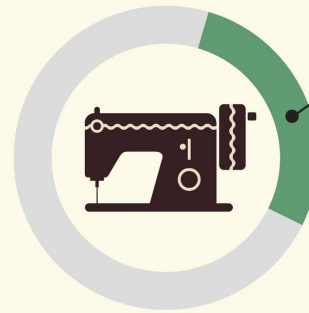
REPLACING CLUTCH MOTOR BY SERVO MOTOR DRIVE SEWING MACHINE

INVESTMENT: 695,607 US\$

ANNUAL SAVING:

0.8% ~ 1,861,079 kWh

26,755 US\$



REPLACING FAUCETS BY SPRAY NOZZLES FOR CLEANING

INVESTMENT: 984 US\$

ANNUAL SAVING:

3.1% ~ 59,178 m³

6,495 US\$



WATER

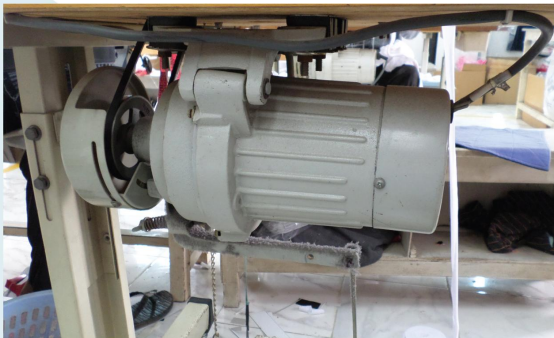
SQUARE FASHIONS LIMITED

ZAMIRDIA, HOBIRBARI, BHALUKA, MYMENSINGH, BANGLADESH



ABOUT THE COMPANY

Square Fashions Limited, located at Zamirdia, is a sister company of the SQUARE Group of Industries, which has been operating in the textile industry since 1997. The company produces a wide range of readymade knit apparels and has highly sophisticated and cutting-edge technologically advanced machines with a vertical set up. It is a one-stop service destination for international buyers. The production capacity of our Garments Units is 105,000 pcs/day and the capacity of our Fabrics Units is 39.5 tons fabrics/day. From 2001, Square Fashions Limited has expanded to include 1,201,906sft of production areas and 9,000 employees.



Before-Clutch motor drive sewing



After-Servo motor drive sewing



Before-Using Bib Cock for cleaning



After-Using Trigger Nozzles



TESTIMONIALS AND CONTACT DETAILS

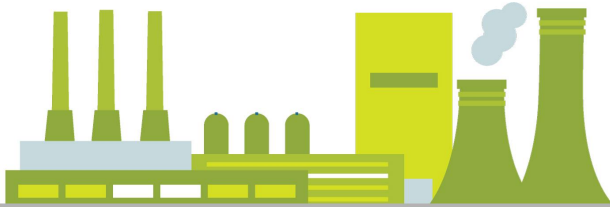
Name: **Mohammad Rafiqullah**

Position: Deputy General Manager

Mr. Mohammad Rafiqullah, Deputy General Manager of Square Fashions Limited, is the head of the Engineering Department as well as the SAVE Project. With the academic background of a B.Sc in Mechanical Engineering from Bangladesh University of Engineering & Technology and his vast experience, the SAVE project has been handled well under his lead.

+01711565004

Alauddin@squaregroup.com



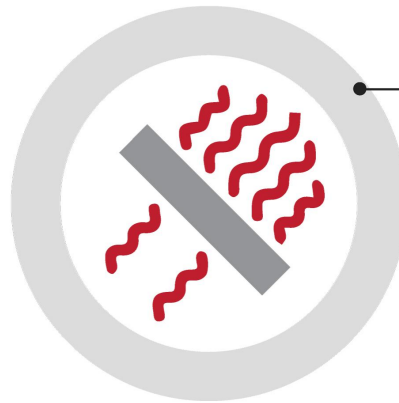
INSULATION OF BARE HOT SURFACES

INVESTMENT: 2,480 US\$

CO2 Emission Reduction: 32.3 Tons

ANNUAL SAVING:

0.12% ~ 176,818 kWh
3,536 US\$



Insulate **1,570** square feet of bare hot surface

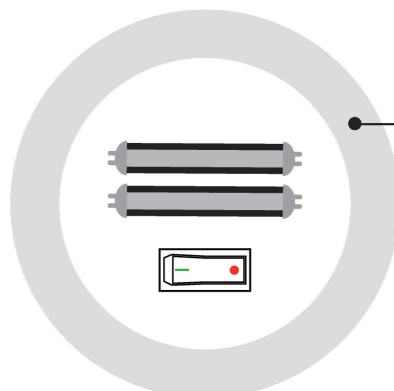
SWITCH OFF UNNECESSARY LIGHTS DURING DAY TIME

CO2 Emission Reduction: 5.2 Tons

ANNUAL SAVING:

0.02% ~ 28,621 kWh
1,371 US\$

Payback Time: Immediate



1500 unnecessary lights switched off

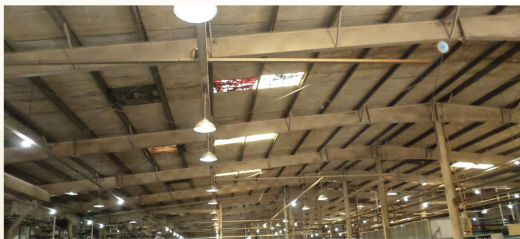
VIYELLATEX LTD

297, KHAIRTUL, GAZIPURA, TONGI, GAZIPUR-1712, BANGLADESH.



ABOUT THE COMPANY

VIYELLATEX group is a rapidly growing multi-dimensional organization in Bangladesh. Within a very short period of time, the organization has earned a solid reputation both locally and globally in the textile and apparel sector. With a fully vertical integrated setup, the group has since spread out to other ventures: tea production, logistics management services, engineering & power and education. VIYELLATEX remains a 100% export-oriented organization and the company vision remains focused towards uplifting Bangladesh on a global scale. The group has achieved numerous awards for business, social and environmental performance over the years and remains strongly committed towards the Millennium Development Goals. VIYELLATEX Limited (VTL) is the composite knit apparel and textile manufacturing business unit of VIYELLATEX group. It started its journey in 1996. VTL is comprised of Design and Product Development, Sample, Knitting, Dyeing, Washing, Cutting, Sewing and Finishing sections. Knitting capacity is 27 MT per month, Textile capacity is 30 MT per month, Garments have 74 lines, production capacity is 1.8 million pcs per month and washing capacity is 24000 pcs per day.



Before-unnecessary lights



After - Switch off unnecessary lights



Before-Insulation of bare hot surfaces



After-Insulation of bare hot surfaces



Before-Installation of Steam Traps



After-Installation of Steam Traps



TESTIMONIALS AND CONTACT DETAILS

Name: **Amit Kumar Agarwal**
Position: Executive-Sustainability

 0088-01717-583903

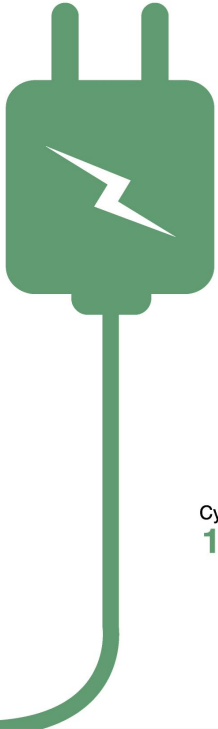
 amit.agarwal@viyellatexgroup.com



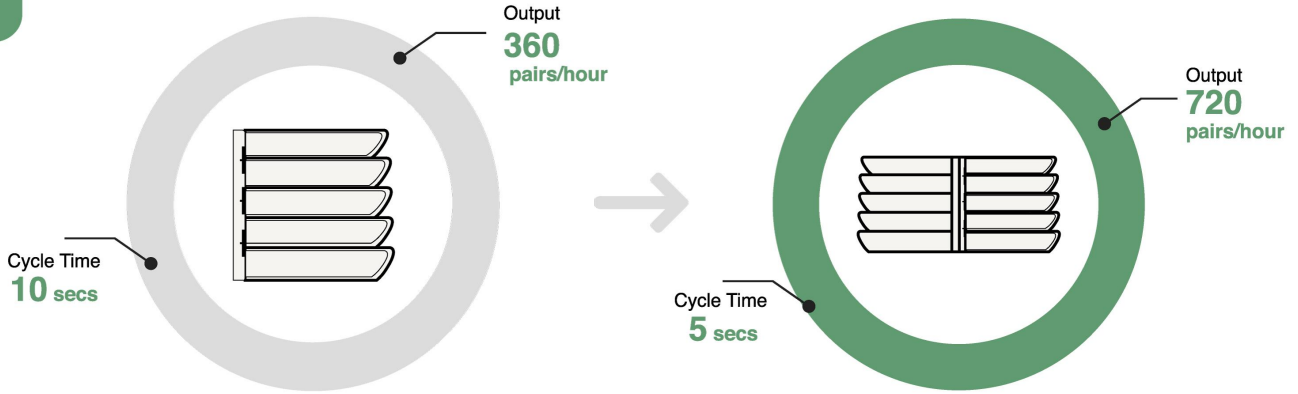
BEAUTIFUL SPRING
FOOTWEAR CO., LTD.



INCREASING DIES IN CUTTING PROCESS

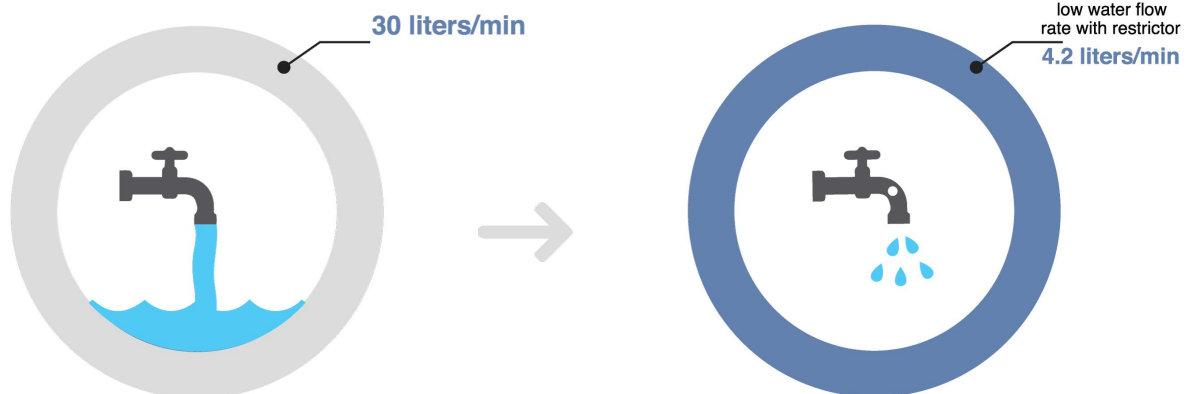
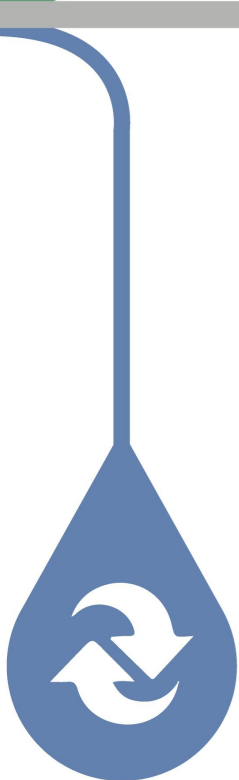


ENERGY SAVING: **50%**
PRODUCTIVITY INCREASE: **100%**



FLOW RESTRICTOR FOR WATER TAPS

NO INVESTMENT



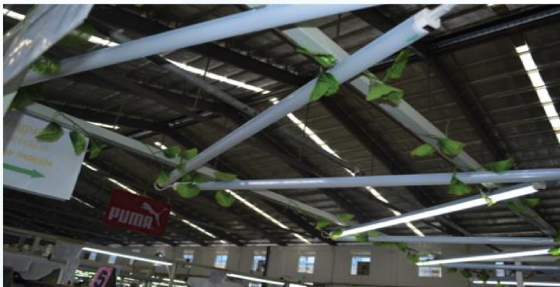
BEAUTIFUL SPRING FOOTWEAR CO., LTD.

NO. 22, ST. TNUNG ROLEUNG, LEAYBO COMMUNE,
TRAM KOK DISTRICT, TAKEO PROVINCE



ABOUT THE COMPANY

Beautiful Springs Footwear Co., Ltd (KHMC), established in 2014, is a subsidiary unit of HUEY CHUEN SHOES GROUP, which has business operations in Taiwan, Cambodia, and Vietnam. KHMC is engaged in the manufacture of sport shoes for men, women and children. The current installed capacity is approximately 300,000 pairs per month and the actual production capacity varies; for instance, in 2014 the factory produced only 713,927 pairs with 100% supply to PUMA. KHMC has approximately 3000 employees.



LED Installation in the production areas



Transparent roof panels and more windows maximize use of day light



Buildings are designed to provide natural ventilation through louvers near ground level and vents along the roofline and the ridgeline.



Empty Drums are returned to supplier for reuse and also converted into waste collection



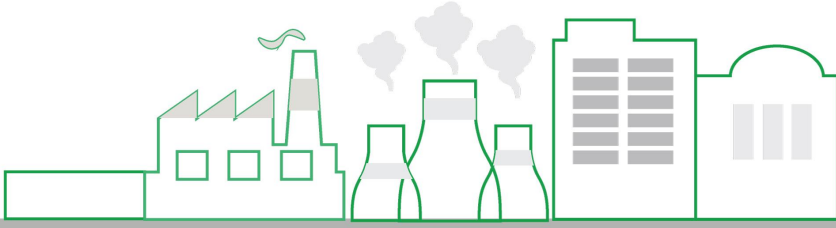
TESTIMONIALS AND CONTACT DETAILS

Steve Kao, Managing Director

On the first quarter of 2015 when I was assigned as a Managing Director of this company, I can say that having a great team and with workers involvement can make a big impact for the success of the project. I am confident that each individual plays an important role and contributes for the success of this SAVE project that will contribute to a green economy and sustainable industrial development for the future. Energy efficiency improvements have a direct result on operating costs and therefore Beautiful Springs is committed to implementing appropriate recommendations from the SAVE team".

+855-90-896281

Steve.Kao@maruchuen.com.tw



RAINWATER COLLECTION

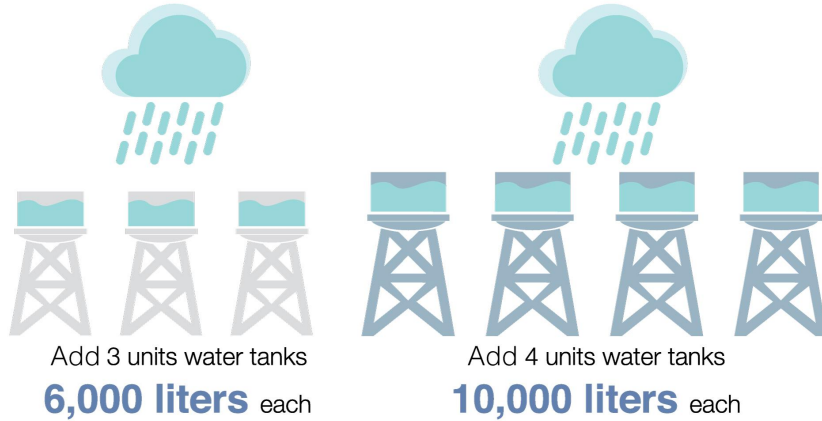
INVESTMENT: 28,000 US\$

ANNUAL SAVING:

42,612 m³

4,700 US\$

Payback Time: 5.9 years

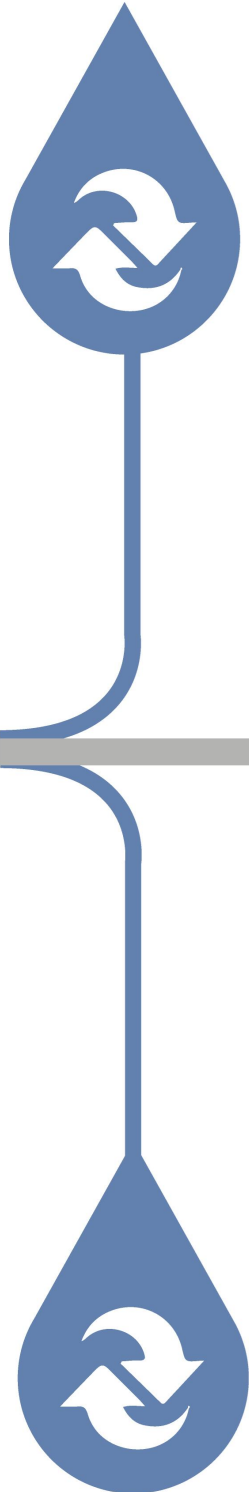


INSTALLED WATER TREATMENT FACILITY IN PRINTING DEPARTMENT

INVESTMENT: 15,000 US\$



Meet statutory requirement
Printing ink & chemical treatment



JIT TEXTILE LIMITED

NATIONAL ROAD NO. 4, PHUM ANG, SANGKAT CHOM CHAO KHAN
DONGKOR, PHNOM PENH, CAMBODIA



ABOUT THE COMPANY

JIT Textiles Ltd, Cambodia (JIT henceforth) is a subsidiary unit of PCCS (Perusahaan Chan Choo Sing Bhd.) Group, which has business operations in Cambodia, Malaysia & China. JIT is engaged in the manufacture of knitted & woven garments comprising T-Shirts, Polo, Jackets, Jogging pants and active wears fit for men, women and children of all ages. The installed capacity is about 6 million pieces per year and the actual production capacity varies, for instance in 2012 it produced 5.02 million pieces with PUMA share of 35%. It supplies to other brand players like Adidas, GAP, ECI, OXYLANE and LI NING. There are 3200 employees working in JIT currently.

Rainwater tanks



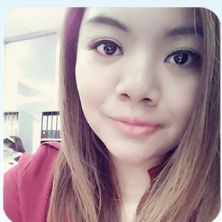
Sewing machines



Before - Clutch motors were not used anymore



After - Almost servo motors were upgraded



TESTIMONIALS AND CONTACT DETAILS

Synthia Chan

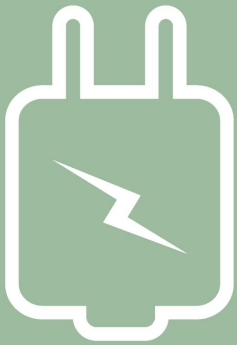
With Puma SAVE professional assistance, it has helped our factory towards achieving a greener working environment, save cost, and earns profit. More than that, with the continuous working in Puma SAVE project really helps us opens up many roads of opportunities such as; more orders from buyers. This project also teaches us how to work as a team to build up a good working environment and also teaches us how to deal with technical situation in the workplace. We believe this concept of project should apply in factories across the countries not just manufacturing factories.

+85515771888

synthiachan@pccsgroup.net



INSTALL TASK LED LIGHTS ON SEWING MACHINES



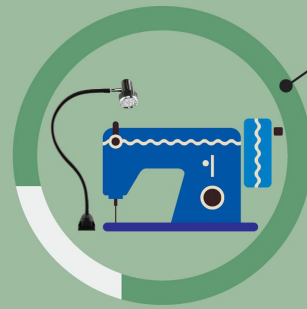
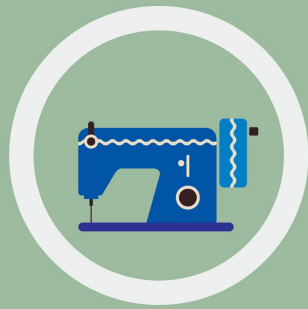
INVESTMENT: **3,000 US\$**

ANNUAL SAVING:

13,543 kWh

1,760 US\$

Payback time: 1.7 Years



300 task
lights installed

INSTALL MORE TRANSPARENT ROOF (SKYLIGHT)

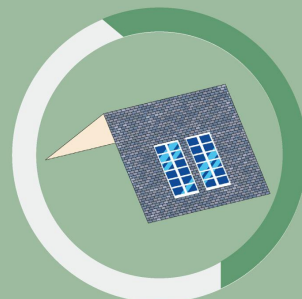
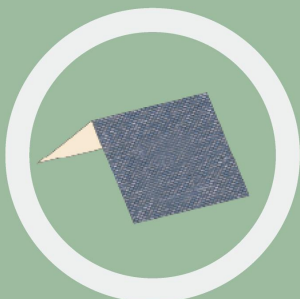
INVESTMENT: **4,900 US\$**

ANNUAL SAVING:

4,652 US\$

35,783 kWh

Payback time: 1.05 Years



KAOWAY SPORT LTD

ROAD NO 1, MANHATTAN SPECIAL ECONOMIC ZONE,
TAPOV VILLAGE, SANGKAT BAVET, SVAY RIENG



ABOUT THE COMPANY

Kaoway Sports Ltd, a footwear industry, was established in 2011 in Cambodia Manhattan Special Economic Zone around 163 kilometers east of Phnom Penh. The factory installed capacity in 2015 is about 1.8 million pairs per year, and the company has plan to increase the capacity to around 3 million pairs per year in 2016. Beside PUMA, it also supplies to other brand players like ASICS and HEAD. Kaoway has 1,714 employees operating.



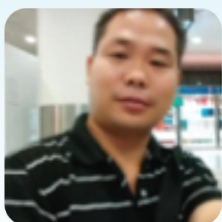
Day lighting in the production area



Almost sewing machines were upgraded to servo motors




Install working lights on sewing machines



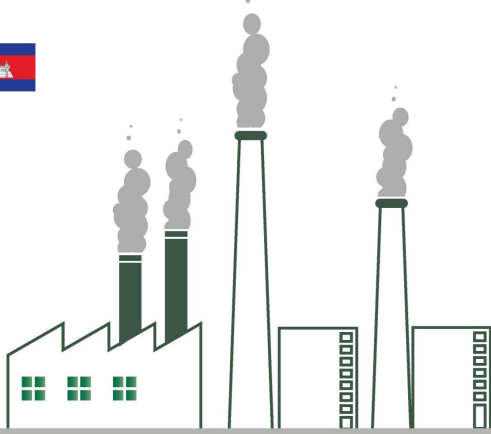
TESTIMONIALS AND CONTACT DETAILS

Jack Chang, Project Coordinator

SAVE project is a cost effective and good project that brings opportunities to the company to improve the performance in resources and energy consumption. The project implementation helps Kaoway to reduce operating cost which leads to more profit margin. It is also part of social responsibilities as the project contributes to reducing of waste and greenhouse gas. Working with SAVE for these years, we received many good technical advices and consultancy. We thank you very much!

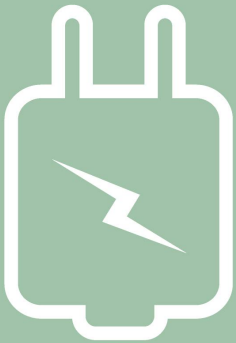
 (+855)44 715 068

 Jack.chang@diamondgroup.com.tw



SHENZHOU

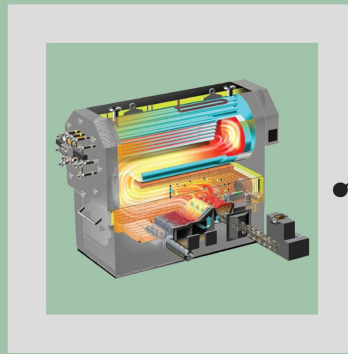
REPLACING WOOD BOILER WITH NEW BIOMASS BOILER



INVESTMENT: 100,000 US\$
(building construction)

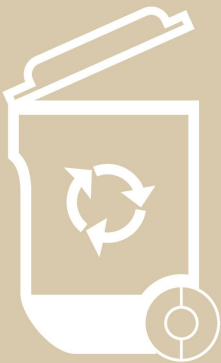
ANNUAL SAVING:
2%
31,000 US\$

CO2 Emission Reduction:
Estimate 766 tons/year



Resource Saving:
Ironing more
310,000
pieces

REPLACING POLYBAGS WITH FABRIC BAGS



Investment: 2,400 (Fabric & Labor cost)

ANNUAL SAVING:
1,200 KG
3,000 US\$



Using fabric bags

Using fabric bags to store fabric cut-panels in Cutting, Printing & Sewing Sections

SHENZHOU (CAMBODIA) CO., LTD

BUILDING E & F, VATTANAC INDUSTRIAL PARK, SANGKAT STEUNG MEAN CHEY,
KHAN MEAN CHEY, PHNOM PENH, CAMBODIA



ABOUT THE COMPANY

Shenzhou (Cambodia) Co., Limited ("Shenzhou Cambodia"), a Cambodian subsidiary of Shenzhou International Group Holdings Limited. Shenzhou Cambodia commenced production in September 2005. At present it has now over 2,000 employees capable of producing 700,000 pieces of garments per month. The Company serves mainly North American customers. Apart from Puma, other key customers of Shenzhou are ADIDAS, NIKE, and among others.



Before - Steam Generator using firewood



After - Biomass Operation
- Cost reduction by using more efficient boiler
- Reducing CO2 emission

Fabric bags



TESTIMONIALS AND CONTACT DETAILS



Name: **Carlsbin Ng**
Position: Leader of SAVE Project
Manager – Compliance & Environment

📞 060 333 877

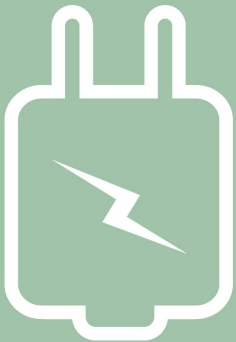
✉️ carlsbinng@shenzhougroup.com



DONGGUAN GOLDEN PRENE
SPORTING GOODS LTD.



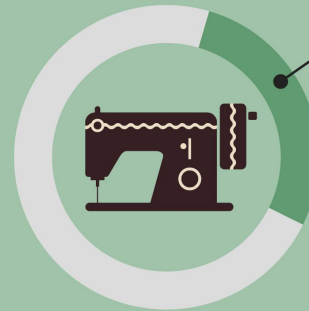
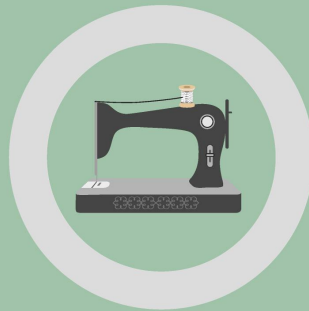
SERVO MOTOR UPGRADED ON SEWING MACHINES



INVESTMENT: 236,930 US\$
CO2 Emissions Reduction: 371.3 tons

ANNUAL SAVING:
77% ~ 580,180 kWh
82,477 US\$

Payback time: 2.9 Years



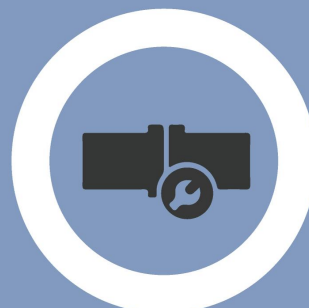
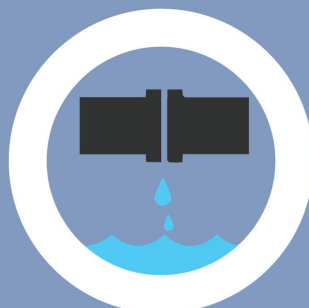
2,100 servo
motors upgraded

REPAIRING WATER PIPE LEAKS



INVESTMENT: 11,057 US\$

ANNUAL SAVING:
13% ~ 80,300Tons
36,796 US\$



DONGGUAN GOLDEN PRENE SPORTING GOODS LTD.

HUA NAN INDUSTRIAL ZONE, NO.36 JIN-FU ROAD, LIAO BU, DONG GUAN, GUANG DONG, CHINA



ABOUT THE COMPANY

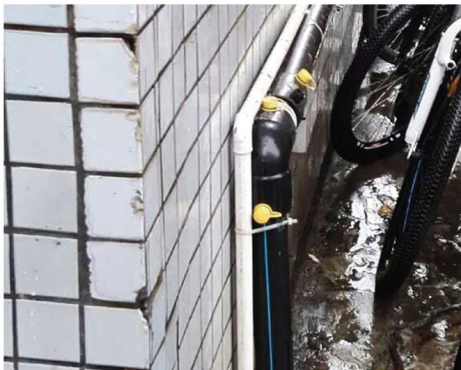
Dongguan Golden Prene Sporting Goods Co., Ltd., was established in 1995. The company has a total investment of nearly 70 millions Yuan. The total area of the factory is 36,333 Square meters, which contains collection, product development, and design and production areas. It is one of various Taiwan-funded luggage manufacturing enterprises and specializes mainly in the production of well-known international sports branded backpacks, travel bags, trolley cases, golf bags, etc.



Servo Motor Upgrade on Sewing Machines

The factory selected two similar production lines to undertake real-time power consumption testing. Following one month of tests, the traditional-motor sewing machine was observed to consume electricity, per unit time, at a rate of 0.117 kWh. The servomotor sewing machines were observed to consume electricity, per unit time, at a rate of 0.026kWh. Employing the servo motors in all of our sewing machines would therefore result in a reduction in our energy use of 77%.

In light of the test results, between January-December 2014, we upgraded 2,100 sewing machines with servo motors. According to the previous test results and taking the average load of a sewing machine to be 11 hours per day, 276 days per year, we estimate a total annual energy saving of $(0.117-0.026) \text{ kWh} \times 2100 \text{ units} \times 11 \text{ hours} \times 276 \text{ days} = 580,000 \text{ kWh}$ per year.




Repairing Water Pipe Leaks

The factory implemented three measures to determine whether there were any water pipes that leaked. A contrast between the amount of water collected in the factory and the amount of water the meter said was being used highlighted that underground leaks were present. Professional leak-detection equipment was then used which led to the faulty pipes being detected and replaced. This measure has led to an estimated 220 tons of water being saved per day, which equals 80,300 tons of water per year.



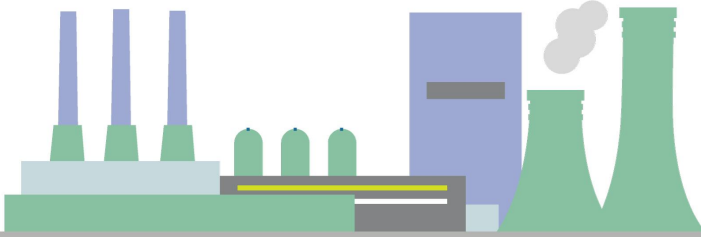
TESTIMONIALS AND CONTACT DETAILS

-  Hua Nan Industrial Zone, No.36 Jin-fu Road, Liao Bu, Dong Guan, Guang Dong, China
-  0769-83283992-329
-  gpm@goldenprene.com.cn



KEY 科一

KEY (FUJIAN)
MICROFIBRE CO., LTD.



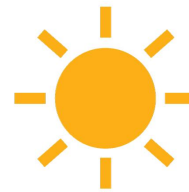
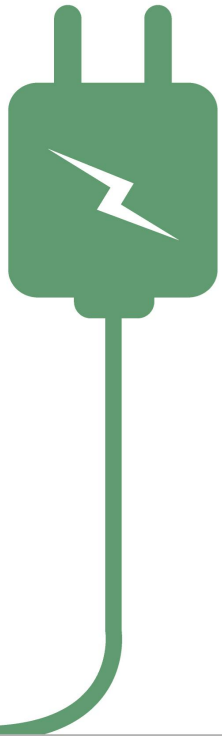
PHOTOVOLTAIC POWER GENERATION SYSTEM

INVESTMENT: 10,000,000 US\$

ANNUAL SAVING:

2.53% ~ 1,250,000 kWh

1,537,500 US\$



BARREL-WASHING AREA AND WATER REUSE PROCESS

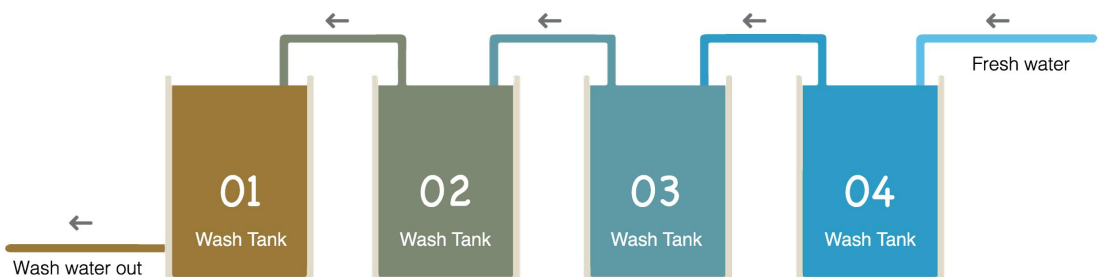
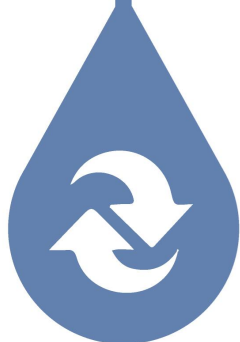
INVESTMENT: 60,000 US\$

ANNUAL SAVING:

2.94% ~ 7,500 Tons

21,375 US\$

Payback Time: 2.807 Years



Washing process

KEY (FUJIAN) MICROFIBRE CO., LTD.

NANSHAN ROAD, TAIWANESE INVESTMENT ZONE, QUANZHOU, FUJIAN, CHINA



ABOUT THE COMPANY

KEY (Fujian) Microfibre CO., Ltd. is located in the Huinan industry zone, Quanzhou, Fujian. The company has introduced the most advanced production technologies and equipment, including eight wet lines and five dry lines. We also have other specialist departments, such as: Treatment, Trial Center, Development Center, Test Center, etc. The company has also built and bought recycling equipment for wastewater and gas recycling. The company is large and considered to be a major contributor to the production, sale and after-sale services of synthetic leather.



Photovoltaic Power Generation System



Improving Barrel-Washing Area and Water Reuse Process



TESTIMONIALS AND CONTACT DETAILS

Name: **Shuang Chen**

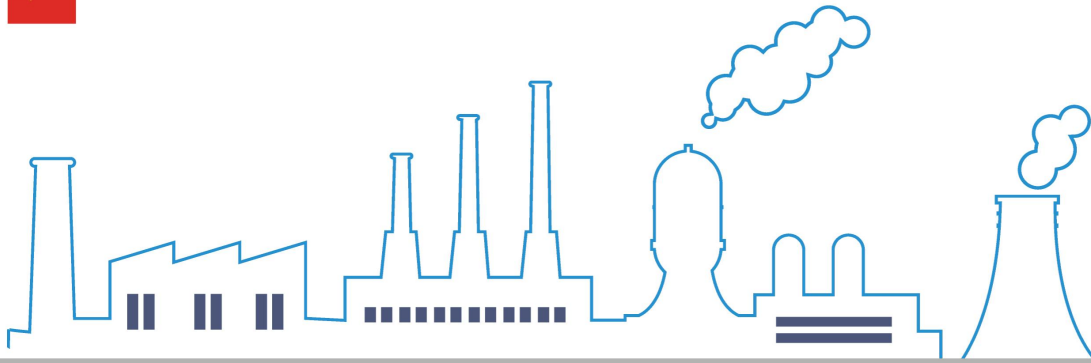
Position: Lead Inspector General

📞 13959752626 (0595-27308802)

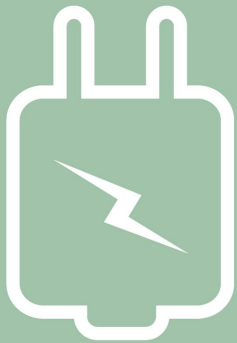
✉️ shuang.chen@huachanggroup.net



NINGBO SHENZHOU
KNITTING CO., LTD.



HIGH TEMPERATURE DRAINING AND HEAT RECOVERY SYSTEM

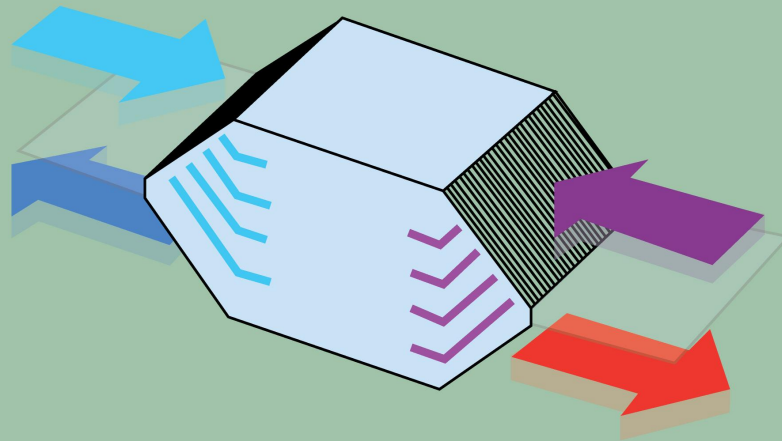


INVESTMENT: 313,600 US\$

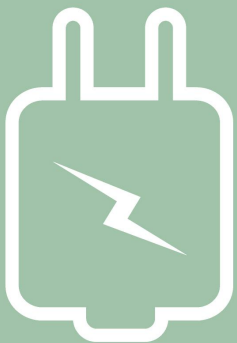
ANNUAL SAVING:

190-200 steam/day

548,800 US\$ - 627,200 US\$



LED LAMP IMPROVEMENT

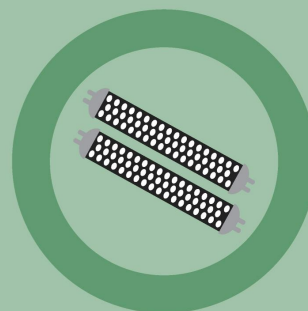
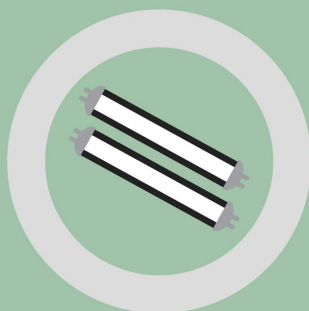


INVESTMENT: 9,492 US\$

ANNUAL SAVING:

62.5% ~ 49,500 kWh /year

6,227 US\$



NINGBO SHENZHOU KNITTING CO., LTD.

NO. 18 YONGJIANG ROAD, NINGBO, ZHEJIANG, CHINA



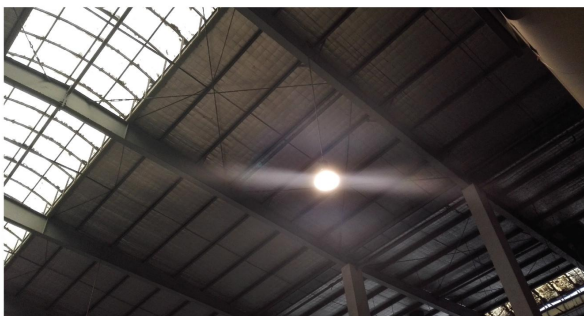
ABOUT THE COMPANY

Ningbo ShenZhou Knitting Co., Ltd. represents the largest vertically-integrated knitwear manufacturer in China. The Group is principally engaged in the manufacture of high-end knitwear on an OEM basis. There are now over 50000 employees working in the factory. The average yield is about 265 tons per day.

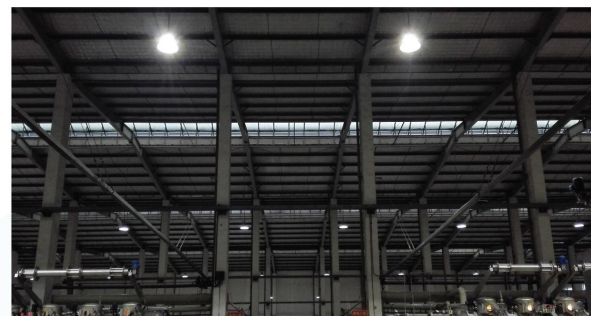
High Temperature Draining and Heat Recovery System



LED Lamp Improvement



Before: The electric consumption of Mercury lamp is 0.4 kWh per hour



After: The electric consumption of LED Lamp is 0.15 kWh per hour.



TESTIMONIALS AND CONTACT DETAILS

Name: **Bruce Jin**

Position: SAVE Project Manager

As the manager of SAVE, I am responsible for organizing, designing, coordinating, constructing, managing and implementing the various energy-saving opportunities available via the SAVE project. I am also responsible for planning various research activities relating to new energy-saving technologies.

📍 No.18 Yongjiang Road, Ningbo, Zhejiang, China

☎ +86 574 86982614, 86982170

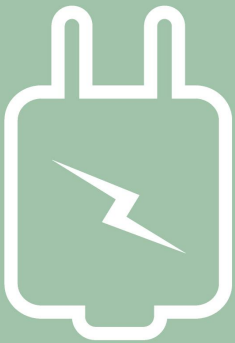
✉ jinzhilong@shenzhougroup.com



FORMOSA TAFFETA
(ZHONGSHAN) CO., LTD.



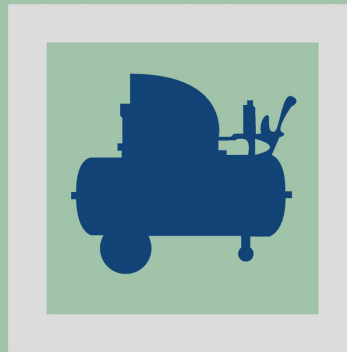
COMPRESSED AIR LEAK DETECTION AND REPAIR



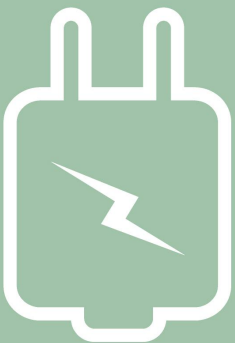
INVESTMENT: 557 US\$
CO2 Emissions Reduction: 939,110 Kg

ANNUAL SAVING:
4.7%~ 141,228 kWh
15,958 US\$

Payback timeP: 0.4 Months

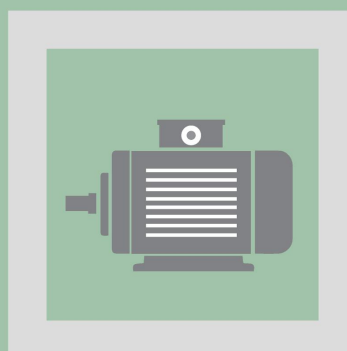


UPGRADING OLD MACHINE TO ENERGY-EFFICIENT MODEL



INVESTMENT: 68,800 US\$
CO2 Emissions Reduction: 51,968 Kg

ANNUAL SAVING:
2% ~ 80,000 kWh
8,750 US\$



FORMOSA TAFFETA (ZHONGSHAN) CO., LTD.

167 SOUTH SHENWAN AVENUE, SHENWAN TOWN, ZHONGSHAN CITY,
GUANGDONG PROVINCE, CHINA



ABOUT THE COMPANY

Formosa Taffeta (Zhong Shan) Co., Ltd. was established in December 1992 and is invested by Formosa Taffeta Co., Ltd., a subsidiary of the Formosa Plastic Group, in Shen Xi Village, Shen Wan Town, Zhong Shan City, Guang Dong Province, China.

FTC (Zhong Shan) is a major producer of both poly/nylon-woven fabrics and umbrellas/parasols. Our output of woven fabrics is twelve million yards per month and our capacity for rib production (for umbrellas/parasols) is eighteen million tons per month. With high quality sourcing and a precise operation process, FTC (Zhong Shan) places quality assurance to their partners and customers at the forefront of our business model.

The management has adopted a philosophy of harmony, creativity, service and contribution and provides quality products to down-stream processing industries. This work ethos has led to FTC (Zhong Shan) becoming a vital link in the middle-stream textile industry.

FTC (Zhong Shan) is continually growing because of its creative ability and will become a diversified, specialized and global manufacturer, servicer, supplier and investor.

There are currently 756 people employed by FTC (Zhong Shan), each working eight hours per day for five days each week. The total workspace area of the factory is 119000 square meters.

Compressed Air Leak Detection and Repair



Upgrading Old Machine to Energy-Efficient Model



TESTIMONIALS AND CONTACT DETAILS

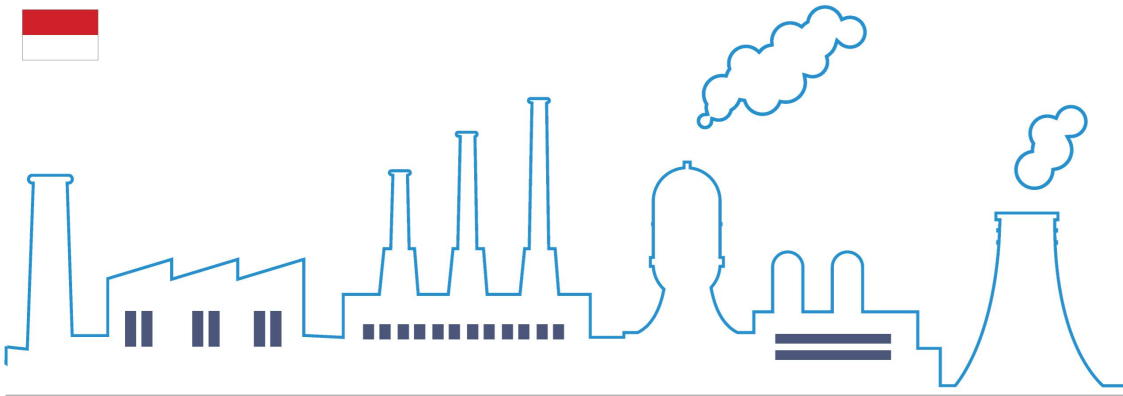
Name: **YaoHui Xie**
Position: High Commissioner

With the help and support of the experts from Puma and SAVE, the energy-saving program has been achieved with great success. FTC (Zhong Shan) will remain committed to the concept of sustainable development, carrying on by improving our energy conservation and emission reduction profile.

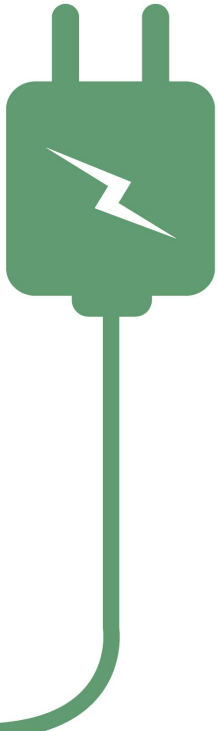
📍 167, South Shenwan Avenue, Shenwan Town, Zhongshan City, Guangdong Province, China

☎ 0760-86608061 ext.2302

✉ c8002@ftc.com.tw



T8 LAMP REPLACEMENT

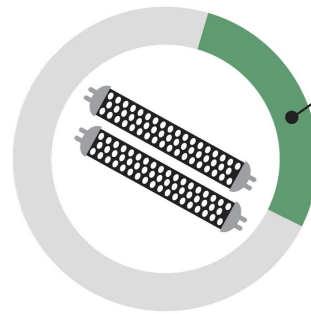
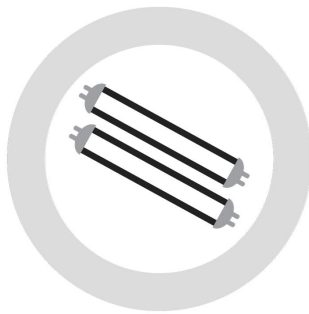


INVESTMENT: 4,665 US\$

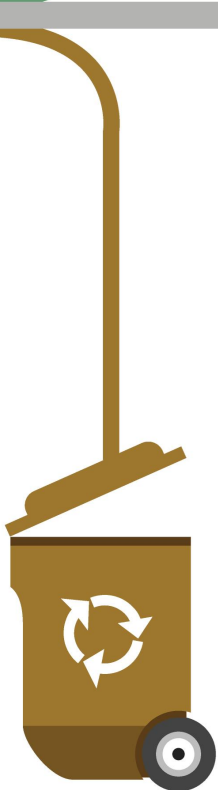
ANNUAL SAVING:

0,71% ~ 11,380 kWh
1,024 US\$

Payback time: 4.5 years



IMPLEMENT CUT-TO-BOX IN PRODUCTION LINE



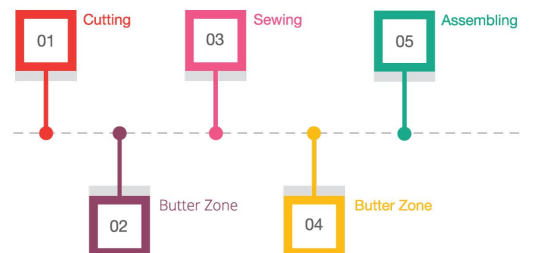
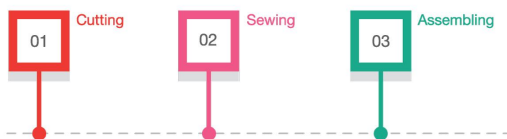
INVESTMENT: 31,076 US\$

CO2 Emission Reduction: 52.4 Tons

ANNUAL SAVING:

4,79% ~ 76,466 kWh
6,882 US\$

Payback time: 4.5 years



PT. HORN MING INDONESIA

JL. RAYA SERANG KM 18,8 CIKUPA-TANGERANG BANTEN 15710

ABOUT THE COMPANY

PT. Horn Ming Indonesia is a Taiwan-invested footwear manufacture established in 1988 that offers low-end, midrange and high-end casual, sports and dress shoes. It is located in Banten-Indonesia, about one and a half hour from the capital city Jakarta. We produce Puma shoes with the capacity of 220.000 – 250.000 pairs per month and have been exporting all output to Europe, the US and other countries in Asia. European market accounts for a bigger share at 50%.

The total number of current full-time equivalent employee is 1913, working on an area of 25,179 square meters. The factory runs for 8 hours (10 hours if overtime required) per day, 5 days per week.



LED lamp in production area



Before - Conventional cutting machine



After - Servo motor cutting machine

Case Study: Cut-To-Box

Cut-to-Box rearrangement of production line is an initiative by the factory. Currently the line has been rearranged into a lean system or the PACE system which is more efficient and integrated. The conduction of PACE line system is based on one of the benchmarks of the history of automobiles and industrial production: Toyota production system. PACE line is shorter than the conventional line; taking into account the following factors:

- Overproduction: reconsideration of number of products produced
- Waiting: buffering time between a pair of stations
- Inventory: the supply level of work-in-progress materials might be too high
- Transportation: the efficiency of transporting materials
- Over-processing: the number of times spent on working on one product
- Motion: the movement efficiency of people and equipment
- Defects: the number of times spent on fixing a product
- Workforce: the efficiency of organizing workers


Instead of working stations scattering in different sections of the factory, they have been rearranged so that production line is not interrupted.



TESTIMONIALS AND CONTACT DETAILS

The collaboration with SAVE project was excellent, especially the initiatives of environment-friendly solutions, energy saving and expanding insights. We are aware that absolute perfection was not achieved, but we believe the SAVE team will lead the project to success in the future as they provide guidance, counseling and solutions to the environmental issues, energy saving and evaluation.

 Jl. Raya Serang KM 18,8 Cikupa-Tangerang Banten 15710

 6221-59400865

 durochim@diamondgroup.com.tw