

TOWARDS A **SUSTAINABLE** WORLD IN A **CIRCULAR** WAY

Environmental Performance Report 2023





OUR
SUSTAINABILITY
PHILOSOPHY

“

Al-Karam's sustainability framework is primarily based on PEOPLE, PLANET & PROSPERITY. We are passionately acting on these principles since our foundation.

”

**SERVICES - SYSTEM DEVELOPMENT - COMPLIANCE -
ENVIRONMENTAL PERFORMANCE REPORT**

Frequency: Annually

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Issue: 01	Mar. 13, 2019

Ref. Std.: AKT/PR/064

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For The Year: 2023

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KEY NOTE

Sustainable Development at Al-Karam Textile Mills (Pvt.) Ltd.

Al-Karam Textile Mills (Pvt.) Ltd. has integrated UN SDGs (Sustainable Development Goals) into its business practices since 2017. From free health services for employees to free education for the underprivileged, efficiencies in our processes to investment in clean energy, all of our actions are supporting 17 SDGs. This report is based on our completed projects in calendar year 2023 which are linked with the environment-related SDGs.



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HIGHLIGHTS 2023

 **4,433 MWh** of electricity has been saved

0.46 Million m³ of natural gas has been saved 

 Saved energy amount is equal to the annual consumption of **2,139+ Homes**

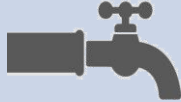

Consumption of packaging material is reduced by **36,576 Kgs**

By using reusable fabric bags instead of disposable plastic packaging of our finished fabric rolls

 **3,215 Tons** of CO₂e emissions has been reduced from our Scope 1 & 2

The amount of saved carbon dioxide emissions is equivalent to the plantation of **147,457** trees



3.5 Million  Gallons of water has been saved 

Total solid waste volume is reduced by **1,745,170 Kgs**

21,103 Kgs of chemicals has been saved

By optimizing Yarn Dyeing and Sizing Processes



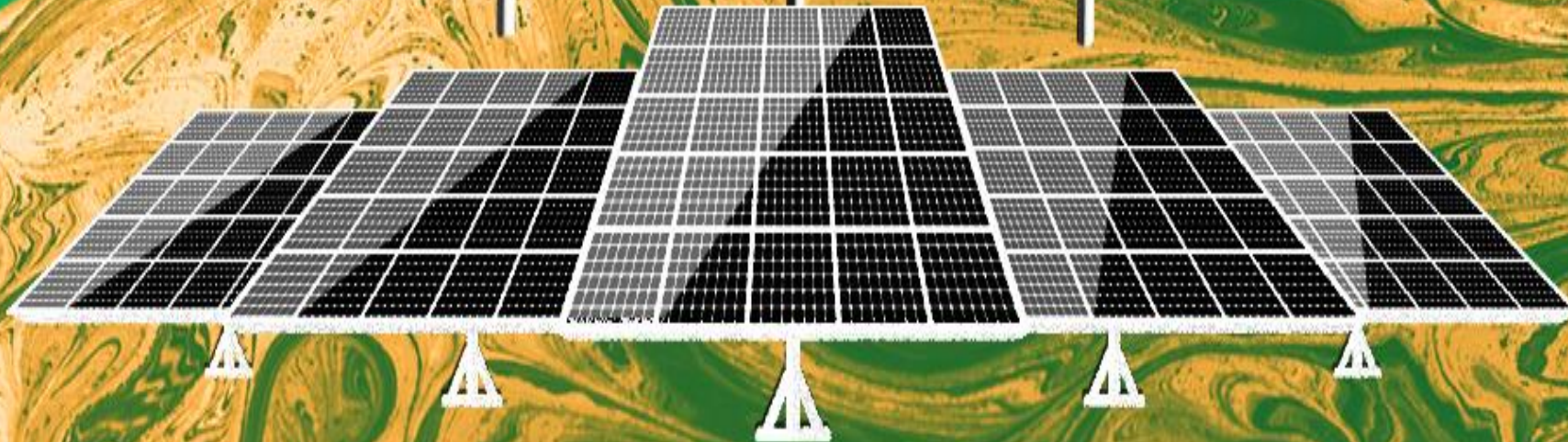
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ENERGY

EFFICIENCY



For The Year: 2023

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Upscaling of Existing Solar Power Plant

To reduce our GHG footprint and show our commitment towards sustainability the capacity of our onsite Solar PV plant increased to 5.2 MWh. The initiative will not only help to reduce our GHG emissions but also help us save the depleting natural gas resources.



Completion Date: October-2023

Upscaling of Existing Solar Power Plant

Yearly savings			Payback
Unit (kWh of electricity)	Kgs of GHG Saved	Saving (USD)	Months / years
3,962,750	2,093,759	89,540	12 Years

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Frequency: Annually

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Installation of VFDs on Blower Motors

A variable frequency drive (VFD) is a type of motor controller that drives an electric motor by varying the frequency and voltage of its power supply. Two VFDs are installed on blower motors to save the significant amount of electricity in the utility department.



02 VFD on Boiler Blower Motors

Completion Date: August-2023

Yearly savings		Payback
Unit (kWh of electricity)	Saving in terms of annual cost (USD)	Years
57,540	1,786	<1

For The Year: 2023

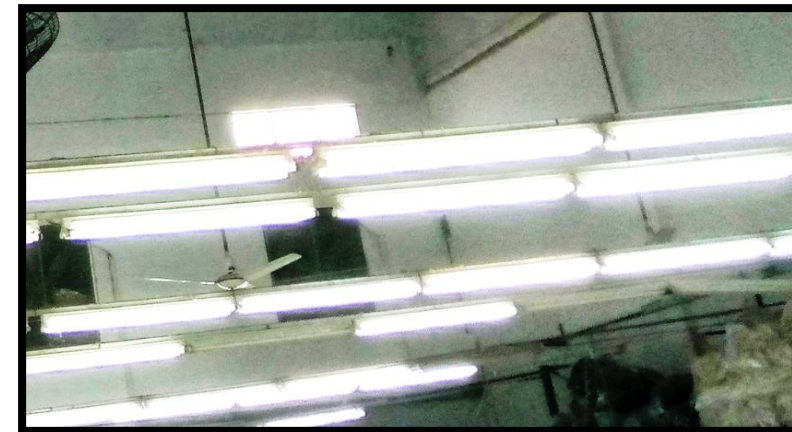
Frequency: Annually

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Replacement of 250 conventional tube lights with 24 LED Focus light

LEDs offer simplicity and noticeable energy savings as compared to conventional lights. They are simpler and less hazardous than mercury containing lights. 250 conventional tube lights are replaced with 24 LED focus lights in our Stitching Department.

Completion Date: September-2023



Conventional Lights



LED Focus Lights

Yearly savings		Payback
Unit (Kwh of electricity)	Saving (USD)	Years
2,520	95	1.5

For The Year: 2023

Frequency: Annually

Ref. Std.: AKT/PR/064

Replacement of 45 conventional lights (60W) with 45 LED (42W) in AQA department

LEDs offer simplicity and noticeable energy savings as compared to conventional lights. They are simpler and less hazardous than mercury containing lights. 45 conventional lights of 60W are replaced with 45 LEDs of 42W in our AQA Department.

Completion Date: September 2023

Yearly Savings		Payback
Unit (kWh per year)	Saving in terms of annual cost (USD)	Months / years
2,328	65	4 Years



Conventional Tube Lights of (60W)



**Installed LED (42W) Lights in
AQA Department**

For The Year: 2023

Frequency: Annually

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Replacement of 600 conventional (36W) tube lights with 600 LED (10.5W) in our tower 01 stitching department

LEDs offer simplicity and noticeable energy savings as compared to conventional lights. They are simpler and less hazardous than mercury containing lights. 600 conventional lights of 36W are replaced with 600 LEDs of 10.5 W in our Stitching Department.

Completion Date: August-2023



LED Lights

Yearly savings		Payback
Unit (kWh per year)	Saving in terms of annual cost (USD)	Year
44,064	878	4

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Eliminate (Stop) the usage of Transformer (Weaving) by Optimization of Electrical Load

There are some electricity losses associated with the transformers, such as core losses (hysteresis and eddy current losses) and copper losses (resistive losses in the windings), which result in a small amount of energy being dissipated as heat. This energy loss occurs regardless of whether the transformer is actively transferring power or not. To avoid these losses, the load is optimized, and the use of the transformer is discontinued.

Completion Date: March 2023



Yearly savings		Payback
kWh of electricity per year	USD	Months / years
12,600	535	Immediate

For The Year: 2023

Frequency: Annually

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Replacement of fuel based loading vehicle with EV

In our mission to achieve Net-Zero GHG emissions, we are addressing every aspect that could reduce fuel consumption and subsequent GHG emissions. After introduction of electric fork lifters we have introduced electric vehicle in our in-house loading and unloading operations. The success of this initiative would pave the way for the incorporation of other similar vehicles into our mill operations.

Completion Date: March-2023



EV Vehicle

Yearly savings		Payback
Savings of petrol litre/year	(USD)	years
276	364	8.5

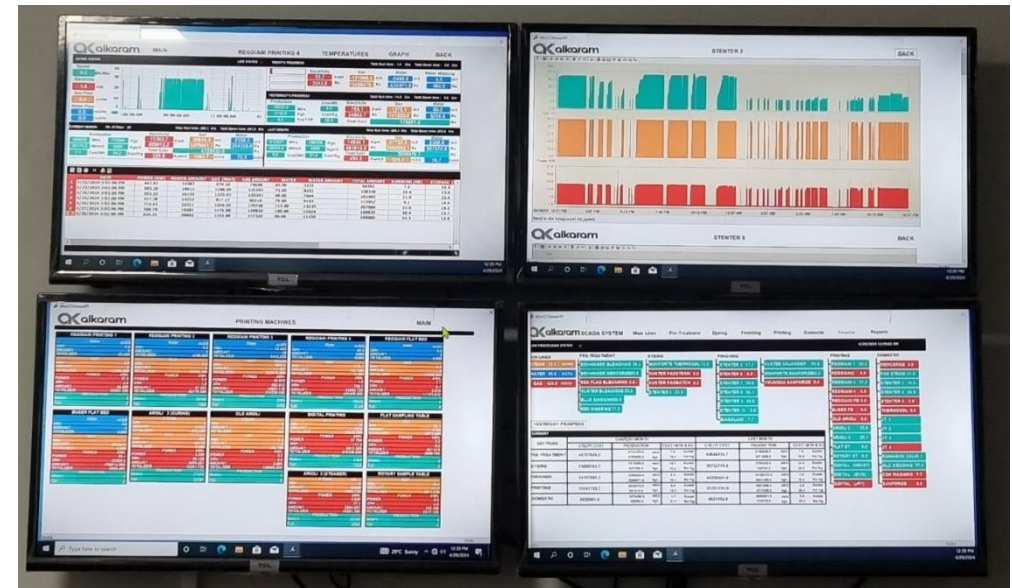
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SCADA system Implement in processing in result gradually saving on gas steam and power

SCADA system provides numerous benefits for resource savings across various industries. By tracking energy usage in real-time, SCADA identifies inefficiencies and optimizes consumption patterns, reducing waste. Additionally, operators can remotely monitor and control processes, cutting down on onsite personnel and travel expenses. This initiative will have significant impact in resource conservation and reducing the environmental footprint of our processing operations.



Completion Date: December 2023

Yearly savings					Payback
kWh of electricity per year	Gas Savings m3/year	Steam Savings tons/year	Water Saving m3/year	(USD)	years
139,620	118,212	2,904	20,004	48,561	2

For The Year: 2023

Frequency: Annually

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Day Light Saving Sensor Installed On Floor Lights

Daylight sensors detect ambient light levels using a photodetector. When light decreases below a set threshold at night, they activate lights or devices. Conversely, in bright conditions, they deactivate lights. This automation enhances energy efficiency by avoiding human error and offer convenience in lighting systems.

Completion Date: December-2023

Yearly savings		Payback
Unit (kWh of electricity)	Saving in terms of annual cost (USD)	Years
7,800	1,786	1



Conventional Lights



Installed Day Light Saving Sensors

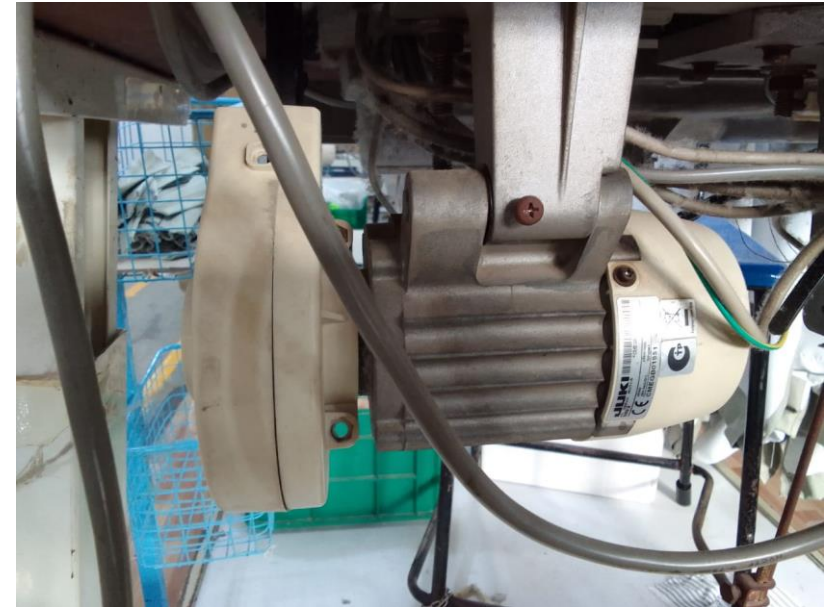
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Replacement of 30 conventional clutch motors with servo motors

Servo motors offer precise control over motion, allowing for accurate positioning and smooth operation compared to clutch motors, which engage and disengage abruptly. Servo systems are adjustable, energy-efficient, and require less maintenance, making them preferred for applications requiring precise motion control and dynamic responsiveness. 30 clutch motors are replaced with servo motors to save electricity.



Completion Date: September 2023

Yearly savings		Payback
Savings of Electricity kWh per year	(USD)	Years
7,200	487	4

For The Year: 2023

Frequency: Annually

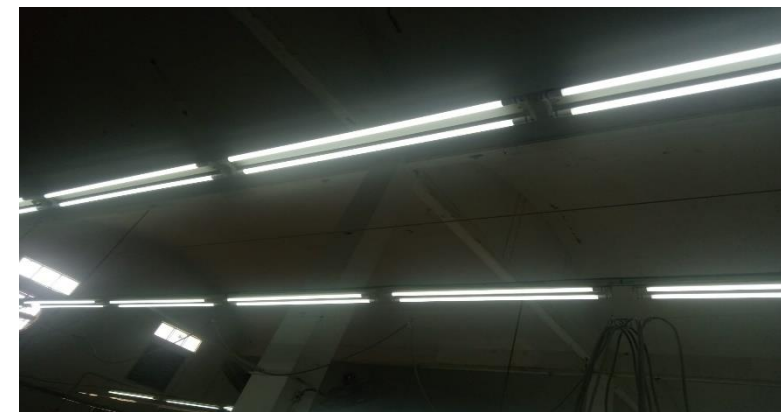
Ref. Std.: AKT/PR/064

Replacement of 200 LED (10.5W) in tower 03 stitching department with 200 conventional (36W) tube lights

LEDs offer simplicity and noticeable energy savings as compared to conventional lights. They are simpler and less hazardous than mercury containing lights. 200 conventional tubelights are replaced with 200 LED lights in our Stitching Department.

Completion Date: August 2023

Yearly savings		Payback
Savings of Electricity kWh per year	(USD)	Years
7,596	288	4



For The Year: 2023

Frequency: Annually

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Restructuring and adjustment of compressor auxiliaries to shutoff pumps and cooling tower in order to save energy

In our utility department, we've implemented a restructuring and adjustment of compressor auxiliaries. This involves shutting off pumps and cooling towers to save energy. By strategically managing these auxiliary systems, we're able to optimize our energy usage and reduce unnecessary consumption. This initiative not only contributes to cost savings but also aligns with our sustainability goals by minimizing our environmental footprint.



Completion Date: November 2023

Yearly savings		Payback
Savings of Electricity kWh per year	(USD)	Years
259,200	351	<1

For The Year: 2023

Frequency: Annually

Ref. Std.: AKT/PR/064

Install A Mini Hydro Turbine In Existing Water Channel To Generate Clean Energy

Al-Karam is committed to left no stone unturned in its energy conservation drive and installed a pilot hydro turbine which generated electricity using kinetic energy of water.

Completion Date: April-2023



Hydro Turbine

Yearly savings	Investment	Payback
Gas Savings (m3/year)	USD	Years
7,248	00.00	Immediate

WATER & CHEMICAL CONSERVATION



For The Year: 2023

Frequency: Annually

Ref. Std.: AKT/PR/064

Installation of RO Plant for All the boilers, Estimated reduction occur 1 % in Gas Consumption

Reverse osmosis plant is installed to feed low mineral water to boilers, it would reduce mineral buildup and reduce gas consumption of roughly around 1%.

Completion: April-2023



Yearly savings			Payback
Gas (m3/year)	Water (m3/year)	USD	Months / years
217,728	4,572	22,560	10.82 years

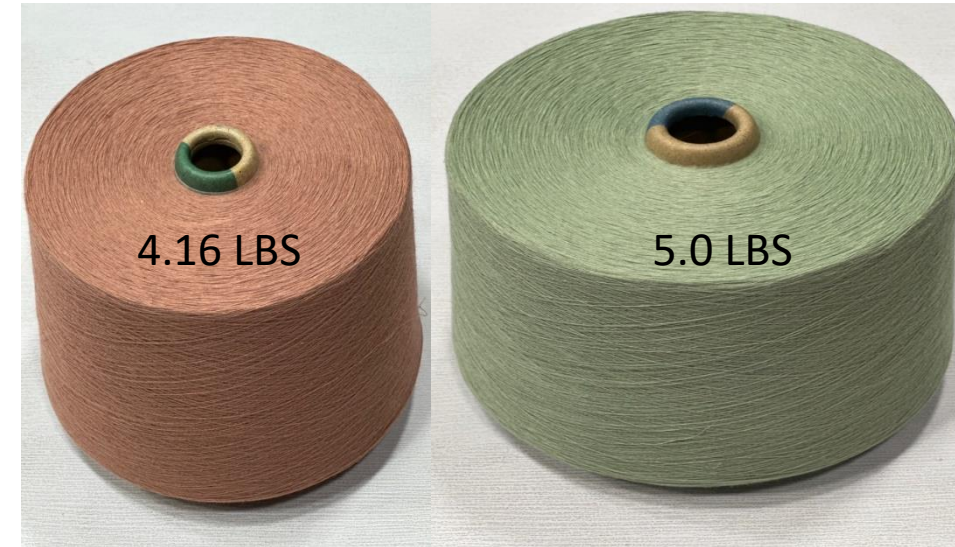
For The Year: 2023

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Reducing Resource Consumption in Yarn Dyeing Processes

We've successfully reduced yarn dyeing costs by 20% through a simple yet effective strategy; increasing the yarn weight from 4.16 to 5 pounds in the same dyeing machines. By maximizing the capacity of our existing equipment, we've achieved significant cost savings without the need for additional investment. This optimization allows us to dye more yarn in each batch, leading to greater efficiency and productivity in our operations.



Completion Date: November 2023

Yearly savings					Payback
Dyes & Chemical Savings Kgs/year	kWh of electricity per year	Steam Savings tons/year	Water Saving m3/year	(USD)	years
251,844	2,088,768	3,947	67,092	280,702	1

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Eliminate Sizing for Coarse Count Yarn

Sizing material is used on yarns to make them withstand the stresses of weaving. However, in some of our coarse counts, we have optimized our process and eliminated the use of sizing material. This initiative helps us save a significant amount of chemicals, water, and energy.



Completion: December 2023

Yearly savings		Investment	Payback
kg of chemicals	USD	USD	Years
1,392	293	00.00	Immediate

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WASTE REDUCTION



For The Year: 2023

Frequency: Annually

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Installation Of Fabric Shredding Machine

To promote circularity Al-Karam Textile Mills (Pvt.) Ltd. installed large fabric recycling plant. This plant generates usable fiber which can directly be used in our production. It helps us save huge amount of water, chemical and other resources used in fiber production and processing. This initiative has diverted 1,738 tons of waste from the landfills.



Installation of Fabric Shredding Machine & Waste Recycling Plant

Completion Date: April-2023

Yearly savings		Payback
Unit (Tons of waste etc.)	USD	years
1,738	250,000	<1



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Frequency: Annually

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Installation of Automatic End Cutters

08 Automatic End Cutters are installed in our cutting department. This initiative will help us save 363 tons of waste in our cutting operations and helped us along with other initiatives to improve our environmental performance.



End Cutter In Fabric Cutting

Completion Date: May-2023

Yearly savings		Payback
Unit (Metric Tons of waste etc.)	USD	years
363	3,571	1

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Frequency: Annually

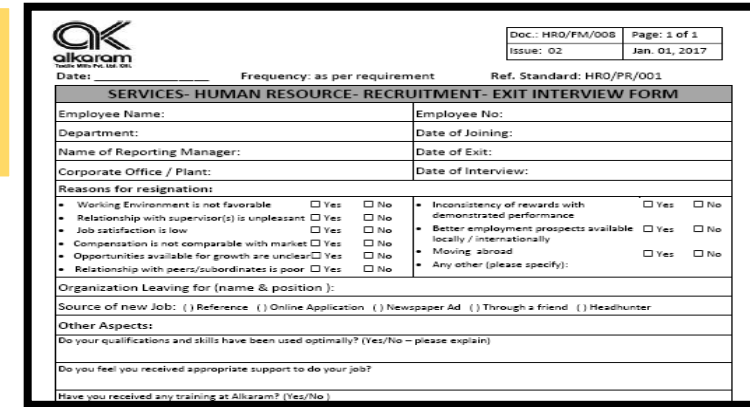
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Paperless Exit Interview Mechanism

In Human resource operations, Employee Requisition and Personnel-Communication Request Forms were being submitted to Human resource department manually on hard copy. With a vision of digitalization and paper less environment, organization has eliminated the paper working and developed these form on ERP.

Completion Date: Sep-2023

Yearly savings		Payback
Unit (Kgs)	USD	Years
24.5	00.00	Immediate



Old Practice for Exit Interview and Onboarding Evaluation



New Paperless Digital Practice

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Frequency: Annually

Ref. Std.: AKT/PR/064

Replace poly bag cover packing of Finished fabric roll with fabric cover from reused fabric

To reduce the consumption of packaging material and subsequent waste generation the polybag cover and replaced with reusable fabric cover which would reduce poly bag consumption.

Completion Date: December 2023

Yearly savings		Investment	Payback
Reduction in thread consumption	(USD)	(USD)	Years
36,576	3,065.54	0	1



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Use of chopper cutter system on safety machine to reduce thread consumption

Previously two to three inch thread piece is remain attached to fabric pieces now due to this chopper system the thread is automatically cut and only half an inch of thread is left with the stitched fabric piece. This initiative will reduce manual labor and help us save thread consumption.

Completion Date: December 2023

Yearly savings		Payback
Reduction in thread consumption (Kg)	(USD)	Years
2,016	3,314	1



ACKNOWLEDGMENT

FROM BRANDS &

GLOBAL BODIES



CERTIFICATE FROM TARGET.

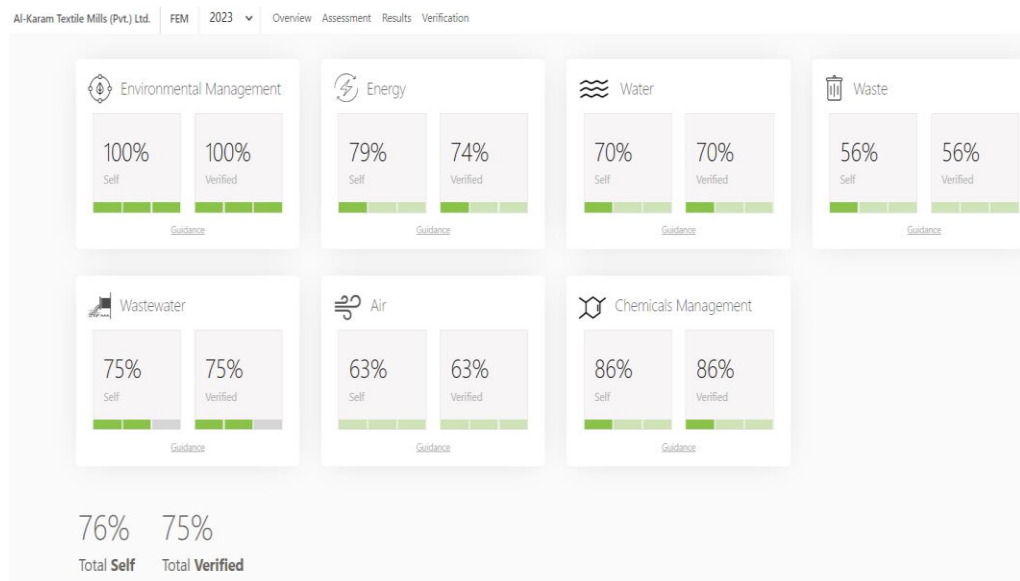
Clean by Design programs aim to decarbonize its supply chain.

Al-Karam successfully completed this program in March 2022 .



CERTIFICATE FROM WALMART.

- Project Gigaton is the Initiative of **WALMART.**
- The goal is to avoid one billion metric tons of CO2 emissions by 2030.
- Al-Karam has sustained **GIGA GURU** Status since 2020.



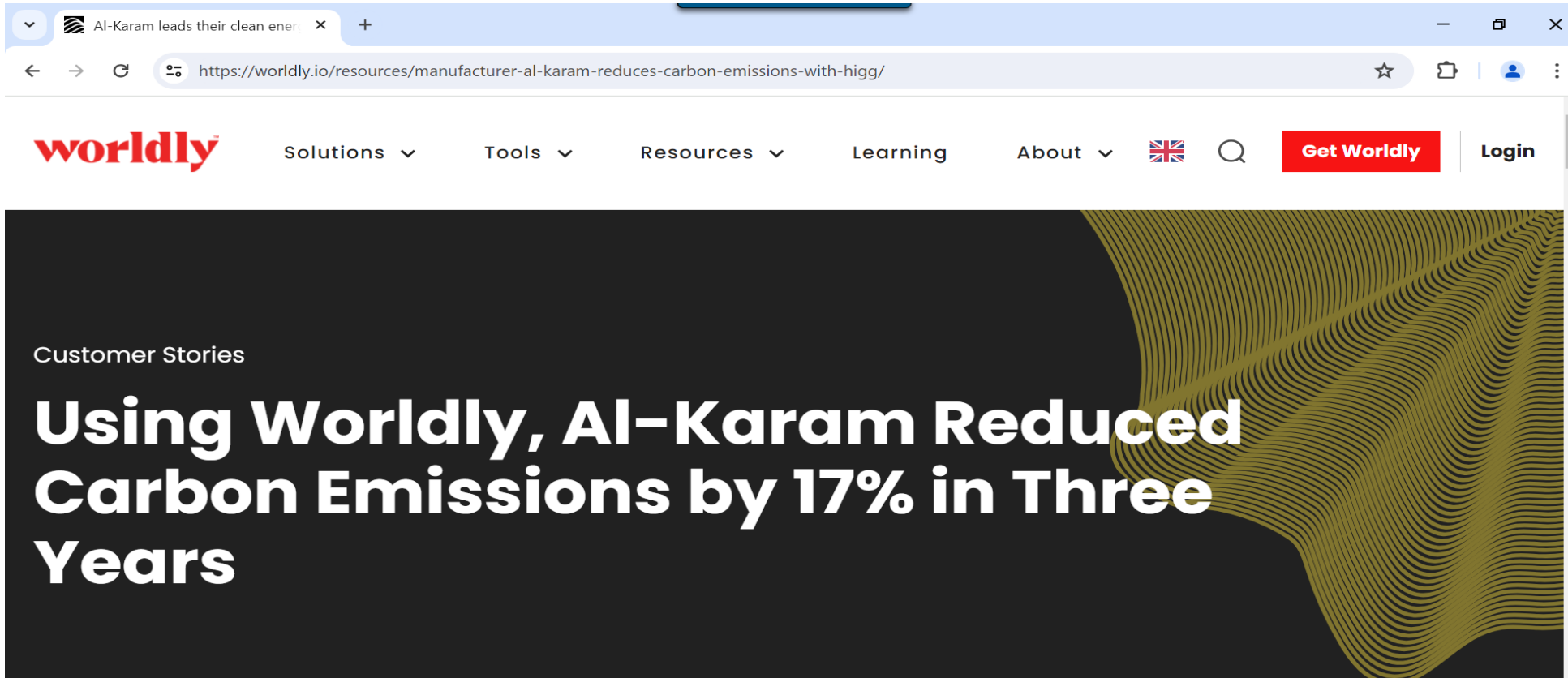
HIGG FACILITY ENVIRONMENT MODULE 4.0 REPORT

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INTERNATIONAL RECOGNITION - A PROUD MOMENT



Among 40,000+ HIGG user facilities globally, only 5 factories were selected based on their sustainable initiative by HIGG and their case study was published.

<p>6 CLEAN WATER AND SANITATION</p> 	<h2>AL-KARAM SUSTAINABILITY PHILOSOPHY</h2> <p><i>“Al-Karam’s sustainability framework is primarily based on PEOPLE, PLANET & PROSPERITY.</i></p> <p><i>We are strictly acting on these principles since our foundation.”</i></p>	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> 
<p>7 AFFORDABLE AND CLEAN ENERGY</p> 		<p>13 CLIMATE ACTION</p> 
<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 		<p>17 PARTNERSHIPS FOR THE GOALS</p> 