

# **ETHIOPIA 2050 – Challenges and Opportunities**

*(International Conference)*

## **The Journey to Circular Production: (Resource Efficiency Performance Assessment of Ethiopian Textile Processing Factories)**

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# Global Picture of the Textile Sector

- The clothing sector accounts for a combined global turnover of **1.13 trillion EUR** and employs more than **300 million people** throughout the entire value chain.
- In the last 15 years, clothing production is seen to have doubled and is estimated that the demand for textile fibers is expected to increase by **84% in the next 20 years**
- In the year 2017, **99 million tons** were produced globally, a **2.5 % growth** per year and is expected to reach **130 - 145 million** metric tons by 2025

# Overview of the Textile Sector in Ethiopia

- The textile industry is the number one priority sector by Ethiopia's industrial development policy due to:
  - *high amount of easily trainable abundant available **workforce** at very competitive costs*
  - *good climatic and soil conditions for **cotton development**.*
- **194** textile factories in operation as of 2018

<i>Ginning</i>	<i>Spinning</i>	<i>Weaving and knitting</i>	<i>Integrated</i>	<i>Garment</i>	<i>Cultural</i>
19	3	29	22	115	6

# Overview of the Textile Sector in Ethiopia

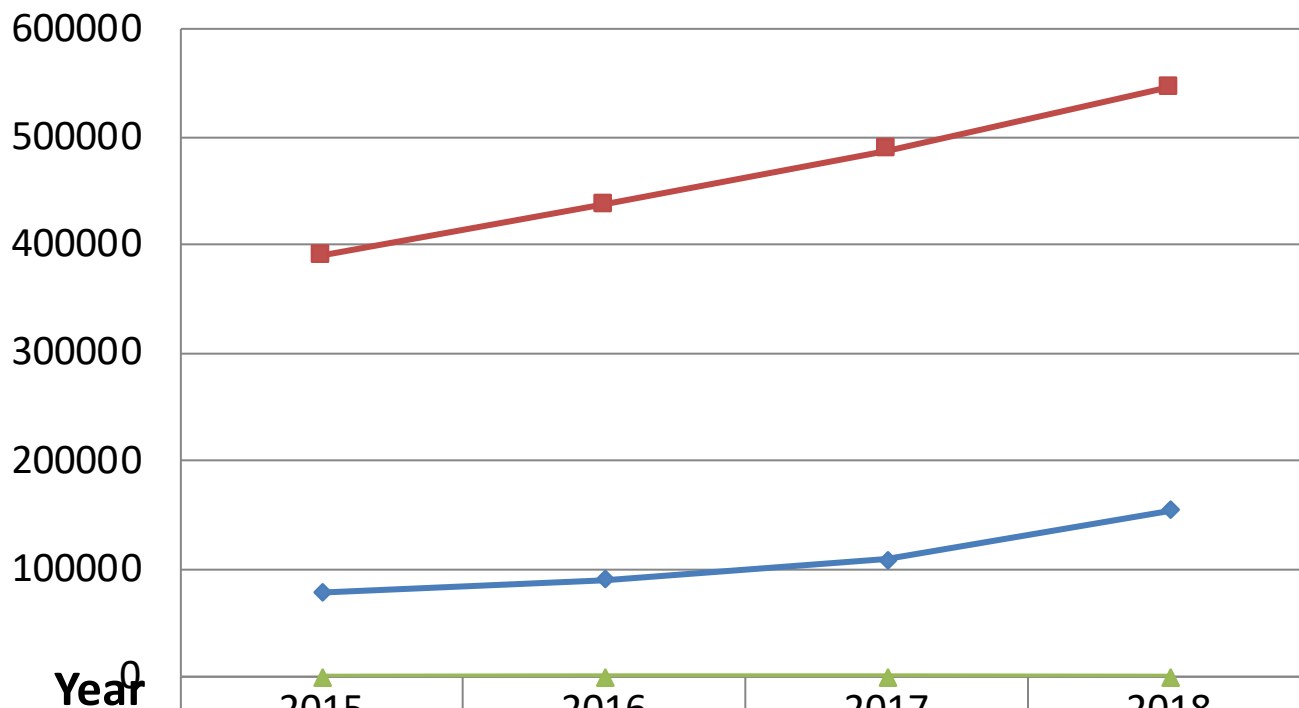
- In the second GTP period (2015/16 through 2019/20), the plan for the textile sector is
  - to manufacture **\$2.18 billion** USD worth of production,
  - earn **\$1 billion** USD in export revenue
  - create **174,000** job opportunities,
  - Attract **132** new projects with **45.1** billion investment capital



# Overview of the Textile Sector in Ethiopia



Earnings from Export

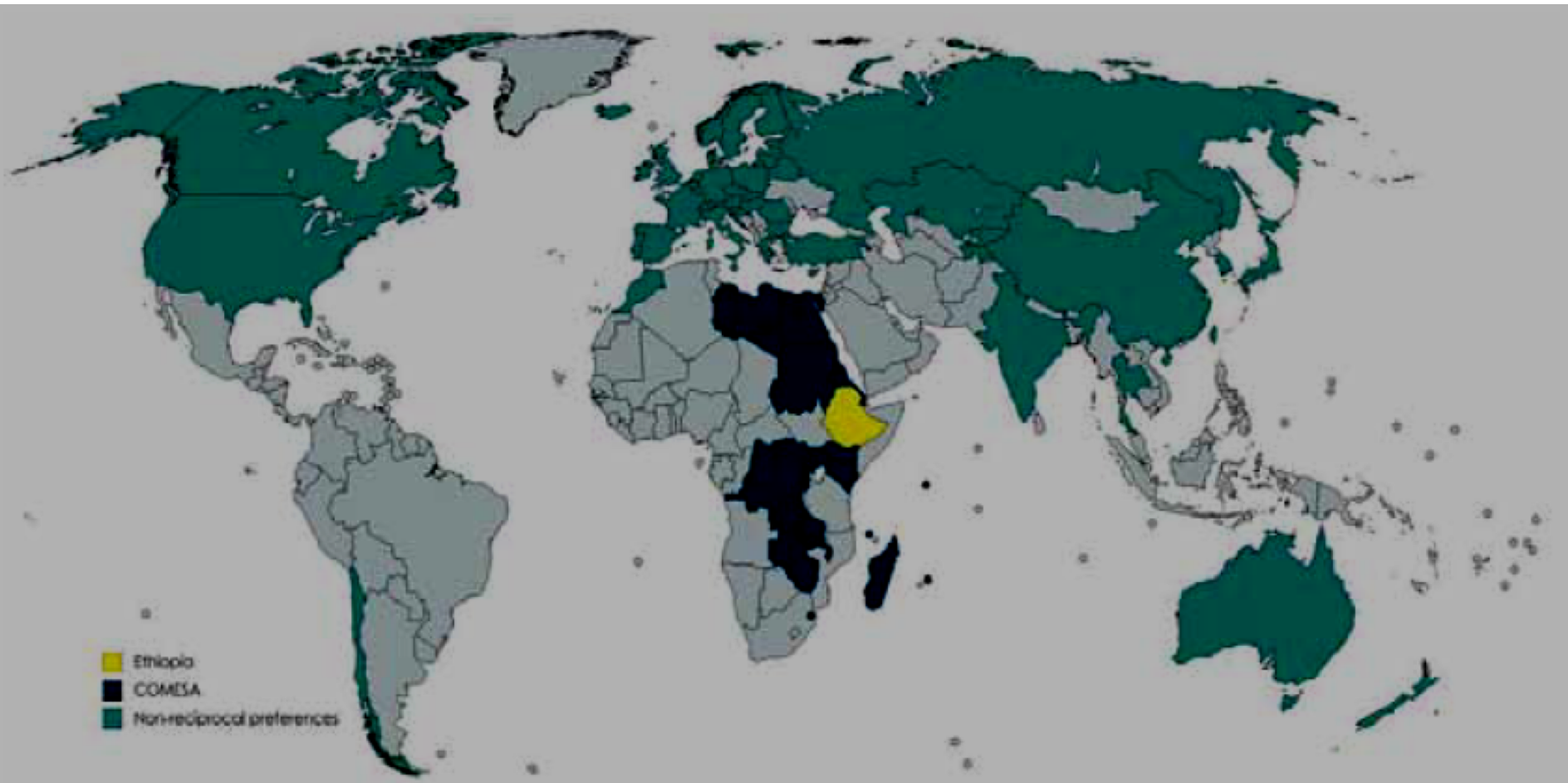


Year	2015	2016	2017	2018
Textile ('000 USD)	77971	89300	109028	153500
Manufacturing ('000 USD)	390242.8	436728	487541	546045.92
Share of textile sector from manufacturing	19.98	20.45	22.36	28.11

Plan: **\$1 billion** USD in export revenue

Achieved thus far: **430** USD (**43% performance**)

# Strategic Importance of Sustainability



Countries granting preferences to Ethiopian products

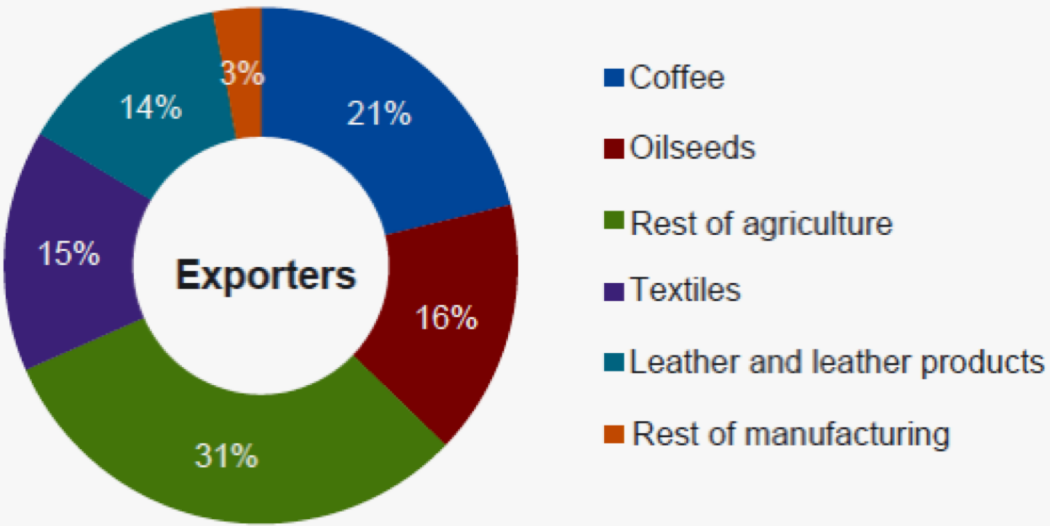
(ITC NTM Business Survey in Ethiopia, 2015-2016)

# Strategic Importance of Sustainability

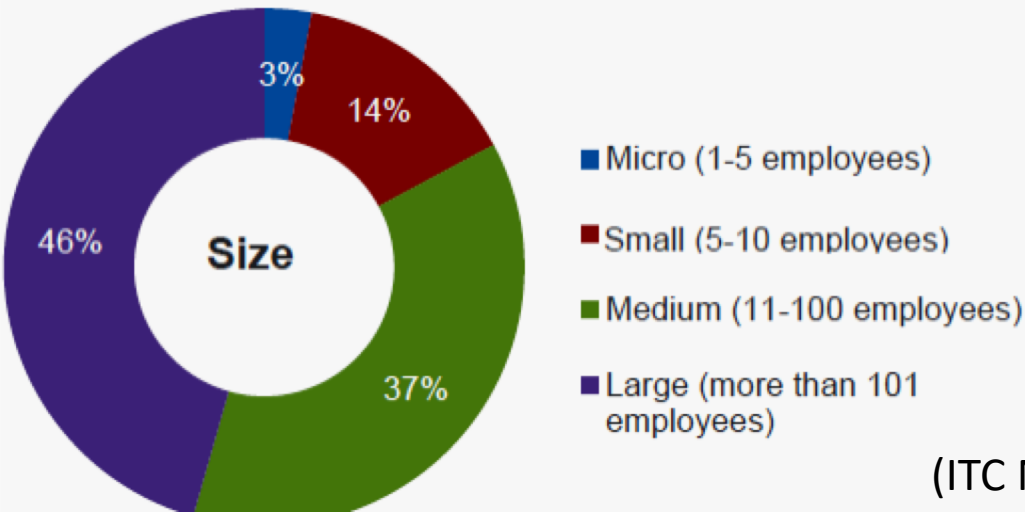
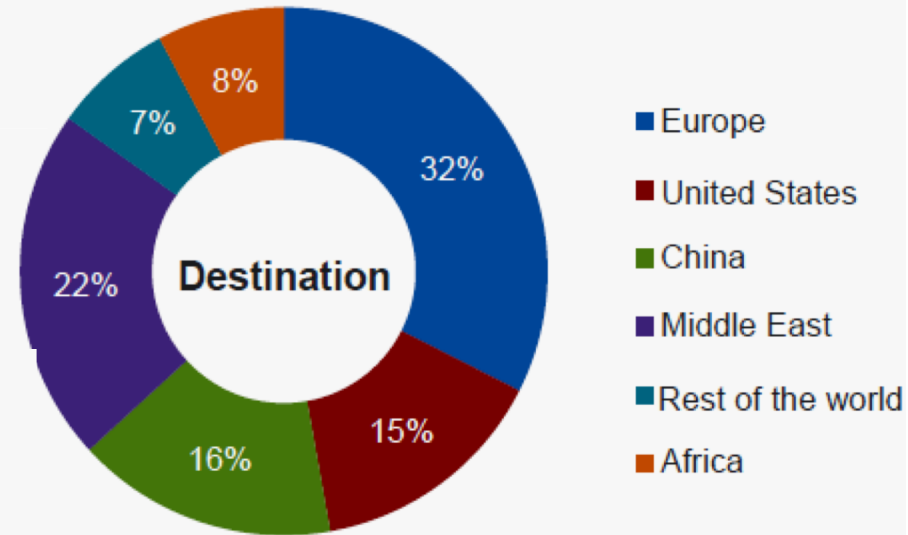
A study on European retailers shows:

- the proportion of sustainable products sales is reaching **60%** of the total in the year 2017.
- **92%** of the retailers expect sustainable product sales to increase in the next five years and align with this trend and sustain business
- Implementing sustainability standards is on the rise  
*Oeko-Tex: 20%, Fairtrade: 11% and the Global Organic Textile Standard (GOTS): 10%*
- Another study conducted in 2015 on the global textile product consumers of 60 countries also depict a growing trend in the demand for sustainably produced products and **68%** are willing to pay extra for sustainably manufactured goods.

# Strategic Importance of Sustainability



Study conducted on 209 main exporters in Ethiopia

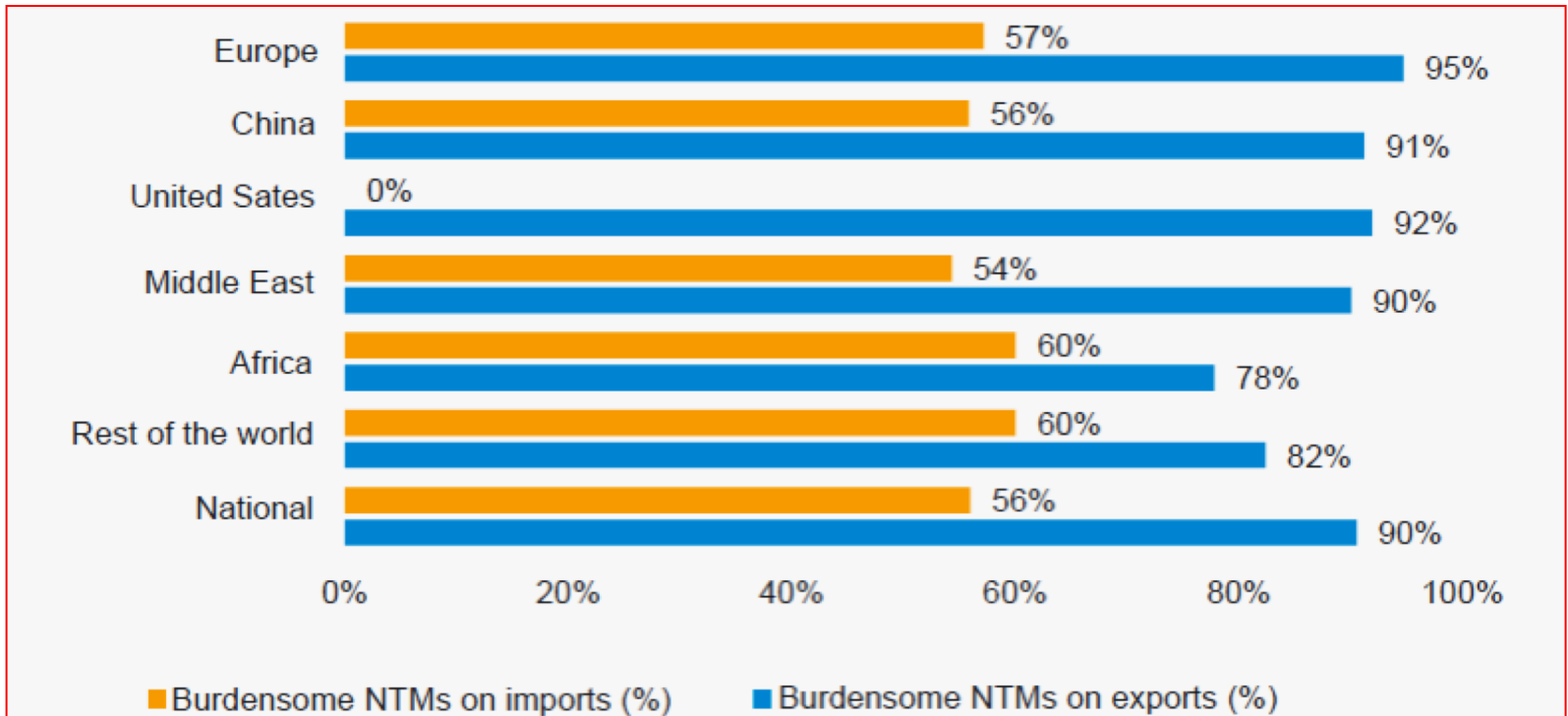
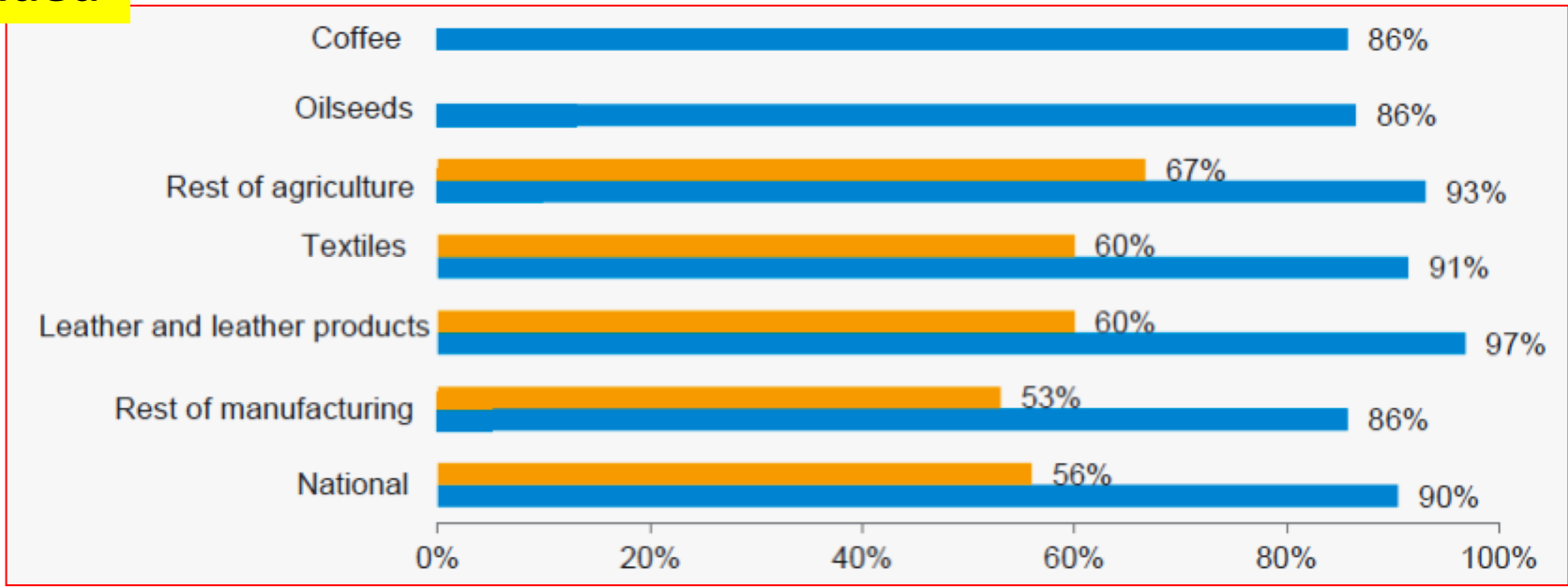


(ITC NTM Business Survey in Ethiopia, 2015-2016)



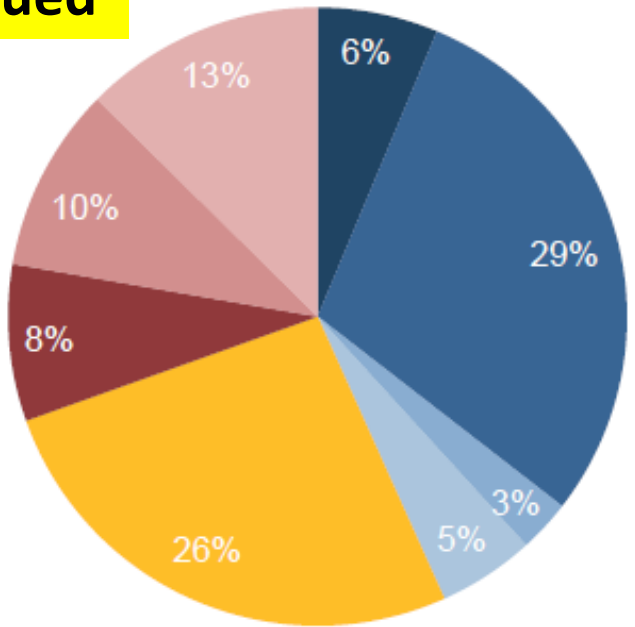
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Share of surveyed companies affected by burdensome NTMs, by sector, size and destination/origin markets



....continued

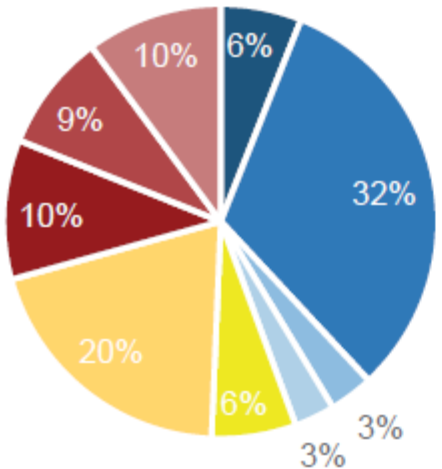
Type of NTM-related obstacles for exporters



- Technical requirements
  - Conformity assessment
  - Pre-shipment inspection and other entry formalities
  - Rules of origin and related certificate of origin
  - Private standard
  - Technical export requirements
  - Licences and other non-technical export measures
  - Export clearance measures
- Partner regulations (Technical requirements, Conformity assessment)
- Private standard (Pre-shipment inspection and other entry formalities, Rules of origin and related certificate of origin, Private standard)
- Ethiopian regulations (Technical export requirements, Licences and other non-technical export measures, Export clearance measures)

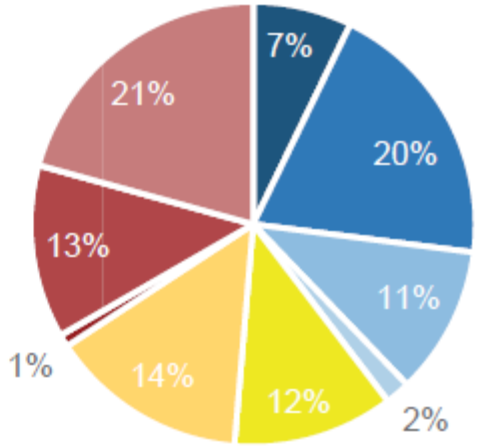
Burdensome NTMs by sector and source

Agriculture



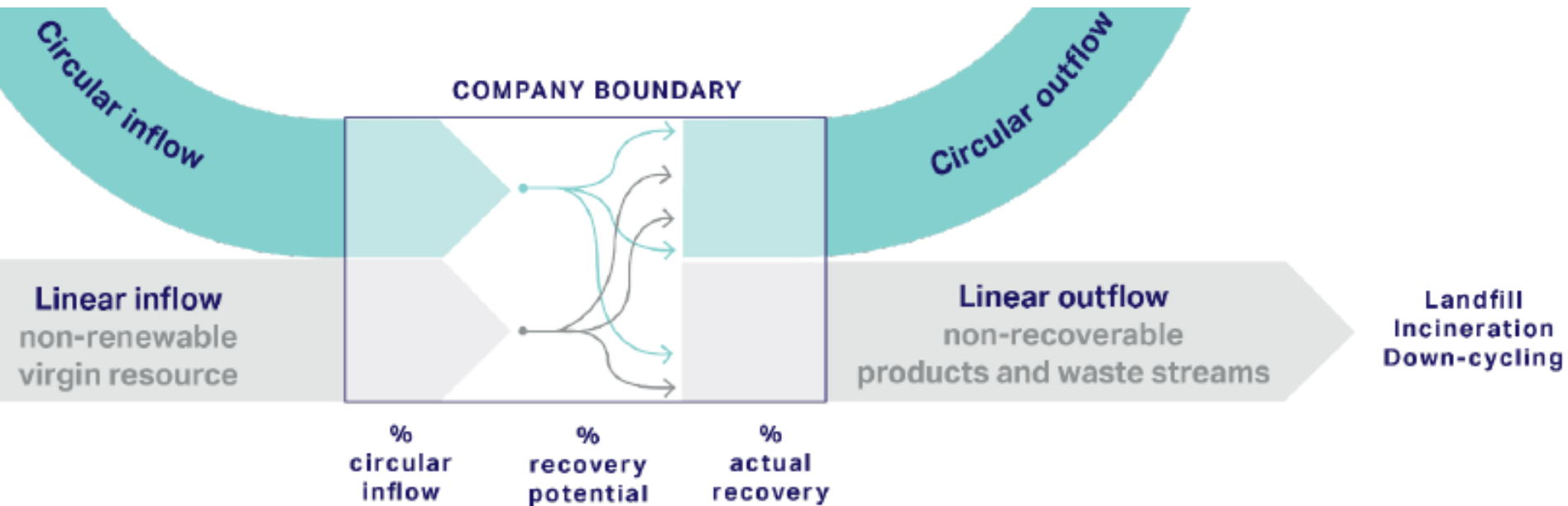
- Technical requirements
  - Conformity assessment
  - Rules of origin
  - Other import measures
  - Certification
  - Other requirements
  - Export technical measures
  - Export non-technical measures
  - Other export measures
- Partners' regulation (Technical requirements, Conformity assessment)
- Private standard (Rules of origin, Other import measures, Certification, Other requirements)
- Ethiopian regulations (Export technical measures, Export non-technical measures, Other export measures)

Manufacturing



# Resource Efficiency & Circular Production (RECP) as an Enabler

- The main elements of CP are:  
*Re-design, Reduce, Reuse, and Recycle.*
- The three strategies for ensuring circular production are:  
*close the loop, optimize the loop* and *value the loop*



# Resource Efficiency & Circular Production (RECP) as an Enabler

- Currently, the value chains in the world are only **9%** circular
- If we continue with the current wasteful trend, by **2030**, we will need more than **1.7 planets** to meet our resource needs



# Resource Efficiency & Circular Production (RECP) as an Enabler

## Driving Forces Pointing to RECP

- Combating **climate change**: need to reduce the sector's environmental impact and resource use
- Resource or raw materials becoming **scarce**: water shortages, increase cost of chemicals and electricity could lead to increased raw materials
- National or international environmental and social regulations **/standards** become stringent.
- **Increased social awareness** on impact of environmental pollution. It is moral to save environment and workers safety and health

# Resource Efficiency & Circular Production (RECP) as an Enabler

## Driving Forces Pointing to RECP

- Implementation of RECP improve resource **utilization** and hence reduce production expense which will in turn **maximize profit margin**
- International buyers and end customers are highly concerned with RECP and compliance issues. RECP become a **business opportunity**

# Project Description

**Project Name:** *“Strengthening the Competitiveness of the Ethiopian Clothing Sector – Resource Efficient (RE) and Circular Production (CP) Processes”*

**Program:** **Trade for Sustainable Development (T4SD)**

**Project Owner:** **The International Trade Centre (ITC)**, a joint agency of the World Trade Organization and the United Nations, and financed by the German Federal Ministry for Economic Cooperation and Development (BMZ).



# Aim of the Project

- Implement Resource Efficient and Circular Production Processes at textile factories so as to strengthen the competitiveness of the Ethiopian clothing sector.
- The project also aimed at raising awareness on the significance of compliance with sustainability requirements of international buyers to establish new or maintain existing supply relationships.



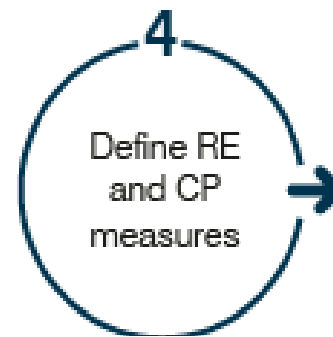
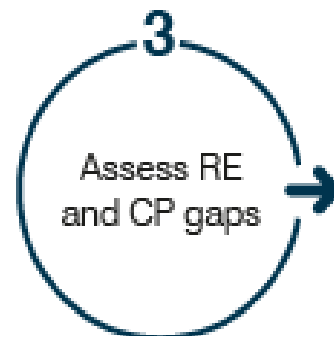


# Methodology

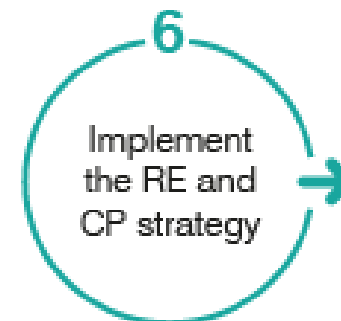
## Preliminary phase



## Coaching phase guided by local and international experts



## Implementation phase







# Major Findings

	Main Resource Areas		
	Water	Energy	Chemicals
<b>Interventions (Measures)</b>	<ul style="list-style-type: none"> <li>• Water leakage control</li> <li>• Recycle or reuse of rinsing water from process</li> <li>• Re use or recycle of cooling water</li> <li>• Condensate recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Saving from insulation</li> <li>• Condensate recovery</li> <li>• Saving from compressed air leakage</li> <li>• Saving from boiler system performance improvement</li> <li>• Re-use of cooling water</li> <li>• Saving from electric power performance improvement</li> <li>• Saving from lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Avoiding the use of unnecessary chemicals</li> <li>• Recycling/reuse of chemicals or liquor (it also saves water)</li> <li>• Chemical saving from reducing ETP load</li> </ul>

# Major Findings

## Annual Resource Savings of 5 companies

Company	 Water m3	 Electricity (KWH)	 Fuel (L)	 Chemical (Kg)
Company 1	28,686	2,579,963	-	-
Company 2	25,060	-	184,975 (LFO)	-
Company 3	39,474	4,318,891	-	14,021
Company 4	14,717	2,826,010	-	28,000
Company 5	10,127	-	1,925 m3 wood	-

Company 1, 3 & 4 use electric boilers, thus electricity savings are from thermal energy savings

Company 2 uses fuel fired boiler

Company 5 uses wood fired boiler

# Major Findings

## Assessment of chemical and waste management systems and practices

Description	Scores based on BMPs Questionnaires (%)				
	Company 1	Company 2	Company 3	Company 4	Company 5
Chemical management system/practices	37.5	30.0	46.4	39.0	19.5
Waste management practices	35.7	33.3	46.1	58.3	25



# Major Findings

## Combined annual financial savings of 5 companies

Company	No of measures identified	Total investment cost (birr)	Total savings (birr)	Overall Benefit to cost ratio
Company 1	8	1,151,530	2,326,284	2.02
Company 2	6	792,580	3,713,393	4.69
Company 3	6	747,280	4,467,635	5.98
Company 4	5	649,800	2,687,669	4.14
Company 5	4	803,680	2,011,092	2.50
Total	27	4,144,870	15,206,073	

# Interventions Underway & the Way Forward

- Plant level awareness creation on resource efficiency
- Implementation of house keeping measures and simple interventions so as to reap the low-hanging fruits



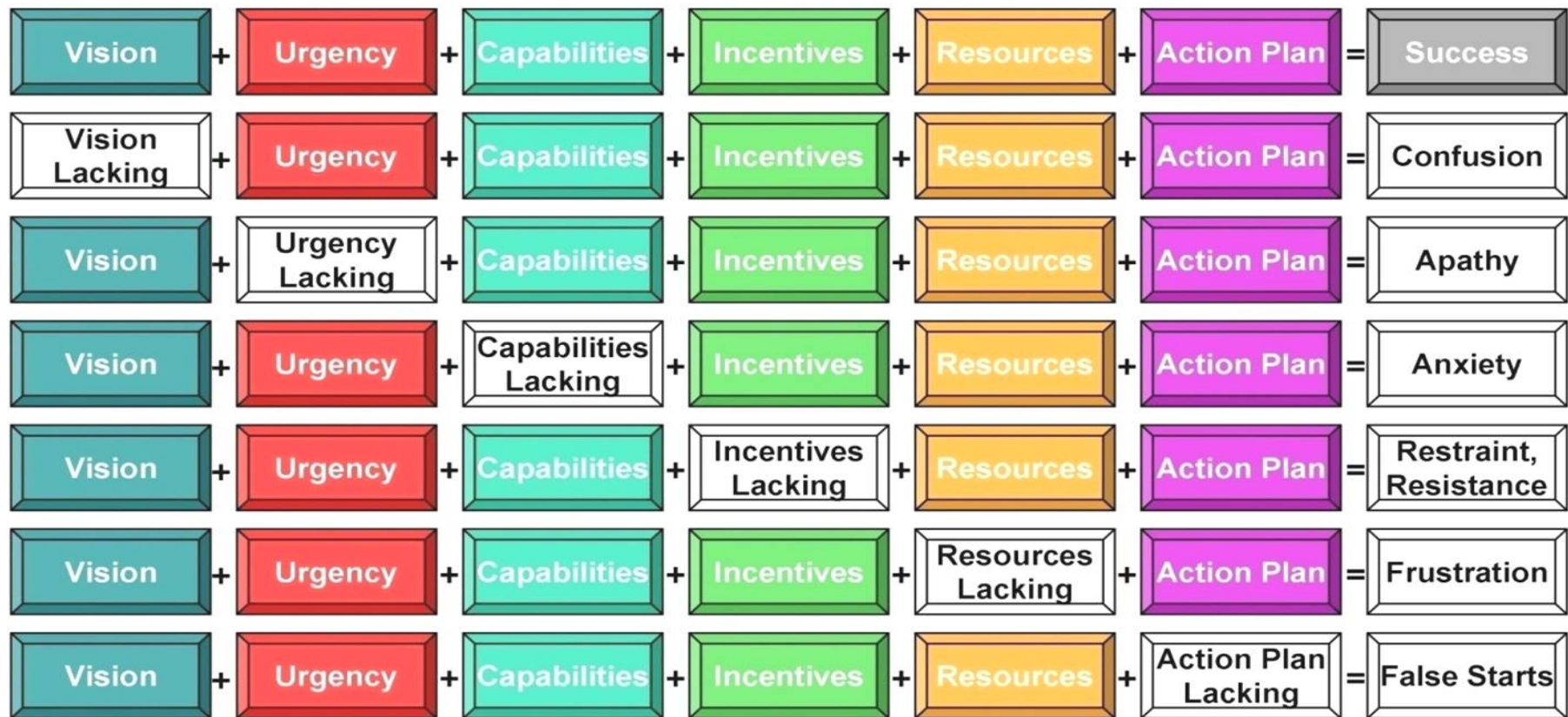
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(Waste hides in **plain view**)



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# Interventions Underway & the Way Forward

- Incorporation of resource efficiency as a strategic pillar in business
- Implementation of management systems (*Water, Energy, Chemical & Waste*)



# Findings in Pictures

*Water leakages (pumping station)*



*Opportunity to recycle rinse water*





# Findings in Pictures

*Opportunity to reuse or recycle cooling water from dyeing m/cs*



# Findings in Pictures

## Water saving....

*Reuse final rinse water. right raw water, left rinse water from dyeing m/c*



*Water recycling/reusing of final rinse from winch and hydro-extractor machines*



# Findings in Pictures

*Recycle of caustic soda drain from weight reducing m/c*



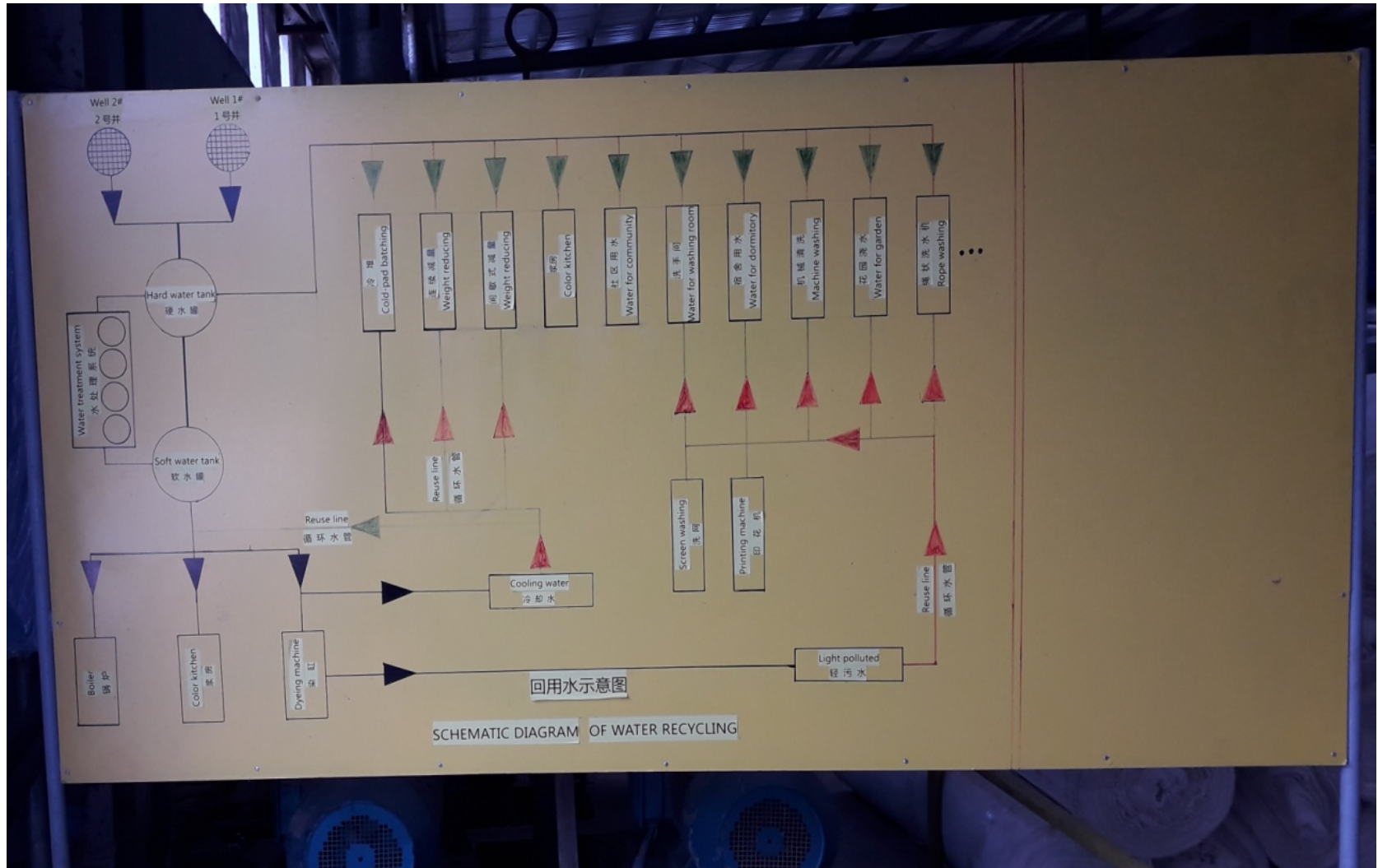
## Findings in Pictures

*Water recycling practice from wet finishing machines*



# Findings in Pictures

Hot water and lightly polluted water recycling-schematic diagram



# Findings in Pictures

*Waste water recycling – with ZLD application*



# Findings in Pictures

*Automatic chemical dosing*

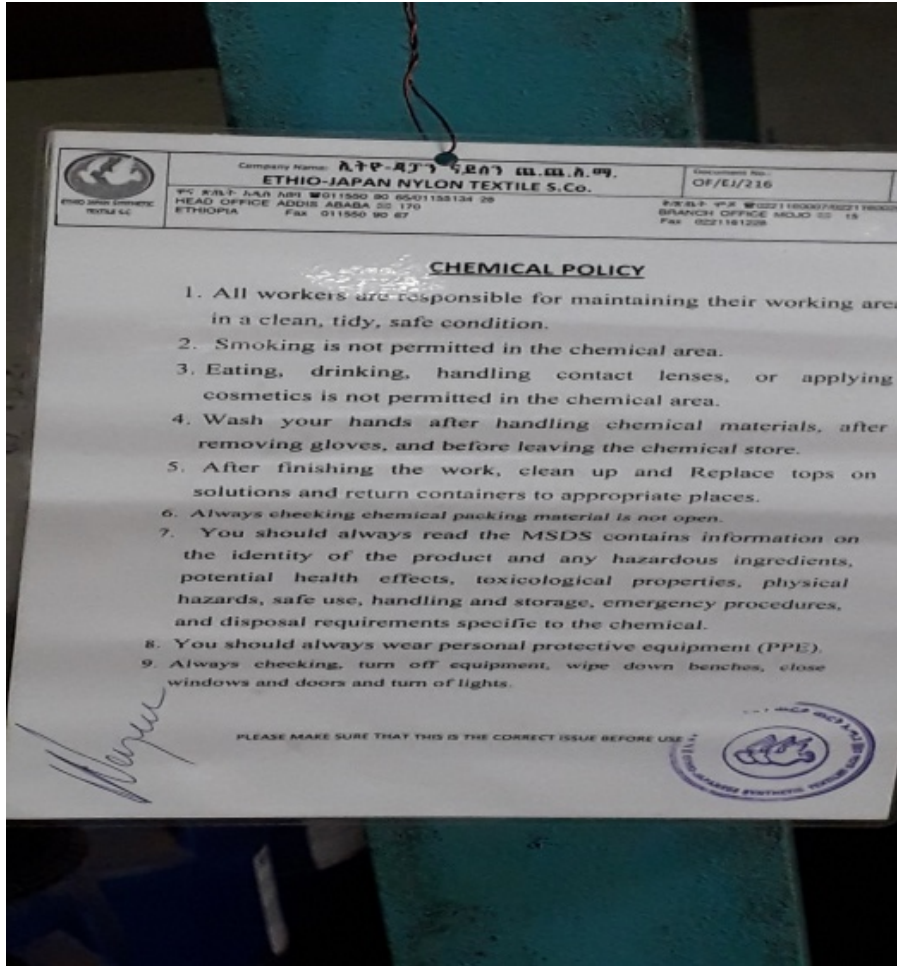


*Safety data sheet displayed*



# Findings in Pictures

*Chemical policy displayed*



*Chemical mixing and transferring*





# Findings in Pictures

*Automatic dispenser (recipe preparation)*



*Calibration of measuring devices*



# Findings in Pictures

*Bare Boiler Surface Temperature*



*Not pre-heated Burner Oil*



*Economizer system*



# Findings in Pictures

## *Insulation Practices at Valves and Pipings at Steam Headers*



# Findings in Pictures

## *Condensate Utilization Practices at Different Factories*



# Findings in Pictures

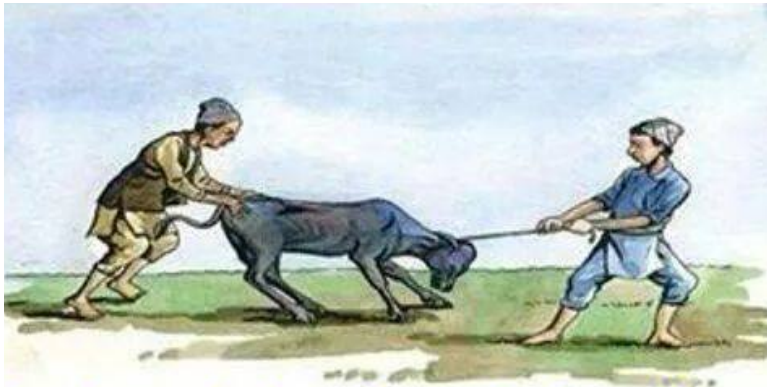
## *Compressor related losses*



# Findings in Pictures

*Day light utilization practice*





**Thank you!**  
**አናመሰግናለን !!**

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