

Case Summary
Middle East for Paper Company
(SIMO)

Company information:

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Sector: Public Sector
Project Title: Switching the two boilers from Mazot to Natural Gas.
Type of Project: Air pollution control

1. **Basic Information:**

1.1 **Main Products:**

Main Products	Average Annual production ton/year
Cardboard Duplex	10000
Thick Cardboard	500
Cardboard Eggs Trays	2160

1.2 **Raw Materials:**

Raw Material	Average Annual Quantity ton/year
Paper Scrap	27000

1.3 **Project Location:**

2 Bahtim Road – Mostorod – Qalubia – Egypt

1.4 **Project Objectives:**

- Reduction of gas emission of (SO₂, CO and TSP) to comply with the Egyptian environmental law no. 4/1994
- Improvement in ambient air quality.

1.5 **A- Process Description:**

The company has the following departments:

- Production (which includes three production lines):
 1. Duplex and Cardboard Production Line (Fig. 1)
 2. Thick Cardboard Production Line (Fig. 2).
 3. Eggs Tray Production Line (Fig. 3).
- Administration Building.
- Workshop.
- Utilities (including a boiler house). There is no wastewater treatment plant since the wastewater is discharged to the public sewer system.

a- The Cardboard Duplex Production Process:

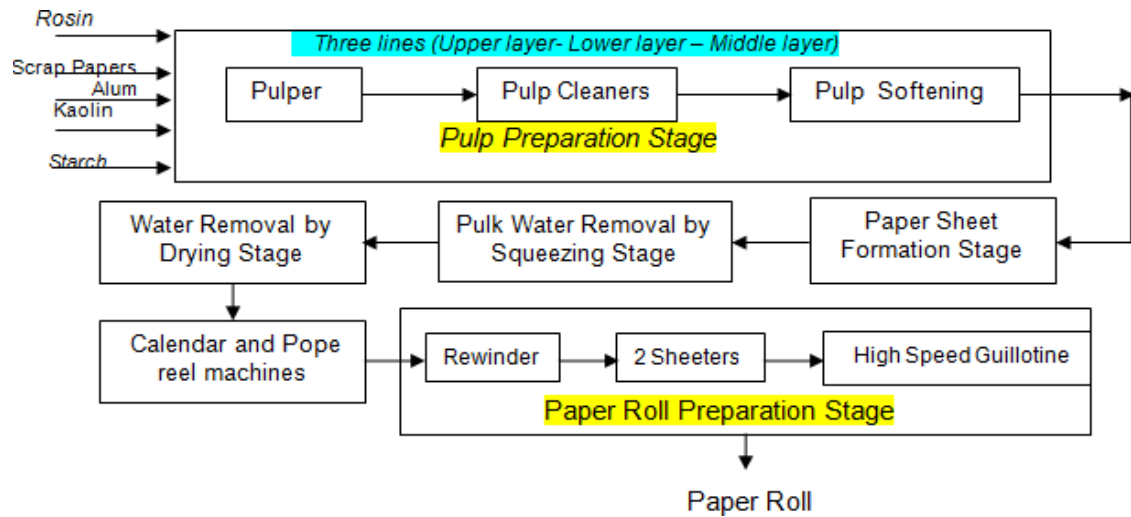


Figure (1) Duplex Cardboard Production Block Flow Sheet

b- Thick Cardboard Production Process:

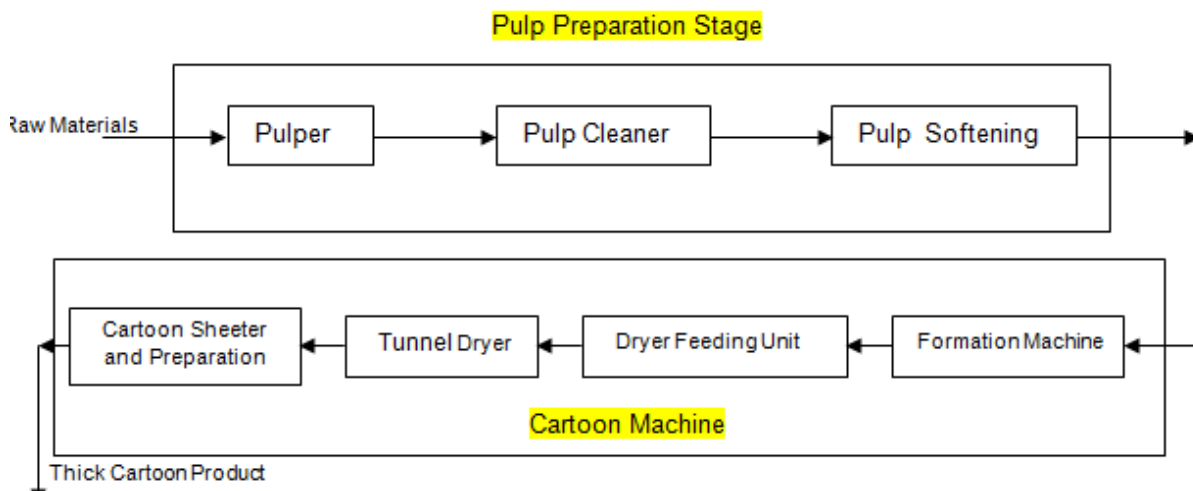


Figure (2) Thick Cartoon Production Block Flow Sheet

c- Eggs Tray Production Process:

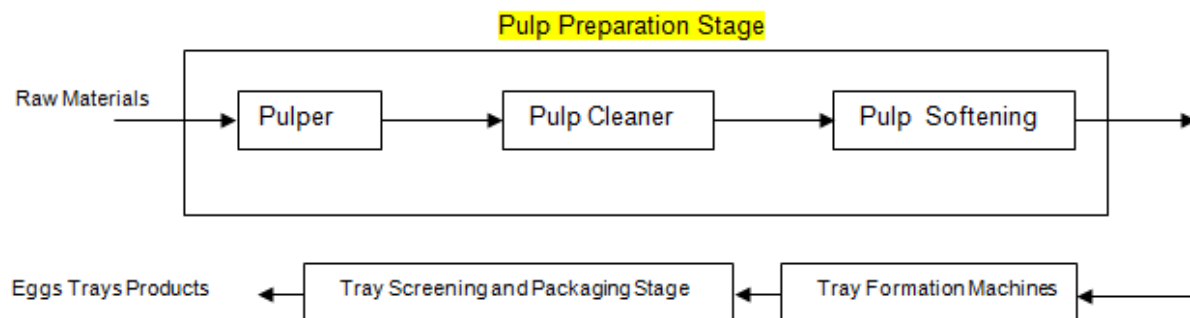


Figure (3) Eggs Trays Production Block Flow Sheet

B- Project Description:

The boiler house contains two water tube boilers with a theoretical steam production of (23.5 (t/hr)) each. The steam produced is limited to actual production of 14.5 (t/hr) of super heated steam at a temperature of 198 °C and pressure of 20 bars (Enthalpy = 843.5781 kJ/kg). The boilers are not operating together, one is usually a standby.

The sub-project proposed by SIMO is to convert the two water tube boilers from using Mazout as a fuel into using Natural Gas. After implementation of the project implanting the project, SOX, CO and particulates emissions load are reduced more than 50%.

1.6 Project Components:

The sub-project will be implemented in the boiler house and is composed of the following parts:

1. External NG network.
2. Internal NG network with a pressure reduction station for the gas. The network will be extended to boiler house.
3. Replacing two burners for the two boilers (8 &9) to work with Natural Gas (one is a dual system and other work with natural gas).

1.7 Estimated Project Cost:

- The total cost of the project is 0.38 MUS\$ with a finance of 0.304 MUS\$ from EPAP II co-finance

Component	Cost in M U\$
Internal piping	0.046
External piping	0.0548
Two burners	0.225
Civil work	0.0247

1.8 EPAP Technical Support:

- EPAP consultant assisted the company in preparing the Environmental Audit.
- EPAP hired a consultant to prepare a technical specification of the burners.
- PMU assisted the company to prepare request for quotations (IFQ).

2. Eligibility Criteria

2.1 Environmental:

- Fuel switching from Mazot to Natural Gas will reduce CO by 71%, SOx by 98% and TSP by 90% as shown in the following tables.
- The company has undertaken a compliance action plan on 16/5/2005 which was recently updated. The company is committed to its implementation.
- Management is committed to performing self-monitoring concerning the project's performance, and to evaluate the technical performance of the project and its environmental benefits.

Expected reduction in pollutant after implementing the project:**For boiler no (8)**

Pollutant	Before the mg/m ³	After the mg/m ³ (*)	Law 4/94 mg/m ³	Loads before the sub-project ton/year	Loads after the sub- project ton/year	Expected reduction %
CO	346	100	500	35	10	71
SOX	1861	35	3600	188	3.5	98
(TSP)	22	5	150	2.218	0.5	90
NOX	173	200	300	18.216	30.38	40

*Referring to the EU standards

For boiler no (9)

Pollutant	Before the sub-project mg/m3	After the sub-project mg/m3 (*)	Law 4/94 mg/m3	Loads before the sub-project ton/year	Loads before the sub-project ton/year	Expected reduction %
CO	155	100	500	16.315	10	35
SOX	2082	35	3600	219.463	3.6	98
(TSP)	28	5	150	2.970	0.527	90
NOX	173	200	300	18.216	30.38	40

*Referring to the EU standards

2.2 Financial:

The Sub Project costs are less than 0.5 US\$ million.

The payback period is 5 month.

3 Current status of project procedures**3.1 Steering committee approval:** approved**3.2 Co-financers approval:** N/A**3.3 Technical Procedures:**

- For the three components

Technical Document	submitted	Approved	Date
Environmental Assessment	YES	YES	March 2008
Compliance Action Plan (CAP)	YES	No	31/8/2008
Environmental Impact Assessment (EIA)	YES	YES	June 2009
Technical Agreement	YES	YES	June 2010

3.4 Implementation Procedures:

3.4.1 Procurement Procedures:

- The company has directly contracted Misr Gas for :
 1. Extending an outside gas network till the company walls.
 2. Extending an inside network with a pressure reduction station for the gas. The network will be extended to boiler house.
- The company followed EPAP II shopping procedures in the request for quotation (RFQ) for replacing burners for the two boilers to work with Natural Gas.
- The PMU assisted the company in preparation of the IFQ.

3.4.2 Status of Implementation:

Technical Document	submitted	Date	
		Achieved	Planned
Creditworthiness certificate	Y	March 2008	
Sub-loan Agreement	Y	March 2010	
Bidding document /IFQ	Y	October 2008	
Bidding document	Y	February 2009	
Technical and financial Evaluation	Y	June 2009	
Awarding and Contracting	Y	December 2009	
Installation and Commissioning	Y	June 2010	
Monitoring: Q1:	Y	December 2010(for the first one)	
Q2:	Y	January 2011	
Q3:	Y	April 2011	
Q4:	Y	August 2011	