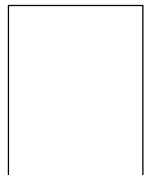


SEAM Project

Guidance Manual
Cleaner Production for Food
Water and Energy Conservation

Ministry of State for Environmental Affairs
Egyptian Environmental Affairs Agency
Technical Cooperation Office for the Environment

***Entec* UK Ltd**
UK Department for International Development



Guidance Manual Cleaner Production for Food Water and Energy Conservation

SEAM Project

Implemented by:

**Egyptian Environmental Affairs Agency
Technical Cooperation Office for the Environment
and
Entec UK Limited**

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With Contributions from:

**Egyptian Environmental Affairs Agency
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Entec UK Ltd

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The SEAM Project - An Introduction

Support for Environmental Assessment and Management (SEAM), is a multi-disciplinary environmental project being funded by Britain Department for International Development (DFID). This Project is being implemented by the Egyptian Environmental Affairs Agency (EEAA) through the Technical Cooperation Office for the Environment (TCOE) and Entec, a UK based engineering and environmental consultancy.

The SEAM Project is made up of 5 components, focusing on environmental management issues. These include Industrial Pollution Prevention/Cleaner Production, Environmental Impact Assessment, Solid Waste Management, Environmental Action Plans and development of an Environmental Database.

The main goal of the Industrial Pollution Prevention/Cleaner Production component is to show that significant financial savings and environmental improvements can be made by relatively low-cost and straightforward interventions. These consist of pollution prevention through good housekeeping, waste minimisation, process modification and technology changes. This approach has two benefits - valuable materials are recovered rather than wasted and factories are moved towards legislative compliance. This work is being undertaken in support of the National Industrial Pollution Prevention Programme (NIPPP) and has focused on three sectors: textiles, food and oil & soap.

Industrial auditing was used as a systematic approach to identify pollution prevention measures. Industrial auditing of 32 factories led to identification of more than 200 low cost/no cost pollution prevention measures. Measures that had relevance across the sector, innovative contents and a high multiplier potential were then developed as demonstration projects. The idea of these demonstration projects was to show how the pollution prevention approach can lead to financial benefits while gaining improved environmental performance.

Thirteen demonstration projects have been implemented in 21 sites as follows:

Textile Sector

- Eco-friendly Processing for Securing International Eco-label.
- Water and Energy Conservation.
- Combined Processing: Desize, Scour and Bleach.
- Bleach Clean-Up using Enzymes.
- Sulphide Reduction in Sulphur Dyeing.

Food Sector

- Installation of Milk Tank Level Controls and Valves.
- Water Conservation in Food Factories.
- Energy Conservation in Food Factories.
- Reducing Waste by Improved Quality Control.
- Recovery and Use of Whey as Animal Feed.

Oil and Soap Sector

- Waste Minimisation in an Edible Oil Factory.
- Oil and Fat Recovery.
- Improving Raw Water Quality to Reduce In-Plant Losses.

Outputs from these projects include industry workshops and seminars, demonstration projects with supporting Guidance Notes and Manuals (to enable other factories to implement similar projects themselves), case studies incorporating cost-benefit analyses to demonstrate project feasibility, detailed Sector Reports and Guidelines describing how to carry out industrial audits.

Factories Participating in the Water and Energy Conservation Demonstration Project

This demonstration project was implemented in two different food processing factories, as follows:

1. Edfina for Preserved Food, Alexandria (Edfina):

Edfina co. for preserved food is one of the largest companies in Egypt in the area of preserved and frozen food production. It is a public sector company and is under control of the holding company for food industries. The main products of the company for the years 1995/1996 and 1996/1997 are shown in the following table. The production is seasonal and the plant operates 3 shifts/day, 8h/shift.

Edfina Company Production in 1995/1996 and 1996/1997

Product	Quantity in tons	
	1995/1996	1996/1997
Juices	5,477	4,033
Beverages	552	451
Jam	5,473	3,839
Tomato paste	1,121	519
Canned vegetables	192	231
Canned beans	692	1,428
Frozen vegetables	1,718	812
Agar-agar	48	97
Others	4,448	161
Tin cans (LE)	344,472	-

The Edfina co. production facility at Ras El-Souda contains the following production lines:

1. Juice production lines
2. Tomato paste production line
3. Canned vegetable
4. Canned beans
5. Frozen vegetables
6. Agar-Agar
7. Tin can manufacturing

Project Objectives: The project objectives are to study, suggest and implement no cost/low cost energy and water conservation measures and assess the result of implementation through monitoring and cost/benefit analysis.

2. Kaha for Preserved Food, Kaha (Kaha):

Kaha company for preserved food is one of the biggest companies in the field of preserved food in Egypt. The company is located in Kaha Town, Qalubiya Governorate, 30 km north of Cairo on the Cairo/Alexandria agricultural road. It belonged to the public sector since it started in 1976 until 1998. Under the recent privatisation policy, it was sold to a new owner.

The products include jams, juices, tomato paste and frozen and canned vegetables. The factory is working seasonally according to market requirements. The following table shows the quantities produced during the period from 1/7/1996 to 30/6/1997.

Kaha Company Production in 1996/1997

Product	Quantity in tons
Juices	1,997
Jam	1,358
Tomato paste	840
Canned vegetables	69
Canned beans	3,150
Frozen vegetables	253
Pickles	109

Kaha co. contains the following production lines

1. Juice production lines
2. Jam production line
3. Tomato past production line
3. Canned vegetables
4. Canned beans
5. Frozen vegetables line
6. Frozen vegetables line
7. Metal cans forming and printing line

Project Objectives: Study, suggest and implement no cost/low cost energy conservation measures and assess the result of implementation through monitoring and cost/benefit analysis.

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