

SEAM Programme

Cleaner Production
For Egypt's Textiles Exports

Ministry of State for Environmental Affairs

Egyptian Environmental Affairs Agency

Entec UK Ltd., ERM

UK Department for International Development



SEAM Programme

**GUIDANCE MANUAL ON ENHANCING
EGYPTIAN TRADE THROUGH CLEANER
PRODUCTION**

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GUIDANCE MANUAL PRODUCED BY THE SEAM PROGRAMME

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January 2005

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Introduction
to the
Manual

	Introduction to the Manual
	A. Purpose of the Manual
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A. Purpose of the Manual

Welcome to the **Manual on Enhancing Egyptian Trade through Cleaner Production!**

The manual was designed as a training and resource document for the staff of the Cleaner Production Cell (CP Cell) established at the Egyptian Ministry of Foreign Trade and Industry under the SEAM Programme.

The intent of the manual is to illustrate how cleaner production (CP) can be used to enhance Egyptian trade. Through the use of established definitions, appropriate case studies from Egypt, and experiences from other countries the Manual attempts to explain the concept of cleaner production, demonstrate the linkages between CP and trade and show how CP can be an extremely useful tool in stimulating and enhancing trade.

The purpose of the manual is not to serve as an exhaustive compendium with solutions to all the challenges of trade; nor is it intended as a working manual for industry. This is a reference document with adequate detail and resources to: (i) create awareness on the linkages between CP and trade for the staff at the Ministry of Foreign Trade and Industry; and (ii) serve as a resource for the CP Cell staff at the Ministry of Foreign Trade and Industry to create awareness in Egyptian industry on turning existing experience in CP practices into opportunities and competitive advantage in the export market.

B. Target Audience

The primary target audience for this Manual is the staff of the CP Cell at the Ministry of Foreign Trade and Industry, for whom it will serve as a training and resource manual. It can however be used by all practitioners - both in the public and private sector - in the area of sustainable trade, as a training resource to understand the interlinkages between CP and trade. Professionals working in the area of sustainable trade will also find the resources appended to the manual quite useful since it includes links to discussion papers, analyses and other resources published by reputed organizations and institutes in Egypt and abroad involved in sustainable trade.

C. Scope of the Manual

The manual focuses primarily on the textile and the food processing sectors, since they are the focal sectors of the SEAM programme. In addition, discussions on exports and trade focus largely on the EU market since the EU is and will continue to be Egypt's major trading partner.

D. Outline of the Manual

The Manual has been designed to include two parts: Part A which focuses on concepts, definitions, case studies, experiences from other countries, in addition to 3 appendices and Part B which is in the form of a binder that can be updated as and when required. This includes: internet resources on CP and trade, and sections for updates on trade flow data and future trends in market requirements.

Part A is composed of five sections and three corresponding appendices. **Section 1** provides an overview of Egyptian trade in terms of trade flows, primary trading partners, and industrial and service sectors that play a significant role in Egyptian trade. Initiatives of the Egyptian government to enhance trade in the form of agreements with trading partners are also discussed briefly.

Section 2 focuses on the challenges – current and future – that the international market presents for Egypt in its efforts to enhance trade. The focal market in this discussion will be the EU since it is Egypt’s main trading partner. The questions that this Section will attempt to address include: “What are the market requirements that Egyptian exporters must be aware of for their goods? How can Egypt obtain market access in international trade?”

Section 3 introduces the concept of CP, provides an outline of the methodology and the mechanistics of using it as a tool to address the challenges and meet the market requirements presented in Section 2. This Section will also provide a brief overview of the CP efforts underway in Egypt and the advantages of intensifying these efforts to enhance Egyptian trade.

Section 4 focuses on some of the main elements of an enabling framework that can stimulate CP in Egypt to make it effective in achieving the final objective of moving the trade enhancement process forward. The enabling framework includes efforts that are required by both public and private sector at the technical, financial and institutional levels.

Section 5 presents the efforts and initiatives being taken by two of Egypt’s competitors, particularly in the textile sector – India and China – to stimulate CP in an attempt to meet the challenges of international trade.

Part B includes three Annexes. The first annex titled “Some Useful Internet Resources on CP and Trade” includes internet resources providing definitions, statistics, and case studies on CP and trade. The second and third annexes titled “Updates on Trade Flow Statistics” and “Future Trends in Market Requirements” have been inserted as placeholders for the CP Cell to update the manual as and when new information is available. This will allow the manual to be maintained as a current resource.

Section

1

What will we learn from Section One?

1.0	Overview of Egyptian Trade
	1.1 Trade and the Egyptian Economy
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	1.2.1 Overview of markets
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Section 1: Overview of Egyptian Trade

This section provides an overview of Egyptian trade in terms of trade flows, primary trading partners, and industrial and service sectors that play a significant role in Egyptian trade. Initiatives of the Egyptian government to enhance trade in the form of agreements with trading partners are also discussed briefly. The intent of this section is to provide both a background and rationale for the scope and focus of the manual.

1.1 Trade and the Egyptian Economy

In 1991 the Egyptian government initiated a comprehensive economic reform program in an attempt towards achieving macroeconomic stability. Other objectives of the program were the development of free markets, the promotion of private sector based resource allocation and the stimulation of export-based trade. The reform program led to sustained economic growth of about 5.5% between 1996 and 1998. The percentage growth in GDP however has fallen from 5.1% in 2000 to 3.1% in 2003 (Egypt, 2004). Egypt's economy is currently undergoing a gradual recovery from a sharp downturn in 2002, but the growth rate still far below what was achieved in the 1990s. Egypt's GDP growth is forecast at 3.6% for 2004, with an upward trend toward 5.5% by the end of the current decade. **Box 1.1** presents data on some key economic indicators for Egypt.

Box 1.1: Egypt – Key Economic Indicators

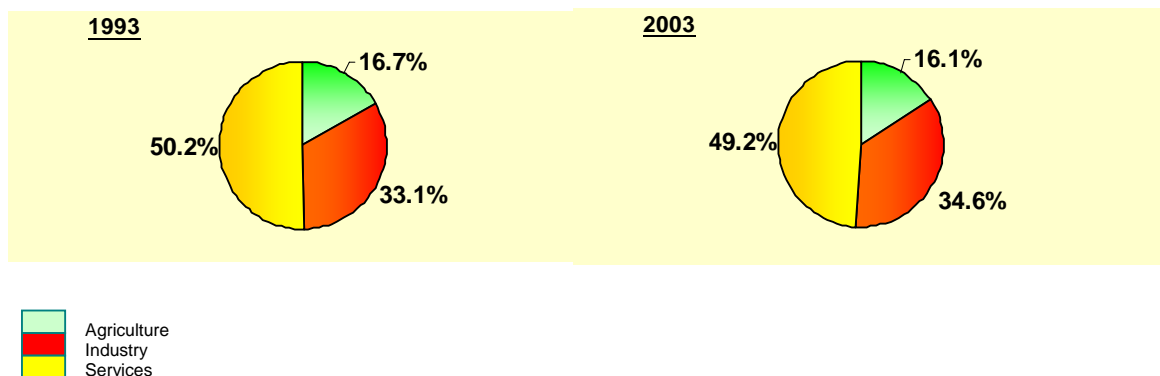
- Gross Domestic Product (GDP, 2003): US\$82.4 billion
- Real GDP % Growth (2003): 3.1% (2004 Forecast): 3.6%
- Inflation Rate (2003): 3.2%

Source: EU-External Trade - <http://www.europa.eu.int/comm/trade/issues/bilateral/datas.xls.htm>

The World Bank Group - <http://www.worldbank.org/data/countrydata/countrydata.html>

Egypt's ratio of trade (imports and exports) to GDP was 35.68% in 2003 with imports and exports representing 0.37% and 0.15% of the world trade flows. While the share of imports has remained consistent with 1999 figures, Egypt's share of world exports has increased from 0.1% in 1999 to 0.15% in 2003. Comparative figures in 2003 for India and China are as follows: India's ratio of trade to GDP is 23.65% with imports and exports representing 1.38% and 1.16% of world trade flows while China has a ratio of trade to GDP of 56.22% and the imports and exports represent 6.54% and 8.38% of the world flows respectively (EU External Trade, 2004¹).

In 2003, industry accounted for 34.6% of Egypt's GDP of which the manufacturing sector was 18.9% of the GDP. Agriculture and services accounted for 16.1% and 49.2% respectively of the GDP. **Figure 1.1** presents a comparison of this economic indicator between 1993 and 2003. Egypt's manufacturing sector however, has been exporting less than 20% of the manufacturing production. The increase of this share has been very slow and is well below that of manufacturing industries of comparable emerging economies and other developing countries. Egypt has therefore failed so far in fulfilling its potential as a major supplier of manufactured products to the EU, the rest of Europe, the Middle East and Africa.



Source: <http://www.europa.eu.int/comm/trade/issues/bilateral/data.xls.htm>

Figure 1.1

GDP Composition by Sectors (1993 and 2003)

Egypt's leading merchandise export is crude oil and petroleum products, followed by finished goods (chiefly textiles and apparel), and raw materials (cotton and other agricultural products). Leading imports include capital equipment and agricultural commodities. Egyptian merchandise exports grew only slightly from US\$3.0 billion in 1980 to US\$5.2 billion in 1998 but increased to US\$7.3bn in 2002 and remained steady at US\$ 7.6 billion in 2003. Imports declined to US\$14.7bn in 2002 from US\$15.8bn in 2001 (Economist, 2004²). Between 1990 and 1998, manufactured exports from Egypt gained a greater share of visible exports, rising from 24% to 41%. This period ushered in a broader diversification of Egypt's export specializations, gaining export specialization in as many as 23 product categories. Egypt's major exports and imports of 2002-2003 are shown below in **Table 1.1**:

¹ EU-External Trade, 2004 - <http://www.europa.eu.int/comm/trade/issues/bilateral/data.xls.htm>

² The Economist, 2004. <http://www.economist.com/countries/Egypt/profile.cfm?folder=Profile-FactSheet>

Table 1.1 Egypt's Major Exports and Imports in 2002-2003³

Major Exports 2002-2003	% of total	Major Imports 2002-2003	% of total
Petroleum & products	38.5	Intermediate Goods	29.7
Finished products	36.8	Investment Goods	21.4
Cotton Textiles and Garments	8.4	Petroleum & products	13.0
Semi – finished products	8.0	Consumer Goods (durable and non – durable)	17.5

International trade, as reflected by world consumption, is growing in commodities such as crude oil and cotton, in addition to processed and semi-processed goods such as building materials, textiles and garments, pharmaceuticals and foodstuffs. Egypt is currently not exploiting the full potential of its export market in these goods. Albeit economic reforms are currently underway to enhance Egyptian trade, significant institutional, technical and fiscal changes need to be made to enable the manufacturing sector to realize its full potential in Egypt's export markets.

The focus of this manual from hereon, will be trade related issues with reference to the manufacturing sector primarily process industries such as textile and food processing and not the oil and petroleum products (although these are among the leading merchandise goods that are exported). This is in line with the scope and focus of the SEAM programme which is promotion of cleaner production in the manufacturing sector.

1.2 Significant Markets for Egyptian Exports

Egypt's main trading partners in 2003 were the EU (primarily Italy and Germany), United States, Japan and South Korea. Egypt's major export destinations based on 2002 statistics are US (39%), Italy (13.7%), UK (8.4%), France (3.9%) and India (3.9%). Trade with African nations accounts for only about 5% of the total flow. Export-import statistics for period January – July 2003 is shown below:

Trading Partner	Exports	Imports
Western Europe	32%	30%
North America	10%	11%
Asia	28%	22%
Africa	8%	5%
Eastern Europe	7%	12%
Central and South America	0.5%	7%
Other	14%	13%

Source: Arab Republic of Egypt, Ministry of Foreign Trade, Monthly Economic Digest, October 2003

³ Source: <http://www.economist.com/countries/Egypt/profile.cfm?folder=Profile-FactSheet>

The EU is Egypt's biggest trading partner currently accounting for 40% of Egyptian exports and 34% of imports. Trade between the EU and Egypt has risen by more than 5% in the last five years to reach around 10 billion euro in 2003. Egypt's main exports to the EU in 2003 were energy (38%), textiles and clothing (15%), agricultural products (9%), and chemicals (6%).

The U.S. comes next (and is Egypt's largest trading partner as a country), accounting for around 20% of Egypt's merchandise imports and 11% of its exports. Chief U.S. exports to Egypt include agricultural commodities (around US\$1 billion annually), capital goods, and equipment. Egypt's exports to the U.S. (US\$778 million in 2001) are predominantly textiles, clothing, and crude oil. The US is the largest single market for Egypt's TC exports followed by UK and Italy.

Asian countries account for around 25% of both imports and exports. Countries in the Middle East take 16% of exports and account for about 8% of imports, while Africa and Latin America account for less than 5% each of imports and exports.

1.2.1 European Union as a Key Market

As discussed above, the EU is Egypt's key trading partner accounting for 40% of Egyptian exports and 34% of imports. The trading relationship between the EU and Egypt has been strengthened by regional and bilateral partnerships and agreements.

1.2.1.1.1 The Euro-Mediterranean Partnership

The Euro-Mediterranean Partnership was established at a Conference of Ministers of Foreign Affairs held in Barcelona on November 27-28, 1995. Its final Declaration (called "Barcelona Declaration") reflects the joint initiative by 27 partners⁴. The aim of the Euro-Mediterranean Partnership is to create peace, stability and development in a region, which is of vital strategic importance for Europe.

The Euro-Mediterranean Partnership (which is also called "Barcelona Process") focuses on three main objectives – often referred to as the three "Chapters" or "Baskets":

1. The creation of an area of peace and stability based on the principle of human rights and democracy (Political and Security Partnership – or "Basket I").
2. The creation of an area of shared prosperity through the progressive establishment of free trade between the EU and its Mediterranean partners and amongst the partners themselves (Economic and Financial Partnership – or "Basket II").

⁴ The 27 participants in the Euro-Med Partnership include: **15 EU Member States** - Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, the United Kingdom, Spain, Sweden; **12 Mediterranean Partners** - Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey.

3. The improvement of mutual understanding among the peoples of the region and the development of a free and flourishing civil society (Cultural, Social and Human Partnership – or “Basket III”).

By combining all three chapters into one comprehensive policy, the EU acknowledged the fact that financial, economic, cultural, and security issues cannot be effectively tackled separately.

The Euro-Mediterranean Partnership has two dimensions: a bilateral one and a regional one. The **bilateral** dimension is mainly driven through the conclusion of “Association Agreements” between the Mediterranean partners and the EU and the political, economic and cultural dialogue building on them. The ultimate aim of this bilateral dimension is to establish a Euro-Mediterranean Free Trade Area by 2010. At the time for the Barcelona Conference, all partners had realised that creating more favourable conditions for Foreign Direct Investment was crucial for the economic development of the Mediterranean.

The **regional** dimension of the Euro-Mediterranean Partnership, by contrast, has as its backbone a whole set of forums, networks, programmes and projects in areas falling within the objectives of the three Baskets. In addition, a number of institutional contacts have been established between Parliaments, Economic and Social Council and Civil Society agents. The fundamental aim of this aspect of Barcelona is to build trust among the people of the region by engaging them in regular professional cooperation.

The main financial tool of the Euro-Mediterranean Partnership is the “MEDA programme” – a budget line used for accompanying the Mediterranean partners’ socio-economic reforms. Under MEDA, money is committed in the form of grants, as opposed to complementary financial support given by the European Investment Bank (EIB) which comes in the form of repayable loans. The provisions of the MEDA regulation apply to all three chapters of the Barcelona Process. MEDA provides funds for both the bilateral and the regional track. The budget for 2000-2006 is €5.35 billion. The EIB credits for 2000-2007 amount to €6.4 billion. For more details on the Euro-Med Partnership please see: http://www.eu-delegation.org/eg/en/eu_and_country/eu_med_agreement.htm

1.2.1.2 The EU-Egypt Association Agreement⁵

The EU/Egypt Association Agreement reflects the approach of the Barcelona Process, as it contains provisions with respect to the three pillars of the Euro-Mediterranean partnership. It is concluded for an unlimited period. Its overall objective is to establish the appropriate framework for co-operation and

⁵ Source: http://www.eu-delegation.org/eg/en/eu_and_country/association.htm

partnership, which will contribute to the economic and social development of Egypt in the context of an endeavour of regional economic integration aiming to create an area of shared economic prosperity.

As part of this Agreement, the first economic dialogue between the European Commission and Egypt took place on January 20 2004. It provided a useful forum to exchange views on economic developments and policies in Egypt and the EU, with particular reference to the free trade agreement, and associated macroeconomic developments, financial reforms, and capital movement.

The Association Agreement has immediately tangible benefits: it creates a free-trade zone which will be gradually implemented in stages, maintaining the protection of the consumer goods market of Egypt for a considerable time and focusing initially on reducing tariffs on raw materials and components.

The establishment of a bilateral Free Trade Agreement will be based on reciprocal tariff liberalisation for both industry and agriculture with respect to substantial trade between the parties. Quantitative restrictions and equivalent measures will be removed. For industrial goods, Egypt reciprocates the preferential treatment granted by the EU under the 1977 Co-operation Agreement, by dismantling all industrial duties over a transitional period of up to 15 years from entry into force. Four different tariff-dismantling schedules by group of products are provided for. Liberalisation in agriculture and agro-industry is equally foreseen under the Agreement. The EU significantly improves its concessions for Egyptian agricultural exports by increasing the tariff quotas granted for Egypt's main exports. A mechanism to review agricultural concessions is foreseen three years after entry into force. Egypt equally reduces tariff duties for a number of EU agricultural exports. Processed agricultural products equally enjoy reciprocal concessions, thereby improving market access for both parties.

A Protocol on rules of origin is established between the parties and is part of the Agreement. Its version is the most developed used by the EU in its relations with partner countries. Specific rules of origin are identified for agricultural and industrial products, while a no drawback rule will be applied over time.

On intellectual property rights, the parties will seek effective protection in the context of their multilateral commitments. Progressive liberalisation on public procurement is equally foreseen. Economic co-operation will be intensified between the parties in a number of sectors, such as education and training, science and technology, environment, industrial co-operation, investment promotion, standardisation and conformity assessment, approximation of laws, financial services, agriculture and fisheries, transport, information society and telecoms, energy, tourism, customs statistics, money laundering, fight against drugs and terrorism, consumer protection and regional co-operation.

Co-operation is also foreseen on social and cultural issues in particular on the movement of workers, migration issues, intercultural dialogue and social integration of Egyptian and Community nationals legally residing in the territories of their host countries.

Under the EU-Egypt Association Agreement the following commitments were made by EU to Egypt: grants of € 880.5 mn for the period 1995-2004 and; EIB loans of € 1,545 mn for the period 1995-2004 (See EU Commission Delegation, Cairo www.eu-delegation.org.eg for more information on the agreement). The Agreement is also providing support to help restructuring of the textiles sector (€ 80 mn) by:

- creating a modern, market driven, competitive spinning and weaving sector;
- improving regulatory framework;
- restructuring and upgrading public companies;
- upgrading and reemploying redundant workers

A significant industrial modernization programme – a national initiative funded jointly by the Egyptian Government and the EU is also underway to help develop international competitiveness in the private manufacturing sector. **Box 1.2** presents some of the salient features of this industrial modernization programme.

Box 1.2: Industrial Modernization Programme

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The Industrial Modernization Program (IMP) aims to help develop international competitiveness in the private manufacturing sector by providing technical support to industrial enterprises to modernize their companies so that they become internationally competitive on a sustainable basis. The Egypt-EU Association Agreement includes Euros 615 million in projects assistance grants and Euros 1.1 billion in loans from the European Investment Bank.

The IMP is delivered by the Industrial Modernisation Centre (IMC). The main beneficiaries are: private manufacturing sector/ SME's , business representative organizations, service and support institutions, and government institutions especially the Ministry of Foreign Trade and Industry and the Federation of Egyptian Industries.

Main Components :

1- Policy Reform and Finance: to identify, formulate, guide, and help implement changes at the policy and institutional levels in order to increase the present and future competitiveness of the Egyptian industry. Toward that end, the activities of the Policy Reform Unit (PRU) aim at reaching a future industrial strategy for Egypt that involves all stakeholders. In fulfilling its tasks, PRU has six main interlinked lines of activities:

- Preparation of strategic sectoral studies that aim at producing development strategies and implementable action plans specific to each sector.
- Restructuring of industrial institutions particularly the Ministry of Foreign Trade and Industry and the Federation of Egyptian Industries.
- Enhancement of technological capabilities and innovation.
- Upgrading of the present institutional structure for monitoring policies.
- Contributing towards the reduction of implements in the business environment.
- The financial component of IMC assists entrepreneurs in getting access to financings tailored to their ambitions, needs and capacities through the BRCs.

2- Technical Assistance for Industrial Enterprises: The Technical Assistance Component provides a combination of consulting, training and advisory services to companies that wish to improve their competitiveness and grow their businesses, nationally or internationally. Services are provided to groups of companies with common needs, under the umbrella of different programmes. Companies may join a single programme or may participate in several initiatives, according to their needs.

3- The Business Resources Centers: Dynamic local business development service institutions called Business Resource Centres [BRCs] are being established throughout Egypt to serve as a strategic delivery arm of IMP. The role of a BRC is to act as a catalyst for modernising industry in Egypt and encourage entrepreneurship. The BRC network consists of 7 BRC regions - each having a main facility, a branch and one or more satellites. BRCs offer a diverse portfolio of locally customised business development services (BDS) that are delivered primarily through external consultants with projects managed by 'in-house' Business Advisors. The BRC service offer encompasses consulting, training and business information, as well as access to IMP's Technical Assistance. Specific services include strategy and market analysis; management development and business planning; product design and quality assurance; access to technologies and credit; and export preparedness.

4- The National Quality Plan: The quality component is responsible for implementing the national quality plan endorsed by the government of Egypt. Toward this direction, the quality component activities support the implementation and improvement of:

- Internationally recognized Egyptian Accreditation Bodies.
- A set of standards of adequate national standards to be harmonized with international ones.
- A network of testing and calibration laboratories to be accredited on international recognized level , in addition to establishing the trace ability chain of measurements up to the national/primary standard
- The knowledge and experience of consultants involved in quality issue.

Furthermore, the quality component is supporting the establishment of a national quality center to be the cement

Box 1.2: Industrial Modernization Programme

between the format required institutions on quality. This national quality plan will take initiatives to launch a nationwide quality awareness campaign. A national quality database will be designed and accessibility will be provided via a website. Moreover the national quality plan will initiate to design a national quality award scheme and will implement the scheme in due time.

5- European Information Correspondence Centre: As part of a network of over 300 dedicated quality information Centres in Europe and the Middle East, EICC has established itself in the information market as the source of privileged, first class information to the business enterprise at large. Programme direct access to detailed information within the European Commission in Brussels has enabled us to achieve our mission statement in:

- Informing local enterprises on the latest business matters
- Advising local SMEs on latest European and Egyptian legislations and regulations
- Assisting SMEs in positioning themselves in the European market
- Providing feedback to the European Commission about the obstacles facing local SMEs in the European market

Source: IMP, <http://www.imc-egypt.org>

1.3 Predominant Exporting Industries/Sectors in Egypt

Industry is a major contributor to the economy of Egypt. The sector contributes to about 30% of the Egyptian GDP and employs approximately 20% of the workforce⁶. Recent estimates indicate that the public sector and informal sector manufacturing units are the most polluting. Seven sectors account for over 80% of the total number of industrial establishments. The three largest ones are food and beverages (25%), textiles (17%) and chemicals (11%), which are also the oldest established industries in Egypt. These are followed by non-metallic minerals, metal production, chemicals and basic metals. Establishments manufacturing furniture, ceramics, and pharmaceuticals are gradually increasing their market share. Industry's energy consumption is approximately 50% of the total national energy consumption. Manufacturing units with less than 50 employees represent more that 99% of the total industrial establishments in Egypt. According to the General Organization For Industrialization (GOFI), the number of large enterprises is 450 establishments, medium enterprises 3500 establishments and small and micro enterprises account for more than 21,000 establishments.

⁶The National Environmental Action Plan of Egypt 2002-2017

In 2002-2003, manufacturing output represented close to 19% of the Gross Domestic Product (GDP), employing about 20% of the active labour power. **Box 1.3** provides some points explaining the importance of the manufacturing sector in Egypt.

Box 1.3: Importance of the Manufacturing Sector in Egypt

- Creating jobs for people and decreasing the negative impacts of unemployment.
- Developing the skills and knowledge of workforce of different industries.
- Achieving high added value.
- Achieving economic prosperity and raising the standard of living for all individuals.
- Increasing the production and service capacity in the society
- Contributing in decreasing the need for imports gap.

In the services sector, the tourism industry holds the greatest potential for growth and will therefore be discussed briefly in this section. A brief overview of the manufacturing and service industries with growth and export potential is presented below.

1.3.1 The Textiles and Clothing Industry

The textile and clothing (TC) industry is one of the most important sectors of the Egyptian economy. Its strategic nature is derived from its large size in terms of investments, employment, credit and export earnings. Egypt's textile industry was first developed in the 1920s, although the earliest modern weaving establishment - The National Textile Company - dates from 1898 and still operates at the same location on the outskirts of Alexandria. The most thriving textile centers have traditionally been in Mehalla, Kafr Al Dawar, Shubra Al Kheima (Cairo), Helwan and Alexandria, although newer industrial establishments have recently located in Amereya, Borg El Arab, 10th of Ramadan and 6th of October.

The TC industry is one of the few manufacturing processes in Egypt that is managed completely within the country and is one of the highest value-adding industries in the economy. It is also the largest non-oil export category accounting for almost 25% of non-oil exports in 2003. In the second quarter of 2004, textiles alone contributed to 19.04% of the total exports from Egypt⁷. Textiles are also an important source of employment. The TC industry accounts for 27% of industrial production thus ranking as the second largest industry after processed food in Egypt (AmCham BSAC, 2004)⁸. The total annual value of textile production was US\$ 3 billion in 2001 and the exports were US\$ 1 billion approximately, which represent nearly 25% of the total Egyptian exports and 32% of industrial exports (excluding oil). Throughout the sector, cotton yarns presently account for the largest share of total exports, with over 60% going to Europe. At present, there are

⁷ CAPMAS, 2004

⁸ The Textile and Clothing Industry in Egypt. Business Studies and Analysis Center. American Chamber of Commerce. August 2004.

39 public enterprises affiliated to the Cotton and Textiles Holding Company and around 4,491 private TC establishments. In addition, there are about 375,874 small factories and workshops operating all over the country. There are 1,147 private sector TC manufacturers operating in Egypt as of December 2003. The public sector accounts for 90% of cotton spinning, 60% of fabric production and 30% of apparel production. Private sector therefore dominates the apparel production. There are about one million people directly working in the T&C industry and more than 2 million indirectly working in this industry (agriculture, trade and services). It occupies about 30% of the domestic labour force. (Egyptian Export Promotion Centre, 2001)⁹

This trend is expected to change though, with finished garments gaining an increasingly large share of the export market. It is anticipated that finished garments could represent up to 80% of total exports within the next few years.

Egypt's TC industry has access to high-quality raw cotton and abundant labour. Egyptian cotton is relatively high in price and accounts for over half of finished goods production costs. US and EU buyers willingly pay a 10% premium for Egyptian cotton yarn as it is considered the best in quality worldwide. Almost one-fifth (20%) of the manufacturing cost in Egypt is represented by labour compared to only 2% in India and 4% in Turkey. This is partially due to lower wage levels in these countries but also due to use of more capital-intensive production techniques compared to Egypt.

Egypt has the products and capability needed to expand its export sales in this sector. However Egypt is losing its relative positioning in the EU market, falling from 5.4% share of Mediterranean Partner Countries' exports to the EU in 1995 to 3.7% in 2002⁴. In the overall context, Egypt's share of the EU textile market was 1.8% in 2003 compared to China, Turkey and India with EU textile market share of 13.6%, 12.4% and 9.2% respectively. Egypt experienced a fall in growth by 7.2% since 2001. The EU clothing market share is dominated by China at 19.2% and Turkey at 14.2%. Egypt's share of EU clothing market in 2003 was 0.5%. However, Egypt's share of the EU clothing market has grown by 3.0% since 2001. The situation is similar in the US market. The sector thus faces some challenges which it needs to overcome to improve its trading position. The following are some of the major problems and challenges facing the textile sector in Egypt (Egyptian Export Promotion Centre, 2001)³:

- Lack of information on the exact requirements, fabrics and designs expected by foreign buyers which in turn affects the demand for Egyptian products.
- The influx of smuggled Chinese and East European products at cheaper prices.

⁹ Egyptian Export Promotion Center, August 2001. Supply Survey to Increase Egypt's Participation in Development Aid Procurement, Buyers/Sellers meetings on Shelter, Personnel Protection and Household Items - South – South Trade

- Taxes imposed by the Egyptian government that reach 60% of the raw material price, i.e. primarily cotton.
- Tough competition in export markets due to the high prices associated with Egyptian products compared to Indian and Pakistani ones, and the overvalue.
- Severe competition from Far East countries in major importing countries such as USA, Europe, Arab and African countries;
- Higher cost of staff working in the plants and factories established in the new industrial zones in comparison with their equivalent in India and Pakistan.
- Shortage of skilled labour and management staff. Egypt's main comparative advantage lies in its abundant supply of cheap labour, however labour productivity is much lower than regional levels affecting Egypt's TC industry's competitiveness. Egypt's labour productivity in textiles is as low as 61% of the productivity level in Tunisia and 34% of that in Turkey.
- Lack of adequate private investments to upgrade design and production capabilities to increase efficiency and competitiveness, as well as marketing assistance to penetrate international markets.
- Outdated technology and use of old and inefficient equipment during manufacturing thereby reducing productivity.
- Lack of design centres to create new fabrics structures, fashions and designs as a means of maximizing value added to its products;
- Weak supply chain industries such as dyeing, embroidery etc., that should be fully developed to adequately support the industry;
- Cost of raw materials that enforce exporters to import less quality yarns from the Far East to remain price competitive;
- Lack of basic export marketing skills required for operating with the international market.
- Lack of technical assistance in product modification and transfer of technology. In addition, there is need for conducting market survey and sending trade selling missions to know and react with international requirements;
- Lack of long term strategy to ensure continuous supply to foreign markets;
- Low working capitals that cannot enable exporters to invest and start export business on a wide scale;
- Lack of financial resources that would enable managers to attend general and specified international fairs and exhibitions as well as to conduct market researches.
- Lack of financial capital and the knowledge about technical specifications amongst most of the producers in this sector (i.e. the small or medium sized enterprises).

Promotion Programme. Ministry of Economy & Foreign Trade.

- Major environmental impacts of the sector including wastewater effluent and air pollution which in turn affect the sector's ability to meet the environmental, safety and health requirements of international buyers.
- Efforts to fulfil ecolabeling requirements for selected export market: The European export market is the main market driving the requirement for eco-labels. Given the importance of the European market to the Egyptian textile sector, the sector will need to respond to the challenges of eco-labelling in order to protect and expand their export markets.

International trading rules are undergoing significant changes that will reshape the future of trade in textiles and clothing. These changes include the abolishment of the quota system by 2005; China's accession to the WTO; emergence of new tools of protectionism; growth of intra-regional trade within trading blocs; and the increasing role of global commodity chains. While these changes reflect a higher level of trade liberalization and hence more export opportunities, they also pose great challenges for the future of Egypt's textiles and clothing exports. A study by the Egyptian Centre for Economic Studies, examines the future of the textile sector in light of two scenarios. The first is to maintain the status quo, which means not doing any domestic reforms. The second is to take the necessary measures to adapt to and maximize benefits from such changes. The analysis shows that under the first scenario, this sector will be incapable of reaping the benefits of trade liberalization and preserving its current share of international exports. The study recommends that it is imperative to follow the second choice. It also emphasizes that increasing Egypt's share of the international textile and clothing trade (see **Box 1.5** for salient features of international trade in TC industry and the challenges facing Egypt in the post ATC era) requires making significant progress in three main areas, namely, creating the right incentives for producers to export; increasing the competitiveness of Egypt's textiles and clothing exports; and meeting international standards and criteria to ensure access of such exports to overseas markets. (Fawzy and Massoud, 2003¹⁰).

Box 1.5: Salient Features of International Trade in the TC Industry and the Challenges facing Egypt in the post-ATC era

International trade in the TC industry is regulated by the Agreement on Textiles and Clothing (ATC) at the multilateral level while bilateral and regional trade agreements typically link the two sectors through the rules of origin accompanying preferential market access.

Retailers in the clothing sector increasingly manage the supply chain of the TC industry. They are tending towards an approach of zero-inventory (in the US and increasingly in the EU as well) i.e., not holding a large inventory, which is shifting the competitive advantage of suppliers from production costs to becoming a question of costs in combination with lead time and flexibility. As a result, suppliers located close to major markets are being favoured. For e.g., Latin America's market shares have increased in the US at the expense of Asia while Central and Eastern Europe have gained market share in the EU.

Like Egypt, India and China have very low import shares reflecting the fact that most of the supply chain from textiles

¹⁰ Fawzy and Massoud. Egyptian Centre for Economic Studies, ECESWP86. June 2003.

Box 1.5: Salient Features of International Trade in the TC Industry and the Challenges facing Egypt in the post-ATC era

to ready – made clothing is located within the country.

Most analyses of the impact of phasing out quotas (the ATC) as of January 1, 2005 conclude that China and India will dominate world trade in TC with post-ATC market shares for China alone estimated at 50% or more.

Outcome of the phasing out of quotas will depend more on the prevailing tariff rates and the preferential relationships between supplier and buyer countries.

Countries close to the major markets are likely to be less affected by competition from India and China both due to proximity and to preferential market access that they have through regional trade agreements (for e.g., Mediterranean countries like Egypt, Jordan, Tunisia etc. will have preferential access to EU markets due to regional agreements).

Some of the main challenges facing Egypt in the post ATC era include:

- all import quotas on textiles and clothing abolished;
- increased competitive pressure in the EU from main producers (China, India, Pakistan)
- Preferential Agreements with the EU (duty free access) do not guarantee a certain market share;
- rising environmental awareness;
- rising awareness among European consumers about the health impact of products they come into contact with;
- the EU is increasing the level of environmental protection e.g., the Integrated Pollution Prevention and Control (IPPC) Council Directive 96/61/EC;
- the prominence of the voluntary EU Ecolabel that is awarded to products with a reduced environmental impact. It allows access to the EU markets plus Norway, Iceland and Liechtenstein and it is based on an analysis of the complete life-cycle of the product, from raw materials to distribution.

Source: The Global Textile and Clothing Industry post the Agreement on Textiles and Clothing, H.K. Nordas, WTO, Geneva, 2004; EU Commission Delegation, Cairo www.eu-delegation.org.eg.

Some of the provisions of the EU-Egypt Association Agreement are targeted to strengthen the Egyptian textile sector to help meet the challenges posed by world trade in the post-ATC era. These include¹¹:

- 100% customs duties reduction for textiles from Egypt to EU;
- No tariff quotas;
- Exceptions: raw silk and silk waste, wool and animal hair, raw cotton, waste, cotton carded or combed, raw flax and raw hemp, as considered agricultural products but not relevant (0% applied tariff rate);
- WTO (all import quotas abolished on 1.1.05), application of bound rates (40%);
- Customs duties shall be gradually abolished starting on 1st January 2009;
- By 1st January 2016, EU textiles shall enter into Egypt free of any customs duties.
 - First two years: 5% duty reduction each year

- Following years: 15% duty reduction each year
- According to MFTI Decree 161/2004, third country factories shall be registered at GOIEC to be allowed to export textiles and ready-made garments into Egypt
- The request shall be supported by the following documents:
 - A copy of the factory license
 - A certificate specifying the legal entity of the factory and its products
 - Product trademark and trademarks used under license
 - A certificate issued by any of the agencies certified by the Higher Council of Accreditation, verifying that a Quality Control System is applied by the factory
- The Minister of Foreign Trade and Industry has exempted EU factories from the obligation to submit these documents (*except if they have factories in 3rd countries*). It must be noted here however that these provisions by the MOFTI are not sustainable under WTO rules.

1.3.2 The Food Processing Industry

Food processing is Egypt's oldest manufacturing sector having been in existence since the early nineteenth century. With an output value of US\$3.4 billion this sector accounts for 15% of the manufacturing value added and 20% of employment. The food processing industry relies mostly on Egypt's high quality and low priced agricultural output. The exceptions in this case are intermediates such as sugar, oil seeds, cereals and dairy inputs which are partly imported. Land reclamation over the past decade has added over a hundred thousand acres to vegetable and fruit cultivation, giving food processing a plentiful supply of varied inputs that are highly cost competitive by international standards.

The scope for expansion of the frozen fruits and vegetables, fruit juices, jams, preserves and ready food preparations is enormous, given current levels of processing relative to domestic agricultural supply. Egypt grows potatoes, strawberries, grapes and most other vegetables in quantities greater than that can be consumed locally, or exported, in their raw state.

The food processing sector as a whole has registered an annual growth rate of 22% over the past 10 years, mostly in response to the sustained increase in domestic demand. The local market is boosted by the annual increases in population (about 1.2 million persons); by the rise in the number of working women from the middle class; and the influence of the media on people's preference for convenience foods, pre-cooked meals,

¹¹ For more information on the EU-Egypt Agreement see: www.eu-delegation.org.eg

snack foods and confectionery. **Box 1.5** provides some facts and figures of the food processing industry in Egypt.

Box 1.5: Facts and Figures of the Food Processing Industry in Egypt

- Today, the food processing sector in Egypt comprises approximately 1500 formal establishments (with 20 or more workers), more than 95% of which are privately owned.
- At present (December 2004), there are 22 public enterprises affiliated to the Food Industries Holding Company under the Ministry of Investment.
- Investment in this sector has also been consistently high over the past two decades; led by local entrepreneurs, many of whom have entered into partnership with multinationals or are producing, under license, some of the most reputable local and international brands.
- A growing number of multinational companies (MNCs) have also set up production units in Egypt, some with a view to serving neighbouring export markets from this lucrative and well positioned domestic base. Foremost among the MNC newcomers are Nestle, Heinz, Kellogg, Cadbury, Pioneer Hi-bred and Unilever.
- Exports from the food processing industry (including beverages) in the second quarter of 2004 have gradually climbed to their 1995 level constituting about 2.4% of total exports¹².
- The export market is dominated by Arab countries (60%) especially Saudi Arabia, Libya and Kuwait.
- The EU accounts for 20%, while Eastern Europe has retreated to 10% of Egypt's exports.

In terms of exports and new markets, Egyptians are looking at the EU which accounts for 37% of world imports of processed food (\$70 billion in 1992), especially since half of EU imports of processed and preserved fruits and 60% of dried vegetables and seafood products are from outside the EU.

Meeting EU quality standards is the basic requirement for expanding exports to these markets. In the past Egypt's food exports to EU have experienced some serious problems due to quality and safety issues. Not meeting the safety standards of importing countries can cause great economic losses to exporting countries over many years, after which re-accessing the same market that became accustomed to the food products of competitors could prove to be very difficult. To illustrate the significant impact that this issue can have on Egyptian trade, two case studies from the non-processed food sector have been provided in **Box 1 of Appendix 1**. Although these case studies are not from the food processing sector they serve to illustrate that Egypt has the capability to take effective measures when required to establish its market position.

¹² CAPMAS, 2004

Food safety could have very serious effects on the economy of the exporting country and producing to standards is the way forward for securing a place in the international market. More recently however, Egyptian products are increasingly meeting these standards, as well as proving to be highly cost-competitive.

Another key market for Egypt's food exports is the US\$14 billion market in the Middle East of which Turkey's penetration reached more than US\$1.2 billion in 1992. Egypt ranks fifth in terms of exports of processed food to the Arab region and it should easily move up closer to the top, given the momentum that exports have gathered to date.

For Egypt to maintain its position in the EU market with respect to the food sector (both processed and fresh foods) as well as diversify it would be useful to note the following issues that were highlighted by the EU Commission during the EU-Egypt Agreement meeting in Cairo in early 2004 (EU Commission, 2004)¹³:

- EU absorbs around 85% of Africa's and 45% of Latin America's agricultural products
- European consumers demand high level of health protection
- EU ensures the EU food legislation is in line with the Sanitary and Phytosanitary Agreement (SPSA) of the WTO
- Third countries and establishments must comply with EU food safety rules to be allowed to export

Whereas Latin-American countries dominate the extra- EU import of fruit, African countries play a more important role in the extra-EU import of vegetables into France, United Kingdom and The Netherlands. Nevertheless, vegetable imports are, notably more than fruit imports, dominated by intra-EU trade. In 2001, the EU imported € 687 million / 612 thousand tonnes of fresh vegetables from developing countries, which represented an increase of 23% in value and 15% in volume since 1999. The leading fresh vegetable exporter among the developing countries is Morocco, followed by Kenya, Turkey, Egypt and Thailand. This is a sector where Egypt can consolidate its position and aim to increase its market share and to accomplish this Egyptian industry and exporters must take note of the increasing trend in demand for organic products (CBI, 2003¹⁴). A recent study by the FAO "World Markets for Organic Fruit and Vegetables - Opportunities for Developing Countries in the Production and Export of Organic Horticultural Products¹⁵" shows that sales of organic fruit and vegetables in a number of EU countries have grown fast at annual rates ranging between 20 and 30 %. Particularly high growth rates have recently been observed in the United Kingdom and France.

¹³ Presentation made by the EU Commission Delegation, Cairo. www.eu-delegation.org.eg

¹⁴ CBI, 2003. EU Market Survey 2003. Fresh Fruit and Vegetables. www.cbi.nl

1.3.3 Other Significant Trade-Related Sectors

Apart from textiles and food processing sectors discussed above, the tanning and leather industry has significant export potential. Since the focus of this project under the SEAM Programme are the textile and food processing sectors, the tanning and leather industry is not being discussed in this Section. However details about the structure of this industrial sector and a discussion of its export potential are provided in **Appendix 1**.

In addition to the manufacturing sector, the service sector – primarily tourism – has contributed significantly to Egypt’s trade and economy. More details about this sector are presented in **Appendix 1**.

1.4 Current and Future Directions for Trade Enhancement in Egypt¹⁷

Efforts towards trade enhancement have been underway in Egypt since the early 90s. **Box 1.6** lists some of these significant initiatives.

Box 1.6: Trade Enhancement Initiatives in Egypt

- June 1995, Egypt acceded to the WTO. At this time Egypt pursued an effective structural adjustment programme that included liberalizing trade policy through reduced tariffs and elimination of non-tariff barriers.
- June 1998, Egypt joined the 21 member Common Market for Eastern and Southern Africa (COMESA) and reduced tariffs with other COMESA countries by 90% to establish a customs union by 2004 and a monetary union by 2025.
- July 1999 - Egypt and US signed a trade and investment free trade agreement (TIIFA) to enhance trade cooperation between the two countries by facilitating greater reciprocal access to the respective markets through removal of non-tariff barriers and other impediments to trade and investment flows.
- May 2001 – The **Aghadir Process** or Med-Arab Initiative (MAFTA) was initiated at Aghadir, Morocco at the Foreign Ministers meeting on 8th May 2001 by Morocco, Tunisia, Egypt and Jordan to establish a free trade area between the four countries. It was inspired by the consultations between the four countries made during the Marseilles conference. This links Arab-Med countries in both sub-regions in the Maghreb and Mashreq.
- June 2001 - Partnership agreement signed between EU and Egypt. Egyptian Parliament ratified the agreement in March 2003. An interim agreement signed in December 2003 enables early application of trade provisions in the Association Agreement. The agreement will permit Egypt to join the proposed Euro-Mediterranean free-trade zone to be established by 2010. Agreement provides for a 12 year transitional period during which tariffs and non-tariff barriers will be phased out.
- February 25, 2004 - Jordan, Egypt, Tunisia and Morocco signed the **Aghadir Free Trade Agreement**. The agreement was established on a gradual basis through a transitional period not exceeding the 1st January 2006. Agriculture and processed agriculture products will be liberalized according to the trade facilitation and development agreement between countries for the establishment

¹⁵ The report can which can be downloaded at www.fao.org/docrep/004/y1669e/y1669e00.htm#Contents

Box 1.6: Trade Enhancement Initiatives in Egypt

of a Pan Arab Free Trade Area (PAFTA). In the same way, PAN-MEDA Rules of origin are applicable on trade goods under this agreement.

- December 2004 - Euros 4 millions submitted to Jordan by the EU delegation to establish the free trade area between Jordan, Egypt, Tunisia and Morocco. It is expected that this agreement will attract at least 100 million investors to this area.

Source: Egypt 2004, Eight Edition, January 2004, Ministry of Foreign Trade;

The Aghadir Process, Majed Hamoudeh, Director Foreign Trade Policy Department Ministry of Industry and Trade, Amman, Jordan. Presented at. Mediterranean Academy of Diplomatic Studies, University of Malta. May 4-6 2002.

More recently, on December 14, 2004 Egypt signed an agreement, with Israel and the US allowing Qualified Industrial Zones (QIZ) to be established. Goods produced in these zones will enjoy unhampered access to the US market provided they have an 11.7% input from Israel. **Box 1.7** presents the salient features of this foreign trade agreement between the US and Egypt.

Box 1.7: The Foreign Trade Agreement between Egypt and the US and QIZs

The Egyptian government has entered into a Free Trade Agreement with the US to protect Egypt's textile and clothing industry's share of the US market. The Multi-Fibre Agreement expires at the end of December 2004, and along with it the quota system that had shielded Egyptian producers from East Asian and Chinese competitors in the US market. The jobs of 150,000 workers were at stake according to a Ministry of Foreign Trade and Industry (MFTI) report. According to the MFTI, the duty free access that comes with the QIZ agreement should ensure that: Egyptian exporters enjoy a competitive edge; it could lead to the creation of 250,000 jobs; see exports to the US increase by LE4 billion over five years and; attract \$5 billion of foreign direct investments. The only other country to have a QIZ agreement with the US and Israel is Jordan. Jordanian exports to the US soared from \$2 million in 1999 to around \$600 million in 2003.

The only alternative to the QIZ agreement would have been to establish a Free Trade Area (FTA) with the US. This would have required far lengthier negotiations and a reciprocation of benefits, which is not the case with the QIZ. Many commentators though, see the current agreement as a stepping stone towards an FTA.

The US has agreed on three QIZs in Egypt: one in Greater Cairo; another in Alexandria; and a third in the Suez Canal Zone. All the industrial areas within these three zones will be able to make use of the agreement. In the Suez Canal Zone, only the industrial area of Port Said has been approved.

The number of zones could be increased in one-year's time. In the meantime, factories producing goods for export to the US market, but not included in these zones, have been promised increased support by the industrial modernisation programme and the export support fund.

In Egypt, while the textiles industry will see immediate benefits, other industries that pay between 10 and 30% customs are also set to gain. These include food products, furniture, leather, chemical industries, and the engineering and metallurgical sector.

The QIZ has also been promoted as a step towards reaching an FTA. The US currently has FTAs with Israel, Jordan, and Morocco. While an FTA with Bahrain is pending Congressional approval, FTA negotiations with the United Arab Emirates and Oman are scheduled to begin early next year.

In 1998, Egypt's exports to US were over 40 times the value of Jordan's exports. With the operation of the first QIZ in 1999 Jordan's exports were doubled. In 2001, Jordan's exports increased from \$16.4 million to \$229 millions. In 2002, Jordan exports doubled again.

Box 1.7: The Foreign Trade Agreement between Egypt and the US and QIZs

Apart from external agreements and partnerships, the Government of Egypt has also initiated domestic measures to enhance trade. Some of these initiatives include:

Export Development for SMEs: Egypt realizes that small and medium enterprises (SMEs)¹⁶ are fundamental to the development and modernization of the Egyptian economy. The General Department for SME Affairs is attached to the Foreign Trade Policy Sector. This department supervises efforts to promote SME competitiveness and oversees the role of such enterprises in redressing the trade deficit, whether by increasing exports or rationalizing imports.

Given the concern of the Ministry of Foreign Trade (MOFT) with the development of SMEs, on one hand, and exports on the other, the ministry has initiated an Export Development Strategy for SMEs, which will be implemented in three phases:

1. The strategy's main framework: Work at this level includes pinpointing priority sectors and targeting those SMEs most in need of export assistance, as well as identifying the factors that have prevented them from developing products for export, regardless of what sector they belong to. In this phase, it will be important to concentrate on the following courses of action:
 - Emphasizing that the foreign trade services provided by MOFT affiliates are available to SMEs.
 - Increasing the participation of small investors in the elaboration of foreign trade policies through increased participation in specialized Commodity Councils and joint administrative committees that bring private sector representatives together with actors from foreign trade institutions.
 - Integrating new concepts and methods through which to support SME exports, such as consortia marketing, branding and quality control systems; introducing trading houses as well as many other innovative processes.
 - Enhancing the ability of SMEs to obtain exports financing through the Export Development Bank and the Export Insurance Company.
 - Intervening to support SMEs in ways determined by each sector's requirements.

2. The second phase, building on the achievements of the first, will entail a **comprehensive investigation and evaluation of SME's export capabilities** according to the sectors defined in the first phase as priority recipients of export assistance. This research will result in the elaboration of SME export development policies for each sector.
3. The third phase includes the **implementation of assistance policies** for SMEs within the defined sectors.

Additionally:

- The MOFT is developing International Trade Points systems to provide more services to small export oriented investors in all governorates. These services include increasing awareness of e-commerce among small investors, as well as promoting and marketing their exports.
- The General Authority for Export and Import Control, an MOFT affiliate, helps SMEs in the following ways:
 - Technical guidance to small exporters on export advantages and packaging techniques
 - Information on procedures to obtain export or import registers
 - Guidance on the roles of different monitoring entities and the examination of exported goods
 - Training to small exporters to upgrade information systems and develop laboratories
- The Export Development Bank, an MOFT affiliate, facilitates various financial procedures for SME exports and has set up special branch units to finance exports.

Privatization Programme: The Ministry of Investment is in charge of implementing the “Public Enterprise Reform and Privatization Program”. The major objectives of this program are: (i) to enhance the efficiency of public enterprises that were subjected to Law 203 for the year 1991 and ultimately maximize their contribution to the economy and; (ii) to activate the Egyptian stock market and to attract Arab and foreign direct investment to Egypt through the privatization of existing companies and assets. As a result the Public Sector currently has a portfolio of 174 companies owned by 9 holding companies compared to 306 companies at the start of the program in 1991. Industrial companies are affiliated to only five of these holding companies (Spinning & Weaving, Metallurgical Industries, Chemical Industries, Food Industries and Pharmaceuticals).

¹⁶ SMEs are a particularly important element, if only in purely numerical terms - they now account for about 99% of non-agricultural private sector activities, three quarters of the total labor force in the private sector and 75% of value

Policy and Fiscal measures to enhance trade: The Government of Egypt (GOE) has introduced several measures to reduce restrictions and liberalize the trade regime. Some of the significant measures are listed below:

- In 1998, GOE reduced the maximum tariffs on most products from 50 % to 40 % (except on poultry, alcoholic beverages, tobacco and cars) and consolidated rates of 35% and 45 % to 30 %.
- In early 1998 the ban on most textiles was lifted in compliance with the WTO Agreement on Textiles and Clothing; the remaining import ban on apparel will be eliminated in 2003.
- The tariff on rice imports was reduced from 20 percent to 5 percent.
- The GOE unified port inspections and testing in one entity to reduce the costs of importing and approved the acceptance of certificates of accredited laboratories abroad. These measures led to tariff equivalent reductions in the costs of importing. Presidential Decree 429 issued in 2000 has further modified tariffs on some items.
- Tariffs on raw sugar (cane and beet) for refining have been reduced from 24% to 5%. A tariff on pure sugar has been reduced from 24 percent to 10 percent. In addition, the government removed quantitative restrictions and many other non-tariff barriers to imports.
- Law 161 on “The Protection of the National Economy from the Effects of Injurious Practices in International Trade” was passed in 1998, together with its executive regulations. It introduced procedures to be followed regarding the application of safeguard measures as well as anti-dumping and countervailing duties. It was notified to the WTO in November 1998.

The GOE has also passed several decrees to specifically enhance trade in textiles. These include:

- Ministry Foreign Trade Decree 923/2001 (OJ 297, supplement C of 31.12.03): Lifts the ban on imports of garments, their accessories and other textile products
- Presidential Decree 35/2004 (OJ 3, supplement B of 20.01.04): Establishes WTO bound rates for textiles, meeting Egypt’s commitments for 2004 and 2005
- Ministry Foreign Trade Decree 68/2004 (OJ 31-B(bis) of 12.02.04): certain Environmental and Labour Safety standards have to be met to register factories. Establishes a registry at GOIEC for textiles factories licensed to export to Egypt.
- Ministry Foreign Trade Decree 263/2004: Excludes a list of certain textile products (jute, horsehair, bast, for carpets, vocational protection, life jackets,) from the obligation to obtain a license to export to Egypt

added. The private sector - which consists largely of SMEs - shoulders the bulk of the burden when it comes to exports.

- Ministry Foreign Trade Decree 284/2004 (OJ 100 of 9.05.04): Amends MOFT Decree 68/2004 stating that expenses of technical teams should be covered by the inspected factory
- Ministry Foreign Trade 285/2004 (OJ 100 of 9.05.04): Registers automatically a list of EU and US companies at GOIEC's registry for textile exporters to Egypt

This Section of the manual has: (i) provided some background of Egypt's trade flows in the form of economic statistics (ii) identified textile and food sectors as being among the manufacturing sectors that have and will continue to have a significant role in Egyptian trade (iii) shown that the EU is and will continue to be Egypt's major trading partner with the US a close second and (iv) summarized some of Egypt's initiatives (policy and fiscal) underway to enhance trade. It is evident that there are strong prospects for improving the exports of Egyptian products; it is now necessary to understand the challenges that Egypt faces. The most important question to be answered is "what does the market want?" Some answers to the first question will be explored in **Section 2** of this manual.

What will we learn from Section Two?

2.0	<p>Market Access and Trade – Current and Future Challenges</p> <p>2.1 Current Trends in Market Requirements</p> <p>2.1.1 Legislation / Technical Regulations and Voluntary Requirements</p> <p>2.1.2 Labelling Requirements</p> <p>2.1.3 Other Requirements</p> <p>2.2 Future Challenges</p> <p>2.2.1 Next Generation Ecolabels</p> <p>2.2.2 Increasing role of retail chains</p> <p>2.2.3 EU Policies and Safety Standards</p> <p>2.2.4 Social welfare and labour requirements</p> <p>2.3 Tariffs, taxes, quota and other barriers in the EU Market</p> <p>2.4 Implications for Market Access</p> <p>2.5 Importance of a Long-term Strategy to Meet Trade Challenges</p>
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Section 2: Market Access and Trade: Current and Future Challenges

Market access in trade is influenced by a large number of trade policy measures such as tariffs, taxes, quotas, preferential treatment (facilitated through trade agreements), and other measures such as bans, import licensing etc. In addition there are non-tariff measures which may be considered technical barriers to trade. This Section focuses on the challenges – current and future – that the international market presents for Egypt in its efforts to enhance trade. The focal market in this discussion will be the EU since it is Egypt’s main trading partner (see Sub-Section 1.2 and 1.3 of this Manual). Most of the discussion will focus on the technical measures or technical barriers that affect market access and trade since: (i) they are increasingly becoming more significant than the conventional trade policy measures due to the costs involved in adjusting products and production facilities to comply with these requirements as well as costs incurred in demonstrating compliance with these measures; and (ii) the aim of this Manual is to show how cleaner production can be used as a tool to overcome these barriers; the questions that this Section will attempt to address include: “What are the market requirements that Egyptian exporters must be aware of for their goods? How can Egypt obtain market access in international trade?” It is important to obtain answers to these questions in order to develop an effective strategy to enhance trade.

2.1 Current Trends in Market Requirements

The growth in trade over the past 50 years has been one of the leading factors for economic growth and development around the world. Rapid industrial and economic growth and globalization has had its share of social and environmental consequences which increasingly is influencing the way business and trade are conducted. Increasing pressure on natural resources and heightened consumer awareness of environmental, health and safety issues arising from globalization has resulted in a change in the traditional approach to trade. The old question was: *What is the impact of environmental measures on trade or trade liberalization on environmental quality?* The new integrated question being asked is: *How can benefits of trade and competitiveness be maximised and environmental quality and human health be protected?*

Consumers, businesses and governments have started to realize these facts and understand how they affect their well-being. For instances, in the case of consumers, products manufactured without taking environmental aspects into consideration can adversely affect the health of the consumer. In the case of businesses, poorly controlled natural resource use can lead business operations to be uncompetitive and give other businesses an advantage over it. The loss of export markets is thus a very real threat for businesses and cannot be ignored. In the case of governments charged with the protection of the well-being of their citizens as well as the management of natural resource supplies, the environmental challenges to trade cover not only trade requirements at home, but also those originating from countries other than their own.

Consumers are starting to actively support and buy products which are proved to be environmentally friendly and those which will not have any hidden adverse effects on their health. Businesses are increasingly opting for ways and means to improve their operations to provide environmentally friendly, better priced and more competitive products, as well as obtain third-party endorsements to their positive attributes. Lastly, governments are doing everything in their power to help businesses which wish to trade with their country by initiating and implementing and/or supporting specially designed new schemes / systems assuring the environmental friendliness of traded products.

As a result of all these developments, market requirements today are increasingly expanding the traditional requirements such as quality, price, and timely delivery to include environmental and social requirements.

For Egypt to enhance trade it must: (i) maintain (safeguard) existing markets; (ii) increase the existing market share and (iii) seek new markets. This is possible only by production of goods and services that meet market requirements. The first step therefore is to understand the current and future trends in market requirements.

In this Manual, market requirements will be discussed under the following headings:

- Voluntary market requirements and legislation or technical regulations (mandatory)
- Labelling requirements (either mandatory or voluntary, such as eco-labelling),
- Other requirements such as packaging, product taxes and charges, take-back obligations, informal (non-government) requirements, quotas and non automatic licensing (to implement multilateral environmental agreements)

Box 2.1 presents a taxonomy of the various measures taken by the government, private and public sectors which serve as market requirements. They can be imposed by governments, private buyers, or non-governmental labelling organizations, and can be based on either the processes and production methods (PPMs) by which the products are made, or on the characteristics of the product itself. Some *process* requirements are put in place because following them will have a desired effect on the end *product*. For example, requirements for sanitary handling and processing of food products are in place in order to prevent contamination of the final product.

Box 2.1: A Taxonomy of Market Requirements		
	Processes and Production Method-based (PPM based)	Product-based
Set by government	Voluntary (eco-labels): e.g., organic standards; Mandatory (technical regulations): e.g., labelling requirements specifying	Voluntary (eco-labels): e.g., eco-friendly materials, energy-efficiency standards; Mandatory (technical regulations):

Box 2.1: A Taxonomy of Market Requirements		
	processes and production methods	e.g., bans on CFC refrigerants, required automobile emission reduction systems, related labelling requirements.
Set by private buyers	e.g., EMS requirements (ISO 14000); pollution or technology standards; codes for sustainably sourced materials.	e.g., Energy efficiency standards; product recyclability requirements.
Set by private standards bodies	e.g., non-governmental standards for sustainable forestry, fisheries practices (Forest Stewardship Council, Marine Stewardship Council).	e.g., non-governmental standards for eco-friendly materials, energy efficiency standards.

Source: Cosby, A, Lessons Learned on Trade and Sustainable Development. International Institute for Sustainable Development. Canada. 2004.

2.1.1 Legislation / Technical Regulations and Voluntary Requirements

Legislation / technical regulations are obligatory requirements that exporters have to meet in order to place their products in a market. They typically have health, safety and environmental objectives and are typically required by governments. Legislation in the EU market typically lays down product characteristics or their related processes and production methods and may include terminology, symbols and packaging, marking or labelling requirements. These mandatory requirements are imposed by customs administrations and through official conformity assessment procedures. For e.g., (i) health-related standards such as EU standards on aflatoxin levels in peanuts which exceed the norms set by the Codex Alimentarius, the international standard-setting body for food-related standards; (ii) imports of fresh fruit and vegetables to the EU have to comply with the regulations for Maximum Residue Levels (MRLs)¹ of a large number of pesticides. The maximum levels for pesticide residues in and on certain products of plant origin, including fruit and vegetables, are laid down in Council Directive 90/642/EEC.²

Products imported into the EU must meet health, safety and environmental legislation that exist at the EU level and at national level i.e., individual Member State.

The international framework for legislation and technical requirements is The Technical Barriers to Trade Agreement (TBT)³ under WTO. The TBT Agreement aims to minimise the impact on trade of technical requirements. However, Governments retain the right to take necessary measures to protect health, safety, and the environment. The TBT Agreement simply aims to ensure that such measures are adopted and applied

¹ For a comprehensive overview of the approved levels of pesticides, please refer : EU pesticide residues legislation http://europa.eu.int/comm/food/fs/ph_ps/pest/index_en.htm.

² Centre for the Promotion of imports from Developing Countries, EU Market Survey 2003, Fresh Fruits and Vegetables, May 2003.

³ Further information on TBT issues can also be found at: <http://trade-info.cec.eu.int/tbt/index.cfm> and on the WTO website; http://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm

in a “trade friendly” manner. The TBT Agreement is an integral part of the WTO Agreement and covers mandatory technical regulations, voluntary standards, and conformity assessment procedures (these procedures establish the fulfilment with technical regulations and standards). Measures covered by the WTO Agreement on Sanitary and Phyto sanitary Measures are excluded from the scope of the TBT Agreement. Developing countries encounter difficulties with the TBT Agreement. Governments are concerned about the ability of the industries to comply with technical requirements in export markets and obligations under the TBT Agreement at home. As a result, the WTO TBT Committee is developing a demand-driven technical co-operation programme. Technical co-operation and assistance may include raising awareness of technical barriers to trade; building up standards institutions and testing facilities; supporting regional arrangements to address common TBT concerns; and enhancing participation of developing countries in the international standardisation process.

While legislation is established to safeguard health and safety and legally bind exporters and importers, **voluntary market requirements** are those that producers or exporters can adhere to on a voluntary basis to show their product, production process, or management system takes account of this common awareness. Voluntary market requirements play an important role in the field of quality, environment and social accountability. There are instances however, where voluntary requirements have evolved into legislation, for e.g., the legislation for packaging waste and trade in endangered species. As such, neglecting market requirements means neglecting the demands of clients. Incorporating certain market requirements into a company involves a serious investment, but if an exporter complies with the relevant market requirements for e.g., in the case of the EU, it immediately opens a single market with over 400 million potential clients⁴.

Voluntary measures are typically required by private importers and/or retailers (e.g., standards, codes and benchmarks as a strategy for ensuring that the supply chain meets environmental and social requirements).

“Benchmarks” are a set of pre-defined criteria developed by a company or organization and may be used to compare its own performance or product or those of suppliers and subcontractors or judge one’s own performance compared with other similar companies’, in order to learn and improve but also to rate the performance of a sector as a whole. An overview of the social, environmental and occupational health and safety issues used as benchmarking criteria by H&M is presented in **Box 1 of Appendix 2**, as an illustration of criteria that may affect suppliers or exporters in the textile sector who are interested in doing business with H&M.

⁴ Export Manual, Exporting to the European Union, Your Guide to Trade-Related Information on the EU Market. November 2003. Centre for the Promotion of Imports from Developing Countries.

Codes of conduct are standards developed by large retailers and multinationals to enforce their environmental and social commitments along the supply chain. **Box 2 of Appendix 2** presents the codes of conduct adopted by the German company Otto Versand which is the largest mail-order catalogue group in the world⁵. Over the past years, Otto Versand has become increasingly aware of the need to conduct its business in a sustainable manner. At a corporate level, Otto was the world's first mail-order firm to gain ISO 14001 certification in 1997. Otto also developed guidelines for trading partners, in order to take up social responsibility in the production chain. The company is taking part in the development of a certification system valid worldwide for the compliance with social standards, by using the internationally accepted SA8000 standard⁶ and system for social management.

Voluntary measures and private sector codes of conduct and standards form a much larger share of market requirements and are much more frequent than Government environmental product regulations. Apart from direct product legislation more recent developments at a regional level e.g., EU's food policy and the new chemicals policy in the form of the EU's REACH legislation will have tremendous impact on trade in the form of standards which could be more of a PPM type rather than product based. This will have very significant implications for Egyptian exports to EU. These issues are discussed in greater detail in the **sub-section 2.2** of this manual. International standards for environmental regulations are very few.

In understanding market requirements there are some significant observations made in a study conducted by the International Institute of Sustainable Development that are worth noting (Coseby, 2004):

- only a small sub-set of measures can be addressed by seeking remedy in the WTO;
- only government standards are covered by WTO rules—buyers' standards can be as unfair and inappropriate as the market will bear;
- of the universe of government standards, only mandatory standards (technical regulations) are effectively contestable; voluntary standards are covered by a legally weak code of good practice;
- technical regulations covering environment-related PPMs are extremely rare;
- legally contestable standards represent a very small slice of the pie that is trade-related environmental standards;

⁵ Otto Versand owns 83 companies in 23 countries including Eddie Bauer in North America, 3-Suisses in mainland Europe and Otto-Sumisho in Japan. The group employs more than 70,000 staff, and in 1999/2000 had a turnover of EUR 20.5 billion (US\$18 billion). Ninety percent of company sales are in the USA, Germany, France, Britain and Japan. The Otto catalogue contains more than 25,000 different products.

⁶ Please refer to sub-section 2.2.3 of this Section for a more detailed explanation of SA 8000.

⁷ Cosbey, A, Lessons Learned on Trade and Sustainable Development. International Institute for Sustainable Development. Canada. 2004.

- there are a number of *human health*-related technical regulations, the benefits of which in the importing countries have been seen as being out of proportion to the economic costs borne by exporters. For e.g., the EU standards on aflatoxin levels in peanuts—which exceed the norms set by the Codex Alimentarius, the international standard-setting body for food-related standards— are perceived as engendering disproportionate costs, and may be designed to serve protectionist ends. It is also argued that some developed country standards on formaldehyde, glyoxal and PCP residues in textiles were driven at least in part by the fact that they would benefit western holders of patents on the only known substitutes. Such standards may have significant impacts, and may have protectionist genesis.

2.1.2 Labelling Requirements

Labelling requirements today, focus on products covering a wide range of properties e.g., labels indicating environmental attributes and impact (ecolabels), the origin of the product (EU's PDO – Protected Designation of Origin), its geographical indication (EU's PGI – Protected Geographical Indication). More recently however, production methods are also being included in labelling (e.g., certifications such as “organic”, “timber certification”).

Of the various labelling requirements, **ecolabelling schemes** have probably had the most significant impact on trade particularly for textiles, footwear and consumer goods.

Eco-labelling or “environmental labelling” is a voluntary method of environmental performance certification. Ecolabels are intended to provide consumers with information and assessments not otherwise apparent, to guide them in making purchasing decisions based on the environmental impacts of products. They also serve as consumer protection tools by providing environmental information not readily available or not supplied by the marketer.

Ecolabels generally have three objectives:

- to raise awareness and to encourage consumers to base purchasing decisions to a greater extent on environmental attributes by providing necessary information
- to provide market-based incentives for manufacturers to lessen the environmental impacts of their products and production processes.
- to prevent misleading environmental advertising

Using highly visible and recognizable logos, ecolabels identify the overall environmental preference of a product or service within a specific product/service category based on life cycle considerations. In contrast to

green symbols or claim statements developed by manufacturers and service providers, ecolabels are awarded by a third-party in relation to certain products or services that are independently determined to meet environmental leadership criteria.

Box 2.2 provides a short introduction to the different kinds of available eco-label schemes.

Box 2.2: Different Kinds of Ecolabels

- A *comprehensive labelling scheme* attempts to evaluate the total environmental impact of a product against a set of comprehensive pre-established criteria. Environmental Choice (Canada) is an example of a comprehensive scheme for products.
- A *specific labelling scheme* evaluates only one aspect of a product against specific criteria. For example, a product could be rated only for energy or water consumption. The U. S. Energy Star program is an example.
- *Service labelling schemes* are also being promoted. For example, the EU Eco-label certifies tourist accommodation.
- *Production labelling schemes* are frequently used for food - for example, organic or not-genetically-modified foods. These schemes are probably the most well known to consumers. However, the application of standards in this area is notoriously loose - for example, the use of the word 'organic' on foods does not always mean the same thing.

Note that some products may only be labelled by the manufacturer as 'environmentally-friendly' or 'green'. However, such claims do not involve a third-party certification, and may mislead consumers.

As businesses have come to recognize that environmental concerns may be translated into a market advantage for certain products and services, various environmental declarations/claims/labels have emerged on products and with respect to services in the marketplace; e.g. natural, recyclable, eco-friendly, low energy, recycled content, etc. In many instances, such labelling has taken the form of ecolabels awarded to products approved by an eco-labelling program operated at a national or regional (i.e. multi-country) level (see **Table 2.1**).

As discussed above, the most visible ecolabels in international trade have been those in the textile and clothing and footwear sectors (See **Appendix 4** for details of specific requirements of some of the prominent ecolabels in the EU market e.g., Oeko-tex, Eco-tex, EU Flower, Nordic Swan). While Oeko-tex is one of the most well-known ecolabels in the textile sector, the EU Flower is acceptable by buyers in several EU countries. Around 6,600 companies in 79 countries use the Oeko-tex system. The majority of the certificates

(58%) have been issued to European companies. The rest have gone to Asian companies (40.1%), Africa (0.7%), Americas (1.0%) and Australia (0.2%)⁸.

Some of the salient features of the EU-Flower ecolabel, which is universally acceptable by buyers in several EU countries, are presented in **Box 3 of Appendix 2**.

Table 2.1: Some Examples of Eco-label Characteristics and Issuing Bodies

Eco-label Type	Characteristics	Issuing Bodies	Specific Examples
Independent or Private	Most of these take into account the whole life-cycle of a product, from the production of raw material to the disposal phase of the discarded product	Non-Governmental Organisations (NGOs), Institution related to the Producer's association	Good Environmental Choice Öeko-Tex 100 Öeko-Tex 1000 Eco-tex® AKN Trademark AKN members Food Alliance ⁹
Company	Used as a marketing tool to communicate real or supposed environmental benefits	Individual manufacturers	Steilmann Otto Versand Hess Natur Green Cotton
National and International	Special significance to manufacturers: Provide opportunities to enter new markets and address certain niche markets	Governments	<u>Multinational:</u> EU-Flower Nordic Eco-label <u>National:</u> EKO-Seal (Holland) Environmental Choice (Canada) Eco-Mark (Japan) Eco-Mark (Korea) Environmental Labelling (China) Eco-Mark (India)

Increasingly, consumers' fears, triggered by food scares and technological developments such as genetically modified foods and organisms have been translated into serious concern about food safety, ever-increasing demands for quality assurance, and more information about product origin. **Box 2.3** presents the different European food quality labels.

Box 2.3 Different European Food Quality Labels

- A *Protected Designation of Origin* (PDO) covers the term used to describe foodstuffs that are produced, processed and prepared in a given geographical area using recognized know-how.

⁸ Source: Freitag, R. Oeko-Tex Association, Zurich. Textile Ecology and the Oeko-tex standard 100 and 1000 Oeko Tex Standard a Silent Seller. Presented at workshop in *Cleaner Production for Egypt's Textile Exports*. Jan. 31, 2005, Cairo, Egypt.

⁹ Food Alliance is the only food sector ecolabel in the category listed in Table 2.1. Food Alliance is a non-profit organization with operations based in Portland, Oregon, and St. Paul, Minnesota, is dedicated to promoting expanded use of sustainable agriculture practices through market-based incentives. Food Alliance operates an ecolabel program encouraging environmentally and socially responsible food production.

Box 2.3 Different European Food Quality Labels

Example: Italian cheese *Pecorino Toscano*.

- In the case of the *Protected Geographical Indication* (PGI) the provenance must occur in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation. Example: French dry-cured ham *Bayonne*.



- In March 2000 the European Commission introduced a logo (*shown above*) bearing the words 'Organic Farming - EC Control System' [Regulation (EEC) No 2092/91] to be used on a voluntary basis by producers whose systems and products have been found on inspection to satisfy EU regulations. Consumers buying products bearing this logo can be confident that: at least 95% of the product's ingredients have been organically produced; the product complies with the rules of the official inspection scheme; the product has come directly from the producer or preparer in a sealed package; the product bears the name of the producer, the preparer or vendor and the name or code of the inspection body.

Source: europa.eu.int/comm/agriculture/qual/

Labels discussed in **Box 2.3** above include certifications other than product specific ecolabel certification. The scope of labels such as certification of origin and organic certification (which covers production and manufacturing practices as well) is much wider and has very significant impacts on trade and serious cost implications for the exporting country since it has to comply with these requirements in order to be able to trade. Labels referring to the organic production of fruit and vegetables that are considered ecolabels include e.g., the EKO quality label in The Netherlands that guarantees the organic origin and quality of agricultural products. (See section on “**Other Certification Schemes**” below for more details on organic labels and certification).

Labelling efforts have attracted consumers looking for ways to reduce adverse environmental impacts through their purchasing choices; however, they have also led to some confusion and scepticism on the part of consumers which in turn impacts manufacture and trade in labelled goods and services. The effectiveness of labelling programs depends on consumer awareness of environmental concerns. Consumer education is therefore crucial to the success of these programs. Also, the market must determine what kind of premium consumers are willing to pay for a labelled product or service. Governments may support labelling schemes by requiring that products purchased for government use, be certified where possible.

Ecolabelling covers a broad range of activities, from business-to-business transfers of product-specific environmental information to environmental labelling in retail markets. The number of ecolabels is large and at times, it becomes confusing to understand which certification scheme to opt for. Both buyers and sellers must therefore be aware of what constitutes a good / appropriate ecolabel. **Box 2.4** provides characteristics of a good ecolabelling scheme.

Box 2.4: Characteristics of a Good Ecolabel**What Makes a Good Eco-label?¹⁰**

The best eco-labels are seals or logos indicating that an independent organization has verified that a product meets a set of meaningful and consistent standards for environmental protection and/or social justice.

- **Meaningful and verifiable:** Eco-labels should have a set of environmentally meaningful standards. These standards should be verifiable by the certifier or another independent inspection organization.
- **Consistent and clear:** An eco-label used on one product should have the same meaning if used on other products. Standards should be written in a way that can be verified in a consistent manner so that the label is consistent in meaning among different products.
- **Transparent:** The organization behind an eco-label should make information about organizational structure, funding, board of directors, and certification standards available to the public. If such information is withheld, it is difficult to determine the meaning and clarity of the standards or the independence of the certifying organization.
- **Independent and protection from conflict of interest:** Organizations establishing standards and deciding who can use a logo should not have any ties to, and should not receive any funding from the sale of certified products or contributions from logo users beyond fees for certification. Employees of companies whose products are certified or applying for certification should not be on the board of directors of the certifier (and no one affiliated with the certifier should be on the board of directors of the organization being certified). Some certifying organizations have explicit conflict of interest policies prohibiting such affiliations.
- **Opportunities for public conflict:** All certification standards should be developed with input from multiple stakeholders including consumers, industry, environmentalists and social representatives in a way that doesn't compromise the independence of the certifier. For example, industry representatives can play an important advisory role without having direct financial, decision making or management ties to the certifier.

Given the significance of ecolabels in the EU and US and increasing consumer preference for not just safe and eco-friendly products but products that are produced in an environmentally sound manner, obtaining appropriate ecolabel certification and increasing awareness regarding labelling requirements in Egypt's main markets is imperative to enhance Egypt's trade. For sectors, such as the textile sector which happens to be one of Egypt's main export commodities and the food sector – which can tap the large European and US market, the demand for appropriate labelling and certification has been increasingly steadily over the past few years.

According to the General Agreement on Tariff and Trade (GATT), Egypt and other developing countries will have to compete with open international competition by 2005. As market policies are expected to open under GATT, Egyptian industries are expected to face global competition. In response to GATT, the

¹⁰ Adapted from www.eco-labels.org/good_ecolabel.cfm?mode=text

European market is introducing new restrictions on import of textiles, such that only ecologically safe products will be accepted. In order to maintain existing markets or enter new ones, Egyptian producers will either have to obtain the most appropriate labelling / certification, or accept much lower prices for their goods, a situation which is not tenable for any business.

Other labelling / certification schemes: Apart from ecolabelling schemes other certifications that are affecting market access for goods and services include “organic certification”, “timber certification” and the ISO 14001 certification for environmental management systems.

As discussed above, the consumer and market demand for the “**organically grown**” label is gaining prominence in the EU market primarily in the food sector. A niche market for organic cotton in the textile sector exists in the EU and the United States. Table 2.2 presents highlights of the international market of organic products.

Table 2.2 - Highlights of International Market of Organic Products

World market	US\$17.5 billion
US market	US\$ 8 billion
European market	US\$ 7 billion
German market	US\$ 2.2-2.4 billion
Annual growth rate in major markets	10-20%
Fastest growth rate	United Kingdom (25-30%)

Source: Jha, V. *Mapping the Challenges – Environmentally Preferable Products*. UNCTAD, 2000.

Egypt has an established (albeit small) market in the food sector in the EU. It is therefore essential for Egyptian exporters in this sector (fresh and frozen produce as well as processed foods) to understand the requirements of organic certification which must be obtained when Egypt trades in organic goods. The Basic Standards of IFOAM (International Federation of Organic Agriculture Movements)¹¹ represent the world-wide consensus of what is organic. IFOAM has developed basic standards for several operations including crop production, processing and handling, forest management and processing of textiles.

Exporters have to take into account that organic products from third countries may be marketed as such in the EU only after a procedure to certify the equivalence of the rules on organic farming applied in the third country. The requirements applied in the third country must provide guarantees equivalent to those provided by the EU and cover issues such as foodstuffs, disease prevention and veterinary treatments, animal welfare, husbandry practices and the management of manure. Genetically modified organisms (GMOs) and products derived from GMOs are explicitly excluded from organic production methods. The EU Regulation for

organic food is based on the IFOAM standards. Uniform standards for organic food production and labelling throughout the EU were established by the passing of Council Regulation (EEC) 2092/91. This regulation and subsequent amendments establish the main principles for organic production at farm level and the rules that must be followed for the processing, sale and import of organic products from third (non-EU) countries^{12,13}.

In the US, the US Department of Agriculture (USDA) develops national standards for organically produced agricultural products and has established an organic certification program. The National Organic Program (NOP) is a marketing program housed within the USDA Agricultural Marketing Service (AMS), the agency that sets marketing standards. Certifying agents operating in foreign countries may apply for USDA accreditation. Otherwise, a foreign certifying agent may: (i) receive recognition when USDA has determined, upon the request of a foreign government, that its authorities are able to assess and accredit certifying agents as meeting the requirements of the NOP; or (ii) receive recognition as meeting requirements equivalent to the NOP under an equivalency agreement negotiated with the United States.

“Timber certification” is of particular significance for the furniture sector in Egypt. Extensive media campaigns by NGOs particularly in Germany, the Netherlands and the UK, has led to a demand for sustainably produced timber¹⁴ in the EU where the demand presently exceeds supply. This certification can be used as marketing tool particularly when supplying large furniture companies such as IKEA who are seeking this certification from their vendors / suppliers. The Forest Stewardship Council (FSC) is the accreditation organisation (which does not certify itself) for timber. Certification is carried out by accredited organisations that must adhere to the FSC principles. These organisations include: Soil Association (UK), Rainforest Alliance (USA), Scientific Certification Systems (USA), SGS Qualifor (UK), SKAL (Netherlands).

Another certification system that is much more prevalent and applicable across several manufacturing and service sectors pertains to **environmental management systems** (EMS). If a manufacturer / exporter wants

¹¹ www.ifoam.org

¹² For more information on organic produce and the related: (i) EU market requirements please see: http://europa.eu.int/comm/agriculture/qual/organic/index_en.htm; CBI EU Market Survey “Organic Food Products” at www.cbi.nl/accessguide. (ii) US regulations please see: http://www.ota.com/organic/us_standards.html

¹³ Organic certification information can be obtained from; **Ecocert** (contact point for organic certification): www.ecocert.de; **SKAL** (internationally operating organisation, inspecting and certifying sustainable agricultural production methods and products) : www.skal.nl; **Soil Association** (IFOAM accredited contact point for organic certification): www.soilassociation.org;

¹⁴ Over 150 countries are participating in a number of regional and international processes aimed at establishing criteria and indicators for sustainable forest management. The International Tropical Timber Organization (ITTO) was the first organization to elaborate agreed guidelines for sustainable management of natural tropical forests. Increasing number of producer countries, such as Malaysia, Indonesia, Finland, Sweden and Canada, have certification schemes. International certification systems for sustainably produced timber are established by: The International Standards Organisation (ISO) and Forest Stewardship Council (FSC).

to indicate to buyers in the international market that products are being manufactured in an environmentally sound way, then ISO 14001 or EMAS (applicable for EU markets) certification can improve market access. EMS, is a management tool that can help a business increase its awareness of and its control over the environmental impacts of its operations. It can provide a structured framework specifically designed to achieve continual environmental improvement. The system can be applied to a single site, to a division that operates at many sites, or to a company as a whole. This flexibility can be particularly useful in industries where operations of companies may be at many different levels of production and sale, and where the associated environmental impacts may vary widely. While there are several good EMS models available, ISO 14001 is a widely accepted international standard for EMS. The trend of globalization has led to the demand for a formal and common approach for environmental management. The EMS: ISO 14001 has been laid down by the International Organization for Standardization (ISO) and is a proven environmental management approach, which can be understood by all. Additionally, businesses are being asked to demonstrate conformance with ISO 14001 specifically, as a condition of doing business in export markets. Given these conditionalities, it makes sense for businesses to implement the ISO 14001 EMS.

Benefits of Obtaining Labelling and Certification for Businesses¹⁵ : Businesses can benefit tremendously from acquiring ecolabel and other certification both in terms of improved market access for exports, as well as improved product quality for the local market. Other benefits include:

- Financial gains / savings are achieved through improvements in the manufacturing process that result in savings of resources such water, chemicals and energy. Frequently, the processing time is reduced and the RFT or "Right First Time" is improved, thus reducing product rework and wastage requirements. These benefits generally offset the incremental costs which may be incurred by replacement of harmful chemicals with their eco-friendly counterparts or of adopting a modified process.
- Phasing out of toxic/harmful chemicals which can have significant health and safety benefits. Together with resource efficiency, this leads to a reduction in the quantities and strength of pollution potential of the business. As a result, the requirement for expensive pollution control mechanisms and costly waste water treatment plant upgrades is likely to be reduced considerably.
- Ease of compliance with environmental regulations on account of the points discussed above.
- Assurance to customers of commitment to verifiable environmental management, leading to improved customer relations and earning of goodwill.

- Decreased environmental liability
- Increase in employee motivation and improved neighbourhood conditions
- Opportunities for increased business through the meeting of vendor certification criteria (i.e. if the business serves as a vendor/sub-contractor to another organization which requires ecolabels or practices the ISO 14001 standard)
- Satisfying funding criteria (if the business is seeking financing from external parties) and gaining improved access to capital finance.

2.1.3 Other Requirements

Other requirements that impact market access to a lesser degree include but nevertheless must be: packaging, product taxes and charges, take-back obligations and quotas and other requirements to implement MEAs.

Packaging is an essential factor in determining a product's quality, since it both represents the product and protects it. The general trend in Europe is towards facilitating *re-use* and *recycling* of packaging through incentives and disincentives, such as levies and taxes, and through mandatory or voluntary restraints. The European Commission presented the Export Packaging Note in October 1992, in line with the effort of the EU to harmonise national measures concerning the management of packaging and packaging waste. The packaging note was followed by a Directive in December 1994 (94/62/EC). This Directive lays down measures aimed at preventing the production of packaging waste, reusing packaging, recycling and reducing the final disposal of such waste. Among other measures, the Directive sets maximum levels of concentrations of heavy metals in packaging and describes requirements specific to manufacturing and composition of packaging. The Directive applies to all packaging and packaging waste, whether it is used at industrial, commercial, office, shop, service, household or any other level, and regardless of the material used. The implementation of the Directive may take different forms in the EU Member States. Various programmes are in operation, but probably the best-known enforced packaging waste programme in Europe is the German 'Grüne Punkt' or 'Green Dot' system. In the Green Dot system, both trade and industry producers of packaging waste are obliged to take back packaging materials, in order to re-use or recycle them. **The regulation also applies to imported goods.** Foreign companies have to conform to this just as much as European companies. The Green Dot has become a European symbol of packing waste re-use and recycling system and ensure the customer that the sales packaging can be re-used or recycled and that disposal / recycling of transportation packaging is being financed by the parties involved. A wholesaler, importer or manufacturer who refuses to take back packaging is not allowed to use the Green Dot.

¹⁵ **Guidance Manual: Eco-labelling for Textiles** by the SEAM Project, with contributions from the Egyptian Environmental Affairs Agency, Entec UK Ltd. And Textile Research Division, National Research Centre, Egypt. Available at: <http://www.seamegypt.com/Manuals/ecolabell/CONTENT-1.html>

Egyptian exporters targeting the European market have to be aware of these agreements and take appropriate measures in order to become or remain interesting trade partners for European businesses. Requirements in terms of packaging and labelling are subject to the marketing standards established by the EU. The environmental requirements will be transposed to the exporter. That means that packaging (transport packaging, surrounding packaging and sales packaging) materials should be limited and be re-usable or recyclable. Otherwise, the importer will be confronted with additional costs, thus reducing the competitiveness of the exporter. Since changes in the environmental policy follow each other at a rapid pace, exporters should ask the importer about the latest regulations or requirements related to packaging¹⁶. There are no important statutory obligations at the EU level for the packaging of fresh fruit and vegetables¹⁷. Nevertheless, it is recommended to comply with the wishes of the importer, who knows the demands of his buyers. This goes for the packaging material, as well as for the sizes of the packaging.

To promote environmentally sound products is the awarding of (tariff) preferences or the levying of so called **'environmental taxes'** on products. An example of preferential systems is the General System of Preferences (GSP)¹⁸ encouragement regime. The GSP grants developing countries tariff preferences. In June 2001, the European Commission adopted a proposal for revision to the Generalised Scheme of Tariff Preferences (GSP) for the years 2002 to 2004. The regulation is designed to simplify the GSP regime and target the benefits more effectively. It also intends to improve the effectiveness of special incentives to promote core labour and environmental standards. On the other hand, various financial instruments are being used in the EU to discourage the entrance of polluting products to the market. This happens through the establishment of specific taxes, like the so-called 'ecotax'.

At a more multilateral level, market requirements for international trade also include trade-related measures arising from implementation of **multilateral environmental agreements**. Of the 238 current international treaties and other agreements in the field of environment, 38 contain trade-related measures for e.g., the Montreal Protocol for protection of the ozone layer includes measures that regulate trade in ozone depleting substances; the Basel Convention that includes measures to prevent trade and transboundary movement of hazardous wastes; the Convention on Persistent Organic Pollutants and the Convention on Prior Informed Consent both include trade related measures to minimize and phase out use of persistent organic pollutants; and the Convention on Biological Diversity (CBD). Some other MEAs have significant trade effects without employing trade-related measures: e.g., United Nations Framework for Climate Change. Egypt is signatory to several of the MEAs that contain trade-related measures. It is therefore important for industry to be aware of

¹⁶ For more information about environmental regulations concerning packaging, please refer to International Trade Centre UNCTAD/WTO (ITC): www.intracen.org

¹⁷ For detailed information concerning packaging, marking and labelling for various fruit and vegetable species, please refer to www.defra.gov.uk/hort/hmi/common/standard.htm

¹⁸ For more information about Customs duties and GSP, please contact the European Commission or Customs in the country of destination. For contact details, please refer to www.wcoomd.org

the measures included in the MEAs both in order to meet the milestones set for effective compliance of the MEAs as well as to be competitive in international trade¹⁹.

2.2 Future Challenges

Growing evidence of harmful environmental and health and safety effects of certain substances, globalization leading to increased awareness of social conditions in producer countries and changes in consumer preferences is making environmental and social requirements one of the major determinants of international trade. Some observations made by the International Trade Centre presented in **Box 2.5** give an indication of the future challenges to international trade.

Box 2.5 Observations on International Trade – Future Challenges

- Almost 4,000 of 5,000 products traded internationally face environment- or health- related requirements.
- Around 13 per cent of world trade (in value terms) is affected.
- Developing country exporters are the most-affected.
- Requirements are getting more stringent, frequent and complex.
- Most notifications on environmental measures to WTO are under the Technical Barriers to Trade Agreement.
- Only part of the sanitary and phytosanitary measures (SPS) are directly related to the environment. However, it is sometimes difficult to draw a clear distinction between SPS measures for environmental objectives and SPS measures for food safety purposes. In some cases, SPS measures that are taken for food safety objectives in the importing country are the result of environmental problems in the exporting countries.

Source: Environmental Requirements And International Trade. Presented by Ulrich Hoffmann (Ph.D.) UNCTAD Secretariat. Sub-regional Workshop Environmental Requirements, Market Access/Penetration and Export Competitiveness in the Leather and Footwear Industry. Bangkok, 19-21 November 2003.

The future challenges for Egypt and other developing countries in international trade include: (i) increasing role of ecolabels as brands; (ii) increasing role of retail chains in determining market requirements (iii) upcoming EU policies and regulations on chemicals and food and (iv) independent social welfare and labour standards including fair trade labels.

2.2.1 Next Generation Ecolabels

The next generation of ecolabels have expanded their scope to include more stringent environmental, health and safety and social criteria as well as ensure a more holistic approach by including supply chain

¹⁹ For a detailed discussion on trade related measures and MEAs please refer to: UNCTAD, Trade and Environment Review, 2003. UNCTAD/DITC/TED/2003/4. United Nations, 2004. http://www.unctad.org/trade_env/TER

management for e.g., Ecotex's CSM 200 and Certified Performance Standards (**Box 4 of Appendix 2** presents an outline of these standards).

Another development has been the emergence of ecolabels such as Bluesign which is being marketed more as a brand. The bluesign® standard is an independent global industry standard which fosters resource productivity under the focus of EHS – Environment, Health and Safety – while ensuring product functionality, quality and design. **Box 2.6** provides some of the salient features of this “brand”.

Box 2.6 Bluesign® as a Brand

In 1997, several leading textile and chemical companies such as 3M, Acordis, Ciba Specialty Chemicals, EMS-Chemie, Nike, Rudolf Chemie, TWD and Schoeller Switzerland got together in order to develop a sustainable functional garment which eventually lead to the idea of creating a global independent industry standard. The concept that was formed with the support of internationally recognised institutes such as the ETHZ (Swiss Federal Institute of Technology, Zurich) was called bluesign®. In 2000, bluesign technologies ag was founded in Switzerland. **In 2003, the standard has become available for all textile applications.**

The bluesign® standard describes and prescribes usage bans and limits (both legal and bluesign® standard defined criteria) for the production and distribution of textile fabrics and ready-to-wear goods with regard to the following aspects: resource productivity; consumer safety; water emissions; air emissions; occupational health and safety. Compliance with the bluesign® standard for consumer safety aspects can only be achieved if all legal limits and usage bans and regulations are met. Therefore, all limit values, usage regulations and bans have been carefully evaluated and represent a worldwide average environmental, occupational health and consumer safety quality standard based on the strictest national law found.

Consumer safety issues currently pose major economic and liability risks to textile manufacturers and retailers. This stems from various adverse circumstances in the past having caused severe trouble for certain brand companies. In addition, there is a rising demand from the public to learn about textiles, how they are made and potential risks related to their use. The bluesign® standard is a holistic system that helps textile companies to deal efficiently not only with consumer safety issues but at the same time with environmental and cost effectiveness issues.

Source: www.bluesign-tech.com

In the food sector too a new generation of ecolabels are emerging in view of the recently emerging food safety issues such as genetically modified foods (GM foods). Over the last decade the EU's agricultural policy has been reshaped, its objectives have been broadened, and policy has shifted to encourage more ecofriendly farming and food production methods. This noticeable shift in emphasis has provided added scope for differentiation of food products and the use of ecolabels.

Some of the most important issues that will potentially influence a new generation of ecolabels for the food sector include²⁰:

²⁰ W. Dunne and J.J. Connell, Evolving EU Food Production Policy: Implications for Ecolabelling. 2003. In: Ecolabels and the Greening of the Food Market, William Lockeretz, Editor. March 2003. Proceedings of a conference held in Boston, Massachusetts, November 7-9, 2002, organized by the Friedman School of Nutrition Science and Policy, Tufts

- food safety and product quality (including issues such as the role of HACCP), which consumers often link to specific production methods or geographic regions;
- environmental friendliness of production methods;
- integration of environmental goals into the EU's agricultural policy;
- preservation of sustainable farming and social cohesion;
- maintaining a fair standard of living for the producers.

2.2.2 Increasing Role of Retailers

Large retailers in both the EU and US are playing an increasingly dominant role in determining market requirements in international trade. This is being done through their purchasing policies, sourcing principles and codes of conduct which affects the entire supply chain a large part of which resides in developing countries. Clothing retailers such as Marks and Spencers in UK, C&A (a privately owned Dutch company) in Europe, The Gap in the US, among others, are increasingly influencing environmental, social and health and safety standards in producer countries located in Asia, the Middle East and Africa through their supply chains which are in these countries. It must be noted here that while European retailers have a greater environmental, health and safety focus in their requirements, the US retailers such as Gap and Nike have a very strong labour oriented focus in their requirements.

Exporters and producers to these retailers therefore need to be not only aware of these trends but also must work towards meeting these standards in order to retain their market position. The global sourcing principles of Marks and Spencers are presented as an illustration of the expectations and requirements of retail chains in **Box 5 of Appendix 2**.

In addition to retailer chains, supermarkets in various countries in Europe are showing increasing social and environmental awareness. European consumers no longer need to go to specific fair trade or green shops in order to purchase environmentally sound and fair traded products. Many supermarket chains: have established waste management programmes; are making products through environmentally sound production processes; using less transport, less energy and environmentally sound packaging. This environmental responsibility is also gradually integrated in purchasing policies. Buyers for these large supermarkets are therefore increasingly passing these requirements down to producers and exporters, many of which are located in the Middle East. Some supermarket chains e.g., the Dutch multinational Ahold, are entering into partnerships with producers in developing countries to raise production standards (environmental, quality and social) by providing them with technical know-how and institutional support. This makes the producers competitive in the international market (**Box 6, Appendix 2** presents the salient features of product policies

University, and supported by the Economic Research Service and Agricultural Marketing Service of the US Department of Agriculture.

of two large European supermarkets). Several large supermarket chains in Europe are also actively involved in the development of standards for good agricultural practices, known as the EUREPGAP²¹ initiative. The standards, officially laid down in protocols, need to assure product safety, reduced agro-chemical use, environmental protection and labour safety. There are no official dates for implementation of the EUREPGAP protocol guidelines.

2.2.3 EU Policies and Safety Standards

Developments in EU policies particularly in the chemicals and food sector are likely to have far reaching impacts on market requirements and international trade across several sectors.

The EU's New Chemicals Policy: On 29 October 2003, the European Commission adopted a proposal for a new EU regulatory framework for chemicals. Under the proposed new system called **REACH** (Registration, Evaluation and Authorisation of CHemicals), companies that manufacture or import more than one tonne of a chemical substance per year would be required to register it in a central database. This could significantly impact chemical exports from Egypt to EU and products that are chemical intensive e.g., textile products. The aims of the proposed new regulation are to improve the protection of human health and the environment while maintaining the competitiveness and enhancing the innovative capability of the EU chemicals industry. REACH would in addition give greater responsibility to industry to manage the risks from chemicals and to provide safety information on the substances. The requirements of the proposed REACH system depend on the proven or suspected hazardous properties, uses, exposure and volumes of chemicals produced and/or imported into the European Union (EU). All chemicals produced in volumes greater than 1 tonne per year (t/y) per manufacturer are to be registered in a central database. This information would be passed down the chain of production. Importers of chemicals would require suppliers to provide detailed information required by REACH. European chemical manufacturers for textile chemicals who may have manufacturing facilities in Egypt will require the Egyptian facilities to be equipped to provide the detailed information required by REACH.

²¹ **EurepGap:** is a code for fresh fruit and vegetables which is gaining ground in Europe. The Euro-Retailer Produce Working Group (EUREP) has developed the Good Agricultural Practice (GAP) standards. This is in response to increasing consumer interest in food safety and environmental issues. The framework of EurepGap requires companies to have a good management system in place to deal with quality, hygiene and environmental matters. Although EurepGap standards are yet not common practice in all the EU member states, it is expected that they will be increasingly accepted and applied in the future, particularly by the large supermarket chains. The EurepGap Protocol was launched by a group of leading European food retailers in 1999. **As of January 1, 2004, the leading European supermarket chains will trade only fresh fruit and vegetables, which comply with EurepGap standards. In the EU, several projects have been launched, in which developing country exporters are guided through the process towards EurepGap certification.** For more information please refer to www.eurep.org.

The proposal is being considered by the European Parliament and the EU's Council of Ministers for adoption under the co-decision procedure²². This legislation will not only impact the chemicals sector in terms of the need for detailed information but it will also result in phase out of hazardous chemicals at a later stage. This will result in introduction of newer, safer chemicals which in turn will impact manufacturing processes of chemical intensive sectors such as textile, leather etc.

EU's Common Agricultural Policy (CAP) and the Food Law: For over four decades, the Common Agricultural Policy (CAP) of the European Union has been the major factor influencing both food supply and production methods in Western Europe. The current economic and policy environment, and the consumer awareness and pressure in the EU and the anticipated changes due to increase in economic, social and geographic diversity of the EU has led to extensive changes in the CAP. Given the large volume of trading by the EU in the food sector these transformations greatly alter food production and the scope for ecolabeling in the EU which in turn impact countries exporting food to the EU.

The most important issues emerging from the changes in the CAP include a strong move towards organically produced foods and food products, quality and safety in food, environmental friendliness of production methods and to some extent fair trade practices.

In 2002 a new European Regulation, (EC) No 178/2002, was published to lay down the general principles and requirements of food and feed law, to establish the European Food Safety Authority and set up procedures in matters of food and feed safety. This regulation is known as the **EU Food Law**. The general objective of the food law is to reach a high level of protection of human life and health and the protection of the consumer's interests, including fair practices in food trade, and taking into account the protection of animal health and welfare, plant health and the environment. In order to achieve this objective, the food law is based on a detailed risk analysis and the concept of "traceability".

Traceability means the ability to trace and follow a food, feed and food-producing animal through all stages of production, processing and distribution. Companies in the food and feed sector are responsible for ensuring foods or feed comply with the EU food law and there are official controls and activities like public communication on food and feed safety and risk, covering all stages of production. **The food law is of importance to exporters in developing countries, since it states clearly that food and feed imported into the EU shall comply with the relevant Articles of the law or equivalent conditions recognised by the EU.**

²² More information and updates on REACH can be obtained at: <http://europa.eu.int/comm/enterprise/reach/>

In general, following are essential consumption trends to 2010 in the EU food market which would be useful for exporting countries to be cognizant of:

- Greater demand for convenience
- More diversity of choice
- Growth of demand for ethnic and exotic ingredients
- Increased demand for organic products
- High growth in private label products
- Polarisation of markets (premium and budget)
- Demand for open, honest, and informative labelling.

Food Safety and HACCP: The increased demand for quality and food safety in the EU has led to another general trend in the food sector which is that importers and food processors in the EU require extensive product documentation in order to guarantee food safety. This means that a product should include complete product specifications, instructions on how to store and to process, documentation on tracking and tracing, information on quality assurance (e.g. HACCP- Hazard Analysis Critical Control Point), or even ISO certification.

HACCP is a scientifically based production and inspection system to ensure food safety. The HACCP system applies to the entire food-processing industry in the EU, from producer to consumer. The Directive on Hygiene for Foodstuffs (93/43/EC) stipulates that: ‘foodstuff companies shall identify each aspect of their activities which has a bearing on the safety of foodstuffs and ensure that suitable safety procedures are established, applied, maintained and revised on the basis of the HACCP system’. This Directive is currently being revised by a new regulation that lays down general and specific hygiene requirements for food business operators, including primary production.

An exporter capable of meeting these requirements will have an improved competitive position in the EU market for processed foods such as fruit juices/concentrates. Although exporters to the EU are not obliged to apply for an HACCP (Hazard Analysis Critical Control Point) system and their system will not be subject to control by the food inspection service in the importing country, adopting an approved HACCP system, or working according to a similar principle of quality control, will be a very positive argument in export business. Some companies in the EU may however require suppliers from outside the EU to produce according to a HACCP system as well. Increasingly, importers of food products in the EU are reluctant to do business with food processing companies in developing countries that do not have a HACCP system. Companies can seek

the assistance of accredited organisations²³ to help them with the implementation of a HACCP system and to become HACCP certified.

More information on HACCP and its adoption is available at – www.europa.eu.int/documents/eur-lex/index_en.htm²⁴.

2.2.4 Social welfare and labour requirements

Social welfare and labour standards are increasingly becoming centre stage in international trade. The role of labour standards in trade has divergent views from developed and developing countries. Trade in goods most impacted by this are labour intensive sectors such as textiles, leather /footwear and to some extent the food sector. In Europe and the US, textile and garments production is often associated with unhealthy working conditions, low wages, dangerous substances and even child labour: i.e., “*sweatshop conditions*”. This industry is highly internationalised and labour-intensive is located mainly in developing countries and operates a sophisticated sub-contracting system. During the last 30 years, incidents of deteriorated labour conditions of workers along the supply chain – through an increase of informal work in sweat shops, through child labour and through an extension of ‘Export Processing Zones’ to many parts of the world – have been brought into the open through Western media.

Several non-governmental organisations (NGO’s) responded by actively demanding retailers to live up to their responsibility to ensure that garments are produced under decent conditions. In Europe, the Clean Clothes Campaign (CCC) is very active in this field. CCC is an international network with the goal of improving the working conditions in the garment industry worldwide. The network comprises a wide variety of organisations, such as trade unions, consumer organisations, researchers, solidarity groups, women's organisations, church groups, youth movements and worldshops. Above all, the CCC uses consumers’ power by mobilising them on the issue of working conditions in the garment industry.

This trend is being reflected in market requirements such as ecolabels, codes of conduct and management systems. Several large retailers and buyers in the EU and US developed their own brand label or code of conduct to pay attention to incorporate social standards. Other companies apply labels, certificates and/or codes of conduct that are more or less independent and internationally known. Producers and exporters must be aware of some of the most prevalent of these ecolabels, codes of conduct and management systems if they are to retain and grow their market share.

²³ The following bodies assist companies world-wide to achieve HACCP certification: Bureau Veritas Quality International (BVQI) at <http://www.bvqi.com>; American Society for Quality at <http://www.asq.org>

²⁴ Other information on food safety requirements and inspection for exporting to the EU are available at: VCS (Voluntary Control System) - www.sgf.org/sgf/index0_en.html ; and EQCS label - www.eqcs.org/index.html

Ecolabels such as Ecotex's *Certified Performance (CP)*, has incorporated social and labour standards together with ecological criteria. Compliance with CP includes labour standards relating to child labour, no use of toxic chemicals, safe working conditions at all stages of manufacture from fibre manufacture to apparel production. In addition to social standards in the textile industry attention is paid to another side of social aspects, being the health and safety of consumers. A well-known label focussing on health and safety standards with regards to consumers is Öko-Tex 100. The criteria of this label restrict hazardous substances in the finished product. Harmful substances may have some kind of effect on people or, according to current scientific knowledge, be unsafe to human health. The criteria go beyond the European product legislation. This means that a product, which has passed the Öko-Tex test, does not contain any substance that is banned by European legislation. For this reason, an increasing amount of importers demand an Öko-Tex certificate in order to prevent legal risks.

Codes of conduct, i.e. business principles to guarantee certain standards, are developed to demonstrate amongst others social responsibility of a company. The first codes of conduct were corporate codes adopted in the US, but soon European companies followed. Multinationals such as Nike, Levi Strauss, C&A and Hennes&Mauritz have developed their own code of conduct. Normally, codes of conduct are focussed on improving labour conditions in the whole supply chain of a company (retailer). **Box 2.7** presents examples of codes of conduct that have integrated social standards.

Box 2.7 Examples of Codes of Conduct with Social Standards

IKEA Child Labour Code of Conduct

The IKEA Group of Companies acknowledges the fact that Child Labour does exist in various countries. However, the IKEA Group of Companies strongly disassociates itself from all utilisation/exploitation of Children, and the IKEA Group of Companies works actively against this practice. It is therefore a mandatory requirement and prerequisite that all suppliers comply with and implement the same view on Child Labour.

The C&A²⁵ Code of Conduct for the supply of merchandise

- The use of child labour is absolutely unacceptable. Workers must not be younger than the legal minimum age for working in any specific country and not less than 14 years, whichever is the greater.
- We will not tolerate forced labour or labour which involves physical or mental abuse or any form of corporal punishment.
- Under no circumstances will the exploitation of any vulnerable individual or group be tolerated.
- Wages and benefits must be fully comparable with local norms, must comply with all local laws and must conform with the general principle of fair and honest dealings.
- Suppliers must ensure that all manufacturing processes are carried out under conditions which have proper and adequate regards for the health and safety of those involved.

Source: This information is derived from *AccessGuide - CBI's database on European non-tariff trade barriers* www.cbi.nl/accessguide

²⁵ C&A is a large French garment retailer.

A new development is that of independent codes of conduct. The German branch organisation of textile wholesalers (AVE) has introduced a common code of conduct. AVE is currently setting up a monitoring system in which the members co-operate. The Netherlands branch organisation VGT is working on a similar initiative. Since these branch organisations represent a substantial market share, the impact of such initiatives is high. Moreover, it seems that these initiatives will be more independent than corporate activities.

The earlier mentioned Clean Clothes Campaign has developed a set of social standards relating to labour conditions, called the CCC Code. This code of conduct is specifically developed for the textile sector and was adopted in 1998 after close consultation with worldwide partners and international union organisations. By signing the CCC Code, retailers and manufacturers declare their responsibility for the working conditions under which the products they sell are produced. This responsibility extends to all workers involved in producing the goods for the company itself or by the contractor, subcontractor, supplier or licensee. An independent institution will deal with verification and implementation of the code, complaints and corrective action. In The Netherlands a code similar to the CCC Code is adopted in 1999 and is called the “Fair Wear Charter”. This charter stresses supply chain liability, which is developed through 5 pilot projects that are running at the moment. In other European countries similar codes are developed. The CCC aims to cooperate and negotiate with retailers on how to improve labour conditions in developing countries.

Management System SA 8000 : This is a well known internationally accepted instrument for implementing social accountability. As many codes of conduct, SA8000 is based on the internationally accepted ILO labour standards, but contrary to codes of conduct SA8000 includes tools to implement social standards in the whole system of a company. With a management system in place continuous improvement on social standards is possible. SA8000 is gaining ground in many industries worldwide because it is the only internationally accepted management system for implementing and monitoring social standards for labour conditions, developed by an independent organisation. Therefore, SA8000 is seen as a possibility to harmonise social standards. In the textile sector the SA8000 system is applied or taken as an example in order to improve labour conditions.

Manufacturers in developing countries should be aware that social issues are getting more importance and will become a prerequisite in international trade. Often being part of the product chain, while being a supplier to other companies in the textile sector, they are part of the development in Europe and the US where labour conditions in developing countries is an important issue. This often means that the social standards will be applied in the whole chain, including trading partners in developing countries.

Fair trade Labels: A related aspect of social welfare and labour standards is the fair trade labels. Fair trade is trade with concern for the social, economic and environmental well being of small-scale producers and landowners in developing countries. It aims to ensure that producers, including employees, receive a fair share of the total profit in relation to their input and, in the absence of developed structures for social services and worker representation, to improve social conditions, particularly those of employees. Fair trade products are purchased directly from cooperatives or small business set up by farmers and craftsmen. Producer organisations belonging to IFAT (the global network of “alternative” trading organisations formed in 1989) are based in African, Asian and Latin American nations. Fair trade products include textiles, jewellery, indigenous musical instruments, decorative objects and a host of other handcrafted items, plus foodstuffs such as coffee, tea, honey, nuts and spices. The Fair Trade Labelling Organisation International (FLO) is responsible for coordination of fair trade labels and certification bodies worldwide. There are two sets of generic producer standards: one for small farmers, organised in co-operatives or other organisations with a democratic, participative structure, and another one for workers on plantations and in factories.

The fair trade label is marketed to the consumer as a means of ensuring that a “fair price” is paid to the producers for their goods. More recently however the ethical trading label is being used which embraces the idea of sustainable resource management as well as fair trade agreements and safe working conditions. Some retailers in Europe e.g., Coop Schweiz (Switzerland) a premiere food retailer in Switzerland, Tesco, one of the largest supermarket chains in the United Kingdom actively promote fair trade products.

Many fair trade labels, such as Max Havelaar²⁶, include environmental requirements and vice versa because final consumers in developed countries are sensitive to a range of issues regarding methods and conditions of production

There is a growing popularity of both fair trade and certified sweatshop-free products. Both these programs have focused mainly on imported goods, chiefly from nations in the global South. European consumers are increasingly demanding such products. Although the market is much smaller in the US than in Europe, it is growing. These products are primarily tropical goods from the South – coffee, tea, chocolate, and now rice – but the same principles can apply to all commodities.

2.3 Tariffs, taxes, quota and other trade barriers in the EU Market²⁷

²⁶ For more information on fair trade labels see: The Max Havelaar Foundation www.maxhavelaar.nl and TransFair International www.fairtrade.net

²⁷ The information is sourced from: Export Manual, Exporting to the European Union, Your Guide to Trade-Related Information on the EU Market. Centre for the Promotion of Imports from Developing Countries. November 2003.

In addition to the technical or non-tariff measures discussed thus far there are other trade policy measures that affect access to the EU market. Tariffs have traditionally been the focus in trade negotiations but increasingly other measures such as quotas and anti-dumping measures are gaining prominence. **Appendix 2** presents a summary of these tariffs and quotas.

2.4 Implications for Market Access

It is evident from the discussion on current and future trends in market requirements so far, that there are a large number of challenges for Egyptian exporters to access the international market, specifically the EU market. The requirements discussed above have several implications for developing country exporters to gain market access; some of the significant ones are listed below.

- Many standards are perceived as overly stringent or complex by developing country exporters and producers.
- Frequent changes in the market requirements create a “never catch up” syndrome e.g., requirements of labels particularly by individual buyers and large retailers.
- Absence of scientific justification e.g., EU restrictions on milk / milk products from animals not being stall fed; EU standards of aflatoxin levels in peanuts are more stringent than the Codex Alimentarius standards. Meeting these standards has prohibitive cost implications for the developing country exporters and does not seem to have adequate justification either from an environmental or health and safety perspective. These are perceived as protectionist measures by the exporters.
- Standards often fail to take into account the conditions of developing countries (e.g., cost implications of shifting from PCP to Busan-30 in cotton to gain market access).
- Often the testing and certification requirements of importers are unclear.
- Sometimes, the way a measure is implemented may discriminate e.g., unilateral trade measures to enforce ban on Indian shrimp in spite of WTO ruling against the restriction. In such instances the country GATT/WTO dispute settlement mechanism needs to be

Exporters and producers who want to gain access to the international market need to be cognizant of the market requirements and their implications to market access both from the point of view of working to meet them as well preparing to negotiate on some of the more contentious / protectionist measures at the bilateral (i.e., with the trading partner) as well as at the level of the WTO.

2.5 Importance of a Long-term Strategy for Overcoming Barriers to Trade

Market access in international trade is increasingly becoming more complex and challenging. Producers have to balance the need to meet the constantly changing expectations and preferences of consumers (which are driving market requirements in a big way) with the economics, and the technical and institutional capabilities required to make this possible. A review of the importance of the various market requirements discussed thus far shows that the most predominant and the one with possibly the largest impact is the codes of conduct of large buyers and retailers. This is followed by certifications (e.g., ISO 14001, organically grown, SA 8000 etc.) and ecolabels. National and international regulations have the least impact on international trade.

These challenges can be met through ad-hoc reactionary approaches to market demands by individual exporters or producers e.g., obtaining ecolabel certification in response to a buyer's demands. The approach may be successful in the short-term to meet immediate market demands. However to gain market access and consolidate one's position in the long-term in the international market it is imperative to adopt a proactive, systematic and holistic approach. The complexity of today's international trade market and the future trends clearly require a long-term systematic strategy.

To meet the environmental, social and health and safety requirements of the market in a manner that still provides a competitive advantage to the producer / exporter, there is a need to adopt a strategy that ensures resource efficiency, high productivity, safe and fair working conditions and quality products. This in turn would not only enhance trade but also stimulate the domestic market and improve local environmental and social standards.

One such strategy involves the use of **Cleaner Production** (CP) practices. CP practices are known to enable productivity increases through resource efficiency and optimization of existing production techniques, improve health and safety of the working environment thereby ensuring quality and safe products. CP is a proven strategy and offers businesses a clear cost advantage allowing them to have a competitive advantage in the market.

The concept of Cleaner Production applies to not just businesses, but also to policy-making bodies such as governments, communities (i.e. consumers), financial institutions, and other facilitators (academia, NGOs, etc.), thus allowing for an integrated approach to overcoming the barriers posed by environmental and quality related issues to trade.

Section 3 of this manual will focus on the use of Cleaner Production as a tool to meet the challenges and overcome the barriers of market access (discussed so far in this Section) in an attempt to enhance trade.

Section

3

What will we learn from Section Three?

3.0	Cleaner Production and Trade 3.1 About Cleaner Production 3.1.1 What is Cleaner Production? 3.1.2 Methodology to Implement Cleaner Production 3.2 Cleaner Production As a Tool to Meet Market Requirements 3.2.1 Ecolabels and Other Labels 3.2.2 Certification and Management Systems 3.2.3 Social and Labour Requirements 3.2.4. Multilateral Environmental Agreements 3.3 Cleaner Production Promotion Efforts in Egypt 3.4 Benefits of Intensifying Cleaner Production in Egypt 3.5 Barriers to Intensifying Cleaner Production in Egypt
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Section 3: Cleaner Production and Trade

This Section attempts to answer the question “How can Cleaner Production (CP) be used as a tool to enhance Egyptian trade?” Towards this end, the discussion will focus on introducing the concept of CP, an outline of the methodology and the mechanistics of using it as a tool to address the challenges and meet the market requirements presented in Section 2. This Section will also provide a brief overview of the CP efforts underway in Egypt and the advantages of intensifying these efforts to enhance Egyptian trade.

3.1 About Cleaner Production

The basis of trade in merchandise or services is industry or business. Conventional functioning of business involves use of raw materials and technology to manufacture products. In the process, wastes are generated the magnitude of which is dependent on the efficiency of performance of the business. There are several pressures on conventional functioning of business as shown in **Figure 3.1**. These can range from issues related to raw material availability, and technical capacity to product related pressures such as market requirements and competition and compliance with local environmental regulations.

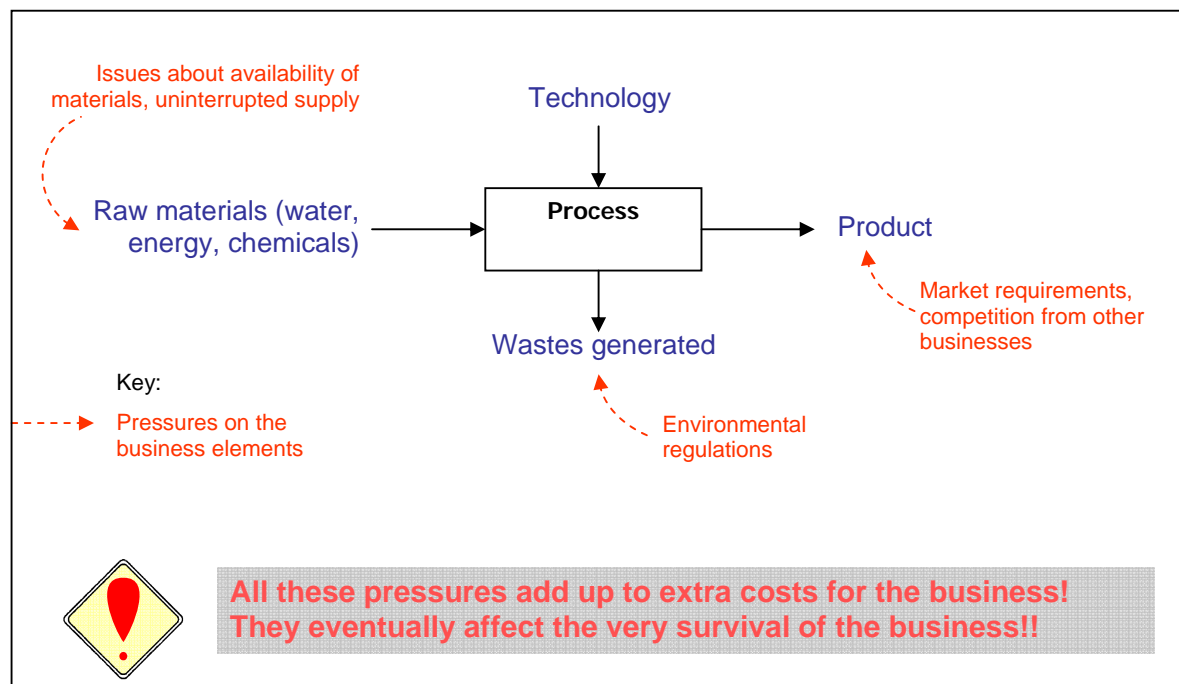


Figure 3.1 Conventional functioning and pressures on a business

To reduce these pressures it is essential to:

- Avoid waste generation at the source itself, as well as practice recovery, re-use and recycling of resources;

- Improve management of materials, processes and operations;
- Optimize processes and resource usage in manufacturing operations through appropriate choice of cleaner and more efficient technology;
- Increase product quality and productivity by improving conversion efficiency;
- Explore the possibilities of new useful by-products;
- Meet domestic and/or export market requirements more effectively;
- Gain an edge over the competition.

All the recommended practices listed above can be achieved by using the tool of Cleaner Production. It is a systematic approach that can help ease the pressures on business outlined above. **Figure 3.2** is a schematic representation of some of the attributes of CP that can be used to make business more efficient so that it can meet the challenges of the market.

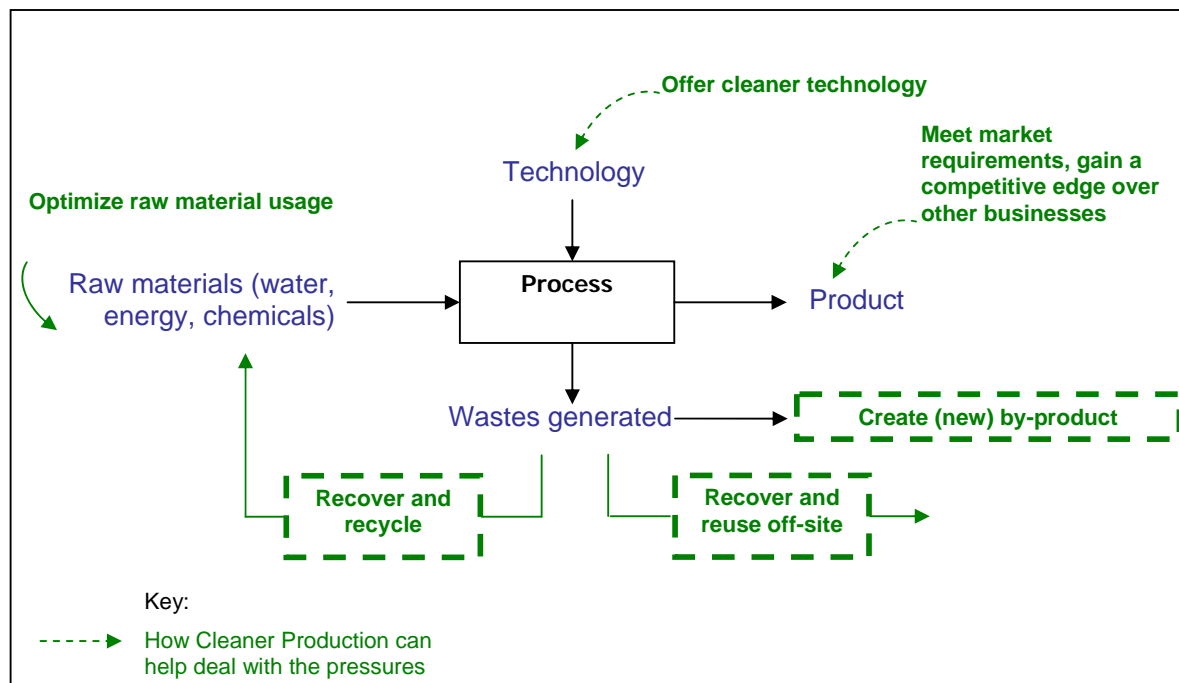


Figure 3.2 Cleaner Production helps to ease pressures on the business

Before we discuss the mechanics of using CP as a tool to meet market challenges and enhance trade it would be useful to understand the definition of CP and its methodology.

3.1.1 What is Cleaner Production?

The concept of Cleaner Production is about the prevention, rather than the control, of pollution. It is a strategy applied to the processes used in any industry, to products themselves and to various services provided in society to increase efficiency, improve environmental performance and reduce costs. This results in reduction of risks and provides competitive advantage. **Box 3.1** provides the definition of CP as given by the United Nations Environment Programme - Division of Technology, Industry and Economics¹.

Box 3.1: The Definition of Cleaner Production

Cleaner Production is defined as the continuous application of an integrated preventive environmental strategy applied to processes, products and services to increase overall efficiency and reduce risks to humans and the environment.

- *For production processes*, Cleaner Production involves the conservation of raw materials and energy, the elimination of toxic raw materials, and the reduction in the quantities and toxicity of wastes and emissions.
- *For product development and design*, Cleaner Production involves the reduction of negative impacts throughout the life cycle of the product: from raw material extraction to ultimate disposal.
- *For service industries*, Cleaner Production involves the incorporation of environmental considerations into the design and delivery of services.

The four elements/principles of CP are:

- **Precautionary approach** - Potential polluters must prove that a substance or activity will do no harm,
- **Preventive approach** - Preventing pollution at the source rather than after it has been created,
- **Integrated and holistic approach** - Addressing all material, energy and water flows/usage in the manufacturing/production sequence using life-cycle analyses.
- **Democratic control** - Workers, consumers, and communities all have access to information and are involved in decision-making.

3.1.2 Synergies between Cleaner Production and other Similar Approaches

When UNEP introduced the concept of Cleaner Production in 1990, a number of similar concepts existed and many others subsequently emerged. It is important therefore to clarify what CP is in relation to some of these approaches.

¹ Available at: www.uneptie.org/cp

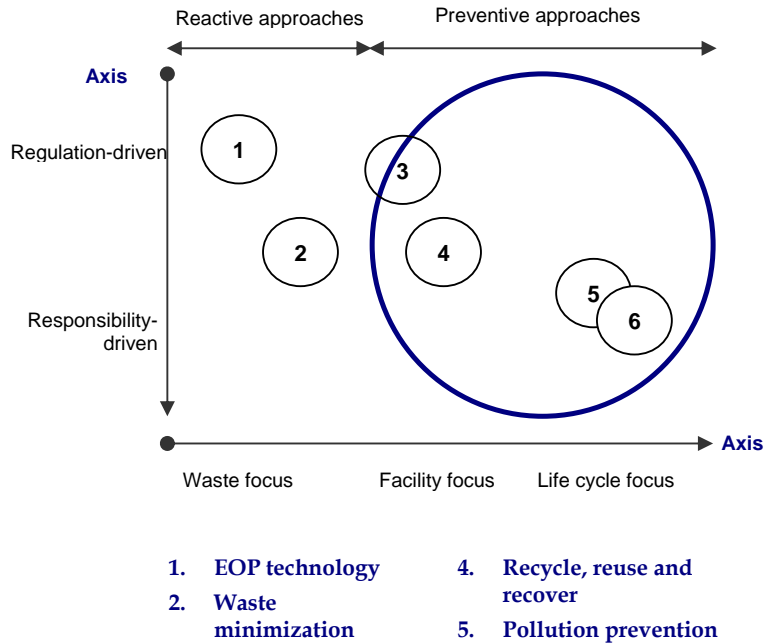
Approaches similar to CP may be grouped into four parts: parallel approaches, allied approaches, product and service related approaches, service-related approaches and developmental and associated approaches. **Figure 3.3** provides a schematic classification of these approaches.

Figure 3.3: Cleaner Production and Similar Sounding Approaches



Figure 3.4 presents the position of CP with respect to some of these concepts on the basis of whether the concept/approach is: (i) Reactive or preventive; (ii) Regulation-driven or responsibility driven; (iii) Focused on wastes alone/focused on the facility or unit/focused on the entire life cycle of the product in question.

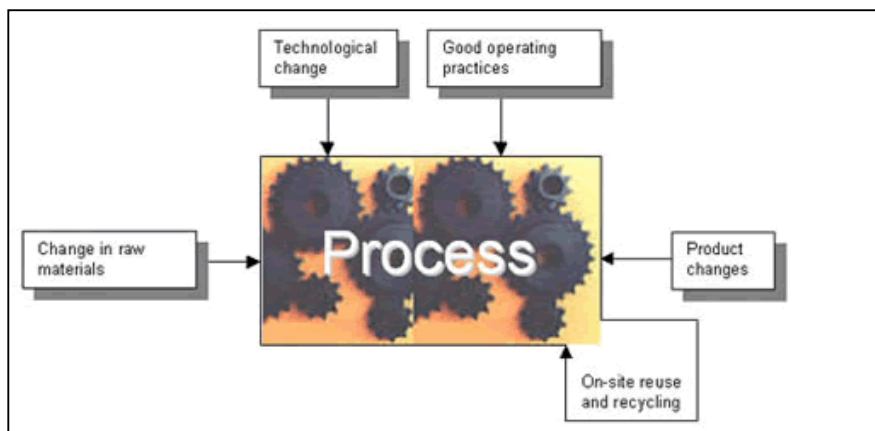
If the blue circle in **Figure 3.4** represents the concept of Cleaner Production, then, certain approaches may be classified as either reactive (i.e. EOP waste treatment technology (referred to in Section 5.0), and recycle, reuse and recover) or preventive (i.e. pollution prevention, Cleaner Production, design for the environment and eco-efficiency) in nature. Unlike the reactive approaches, preventive approaches incorporate upstream and downstream considerations into their modes of operation. The focus of CP is both specific (as it can incorporate the concerns of the facility/unit) as well as far-sighted (since it takes into account the life cycle perspective). CP thus incorporates compliance-related, responsibility-driven, facility-focused and life cycle oriented concerns. Hence CP is the concept of choice for an enterprise to address not just its environmental, but also its social and economic issues.

Figure 3.4: Cleaner Production and its Relationship with Other Concepts²

3.1.3 Methodology to Implement Cleaner Production

Implementing Cleaner Production can be as straightforward as adopting better housekeeping practices, or it may involve more complex measures associated with processes and products. The more complex options may include substituting toxic / hazardous materials with safer substitutes, process modifications such as switching to renewable energy sources, increasing material efficiency, and re-using and recycling by-products (See **Figure 3.5**). The product itself can be designed to reduce consumption of resources, to prolong its useful life, and to allow disassembly and recycling of its component parts.

² Modified from: Berkel R. Van and J. V. D. Meer (1997), *Training Course for Future Trainers on Environmentally Sound Technology Transfer*. IVAM Environmental Research, University of Amsterdam.

Figure 3.5 Systematic Generation of CP Options³

Identification of CP options appropriate for a facility / business is done through Cleaner Production Opportunity Assessment (CPOA). This is a management tool consisting of a systematic and objective review of manufacturing processes, products and services. It is designed to identify opportunities for increasing productivity and profitability while reducing the environmental impacts and associated risks to the enterprise. **Box 3.2** gives a short description of the different Cleaner Production options⁴.

Box 3.2: Cleaner Production Options

- **Housekeeping:** Improvements to work practices and methods, proper maintenance of equipment etc., fall within this category. Efficient housekeeping can provide significant benefits in terms of saving resources. These options tend to be low cost and provide low-to-moderate benefits.⁵
- **Management and personnel practices:** This option includes employee/staff training, enhancement of operator skills, and effective supervision on the shop floor. Depending on the number of staff to be trained, this option may involve low-medium costs and provides moderate-to-high benefits.
- **Onsite recycling and reuse:** This Cleaner Production option involves the return of a waste material either to the originating process or to another process as a substitute for an input material.
- **Recovery of useful by-products and resources:** This Cleaner Production option entails the recovery of wastes as by-products/resources, which may have useful applications within the industry itself or outside it. This type of option essentially leads to the reuse/recycle, and thus minimization, of waste as well as to cost savings.
- **Process optimization:** This option involves rationalization of the process sequence, combining or modifying process operations to save on resources and

³ Source: http://www.uneptie.org/pc/cp/understanding_cp/cp_industries.htm

⁴ Interested readers may also refer to the “SEAM Guidance Manual for Integrating Cleaner Production into Business Resource Centre Services” for a more in-depth description of Cleaner Production options.

⁵ Interested readers may like to refer to *Good Housekeeping Guide for Small and Medium-sized Enterprises* (available at: www.getf.org/file/toolmanager/O16F15343.pdf). A complete Table of Contents for this document is provided in Annex 5.2 of this report.

Box 3.2: Cleaner Production Options

time, and thus improve the overall efficiency of the process.

- **Raw material substitution:** Primary and/or auxiliary raw materials can be substituted if better options exist in terms of costs, process efficiency, and reduced health and safety related hazards. Such an approach may be necessary if the materials already in use are difficult to source or become expensive, or come under the purview of new environmental or health and safety regulations. In all cases of material substitution, it is crucial to test the suitability of the new material in terms of environmental and economic benefits, optimum concentration, product quality, productivity, and improved working conditions.
- **New technology:** Adopting and transferring new technologies can often reduce resource consumption, minimize wastes, as well as increase the throughput or the productivity. These options are often capital intensive, but can lead to high benefits. Modifications in equipment design can be another option, which tends to be slightly less or equally capital intensive as the option for new technology, but can lead to potentially high benefits.
- **New product design:** In the context of the dairy sector, the term “new product design” would essentially involve the utilization of by-products previously regarded as wastes and their transformation into useful products. In order to accomplish this, (often) considerable research, laboratory and pilot-scale testing would be required so as to ensure that the new product would meet expectations of taste, texture, ease of operations, pricing, market demand, etc. before it is introduced to the market.

Following completion of the opportunity assessment, feasibility studies are conducted to prove whether each of the (non-obviously feasible) options is technically and economically feasible and whether it contributes to CP objectives. This includes technical, economic and environmental evaluation. Based on the evaluation, feasible options are selected for implementation.

After implementation of the feasible CP measures, provisions need to be taken to ensure the ongoing application of CP at the facility. A systematic approach to ensure sustainability of the CP program in a facility must include: (i) preparation of a CP Plan; (ii) implementation of CP measures; (iii) monitoring progress of CP using simple indicators to monitor progress and to keep the management as well as other interested parties frequently informed; (iv) sustaining CP which may require structural changes in the organisation and management system of the company.

A sustainable CP program requires integration of CP into the technical development of the company, proper accountability of waste generation, and employee involvement.

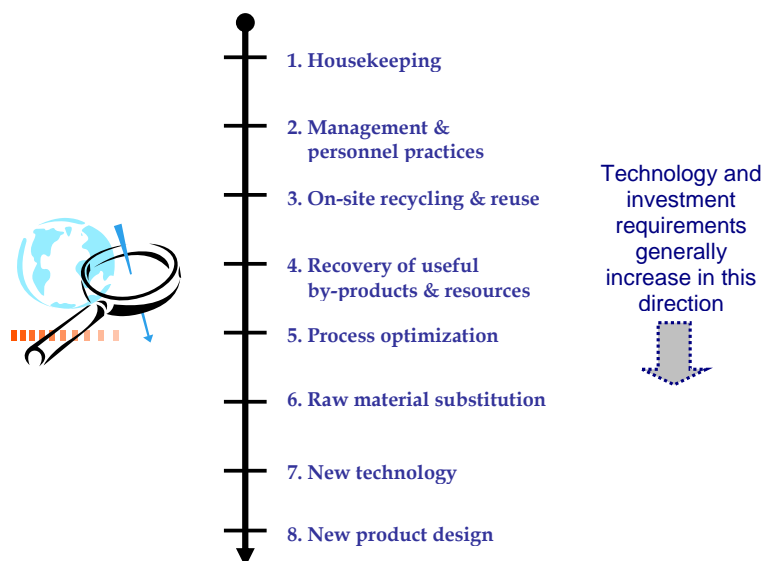
For more detailed information on CP, related tools for implementation of CP and case studies illustrating the benefits of CP see: http://www.uneptc.org/pc/cp/understanding_cp/cp_industries.htm and <http://www.cleanerproduction.com/>.

3.1.4 A Strategic Approach in Implementing Cleaner Production Options

There are some important considerations that must be noted while identifying, experimenting with and instituting CP options. They are as follows:

- In general, it is better not to generate a waste, rather than generate it and later recycle or recover/reuse it. Therefore, the CP options of recycle/reuse /recovery should be considered only after all the others that could prevent waste generation have been examined. This is presented schematically in **Figure 3.6** which shows the hierarchy of options available in terms of technology and investment requirements.
- In practice, for many of the options listed a team will identify results as a combination of the above categories so as to produce cost-effective and sustainable results. For instance, any option of new technology should be preceded and followed by improvements in management and training. In addition, the option of new technology often also requires substitution of raw materials.
- Some of the chosen options may require major changes in the processes or equipment or product. Often, these will dramatically reduce waste generation or increase productivity, but they also often imply considerable investments.
- In the case of product re-design as a CP option, it is important to remember that it is a major business strategy. It is likely to involve feasibility studies and market surveys, especially if the supply-chain around the product is already established and is complex.
- It is equally important to note that certain chosen options will require thorough laboratory/ bench scale/pilot studies to ensure that the product quality does not degrade as a result of their application, and that it is acceptable to the market.
- Where possible, the investigation of CP options should always be tied in with the entire production cycle. This exercise will therefore necessitate an interaction amongst all the players within the cycle; including the small-scale operators. This will allow inter-sectoral linkages to be fully comprehended and taken into consideration for maximum effect.

Figure 3.6: Hierarchy of Cleaner Production Options from the View-point of Technology and Investment Requirements



3.2 Cleaner Production As a Tool to Meet Market Requirements

The scope of the various market requirements described in Section 2 such as labels (ecolabels and other labels e.g., organically grown, fair trade etc.), certifications, industry standards and codes cover products, production processes, the working environment, movement of goods and services. This section will briefly discuss how the practice of CP can be used to meet these requirements.

3.2.1 Ecolabels and Other Labels

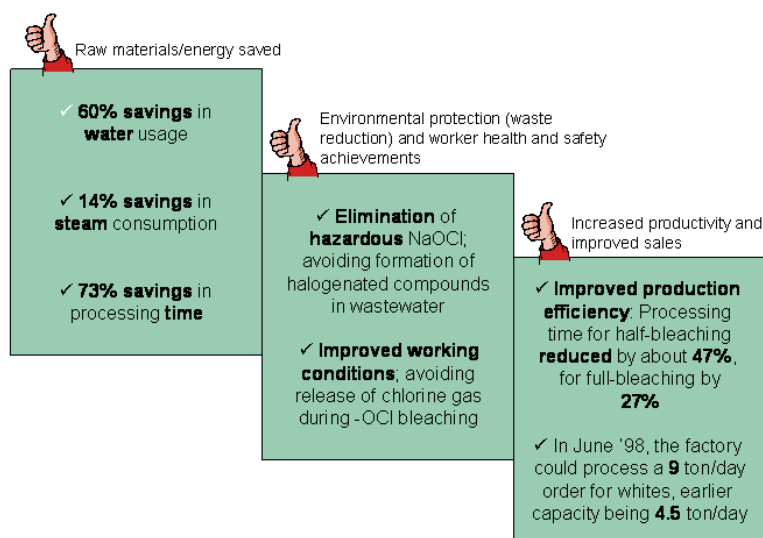
Requirements of ecolabels such as elimination of toxic substances, reduction of environmental, health and safety impacts across the life cycle of a product, safer working conditions can be effectively met using CP practices.

Meeting these requirements on an ad-hoc basis could cause businesses to incur large expenditures in eco-labelling efforts. However, by integrating CP options such as process optimization, raw material substitution, and where required, new product design, into the eco-labelling procedure⁶, ecolabelling can become more cost-effective. Process optimization, which is a Cleaner Production option, is **not** a part of the traditional eco-

⁶ More details about the complete eco-labelling procedure may be obtained from **Guidance Manual: Eco-labelling for Textiles** by the SEAM Project, with contributions from the Egyptian Environmental Affairs Agency, Entec UK Ltd.

labelling process. Instead, it is a crucial add-on which the eco-labelling process benefits greatly from. **Figure 3.7** shows an example of how process optimization can play a deciding role in the eco-labelling process for a textile wet processing unit. In this case, process optimization was achieved through cleverly combining and optimizing the scouring and bleaching processes within the unit⁷.

Figure 3.7: Substituting Hazardous Sodium Hypochlorite (NaOCl) for More Eco-friendly Hydrogen Peroxide (H₂O₂), Coupled with Cleaner Production



Due to this step, the eco-labelling exercise, which entails a significant cost, becomes **affordable** for the business and the business also stands to gain competitive advantage in the market with a safer, more eco-friendly product.

Box 3.3 presents successful case studies in eco-labelling in two Egyptian textile businesses that adopted CP practices. The complete case study is available in **Appendix 3** of this Manual.

Box 3.3 : Ecolabel Certification using CP - Egyptian Case Studies

Eco-labelling for textiles was implemented in two Egyptian textile factories as a part of the SEAM Programme which is promoting CP efforts in Egypt. The two factories that achieved an eco-label were Misr for Spinning and Weaving Company, Mahalla El-Kobra and Giza for Spinning, Weaving, Dyeing and Garments Company, Kafr El-Hakeim, Giza.

Misr for Spinning and Weaving Co., Mehalla El-Kobra, a public company and the largest in the

And Textile Research Division, National Research Centre, Egypt. Available at:

<http://www.seamegypt.com/Manuals/ecolabell/CONTENT-1.html>

⁷ Adapted from **Guidance Manual: Eco-labelling for Textiles** by the SEAM Project, with contributions from the Egyptian Environmental Affairs Agency, Entec UK Ltd. And Textile Research Division, National Research Centre, Egypt. Available at: <http://www.seamegypt.com/Manuals/ecolabell/CONTENT-1.html>

Box 3.3 : Ecolabel Certification using CP - Egyptian Case Studies

Middle East, at the time of certification had an average annual production of 48,000 tons, of which approximately 50% was exported. Giza Spinning, Weaving, Dyeing and Garments Co. a privately company has an average annual production at the time of certification of 1,500 tons, approximately 95% of which is produced for export.

Potential export market gains: Annual export value at the time of implementation at Misr Company was around LE383 million. Of this, almost 15%, or LE57.5 million went to Germany, a country that is increasingly placing demands for eco-labelled products. While it was difficult to quantify the export benefits of the eco-label, a 5% increase, or conversely a 5% drop in the German market share, would have been equivalent to LE2.9 million per annum.

Annual export value at the time of implementation at Giza Company was approximately LE32.7 million, of which about 20%, or LE6.5 million, went to Europe. While it was difficult to quantify the export benefits of the eco-label, a 5% increase or conversely a 5% drop in European market share, would have been equivalent to LE0.3 million per annum.

Improved production efficiency: In the process of achieving an eco-label, a number of modifications were made which improved production efficiency. In Giza Company for example, processing time was reduced by more than 47% in the half bleaching process and by 27% in the full bleaching process. This allowed the factory to process a 9 ton/day order for whites, compared to the earlier capacity of 4.5 ton/day. The modified method consumes 60% less water than the conventional method, with a corresponding reduction in wastewater volume. Steam consumption was reduced by 14%.

In Misr Company, a 5% improvement in “Right First Time” (RFT) in the dyeing process was achieved, in addition to a 20% reduction in processing time and a 14% reduction in steam consumption.

Improved product quality: Implementing an eco-label has resulted in an improvement in fabric quality and consistency. The most noticeable improvement resulted from the elimination of sodium hypochlorite in the bleaching process. As well as being banned by most eco-labels, the white colour produced by sodium hypochlorite is not permanent and the fabrics eventually turn yellow. In addition, use of this chemical sometimes weakens the fabric - in some cases, a 20% reduction in fabric strength was recorded. By eliminating this chemical, both of these problems were solved.

Environmental improvements: Elimination of hazardous chemicals from the textile manufacturing process is also beneficial for the environment. In both factories, the complete phase-out of sodium hypochlorite and the anti-chlor agent sodium bisulphite resulted in the elimination of halogenated organic compounds and a reduction of total dissolved solids in the effluent. The removal of this hazardous material has resulted in safer and better working conditions, as well as eliminating the odour of chlorine from the workplace.

In Misr Company, the use of kerosene in the printing process was minimized and a synthetic thickener used in its place. Kerosene is a flammable, hazardous material that is toxic to aquatic life, which also gives off strong, toxic fumes during use. It also leaves a strong, unpleasant odour on the finished product, which is not allowed by eco-labelling institutes.

In Giza Company, removal of copper sulphate from the dyeing process reduced the toxicity of the final effluent. Achieving an eco-label has also helped improve worker skills, confidence and increased motivation.

Apart from ecolabels CP practices can also be used to meet the requirements of other labels and industry standards such as “organically grown”, and brand specific codes of conduct. CP practices are not restricted to manufacturing facilities. Since it is applicable both to processes and products, CP principles can be used

across several components of the food sector i.e., both in agriculture and food processing to meet the requirements of the “organic” label. For e.g., the CP option of raw material substitution can be used in replacing chemical pesticides and fertilizers with less toxic, natural substitutes to meet one of the requirements of the “organic” label. This in turn will also address not only the issues of product safety but also environmental impacts and worker health and safety.

The systematic and preventive approach of CP which addresses process and product allows producers to not only meet the requirements of specific ecolabels or labels being applied for but also equips the producer to face the challenges of the new generation of ecolabels which are based on a life cycle approach e.g., Bluesign, expanded scope of ecotex’s ecolabels and the EU Flower. The scope of the market requirements of retailers who are playing an increasingly prominent role in international trade are extending from products to production processes across the supply chain. Here again the various CP options discussed above can be used to effectively address these requirements and enhance market access.

3.2.2 Certification and Environmental Management Systems

CP can be used effectively to obtain certification for environmental management systems such as ISO 14001 EMS and safety systems such as HACCP. CP can be a strategic input into an ISO 14001 EMS, making the goal of the EMS as prevention of inefficient consumption and reduced waste generation. It provides businesses with a tool through which to apply the principles of preventive environmental management and productivity in a systematic manner, on a continuous basis, and over the entire life cycle of the product, rather than just within the factory boundary. It also provides tools for effective EMS team work, input/output analysis, material flow analysis, energy analysis and option generation help in the assessment of the environmental impacts of businesses.

CP Opportunity Assessment (CPOA) can be used as a tool in identifying the aspects and impacts required in the process of establishing ISO 14001 EMS. (*Note: ISO14001 certificate can be obtained based entirely on EOP approaches*).

Many businesses perceive the adoption of the EMS as cost prohibitive due to its associated surveillance and documentation requirements. In such cases, CP can provide an avenue for offsetting the costs of establishing and maintaining an EMS through the economic benefits that it brings about.

ISO 14001 EMS can also add significant value to CP since it offers a common standard approach with its associated documentation, well defined certification and surveillance criteria. Since there is no basis for a standardized and internationally agreed upon certification system for CP, integrating CP into an ISO 14001 EMS is a way to have a business’s preventive approach formally recognized.

Large industries and industrial groups can use CP as a tool across the supply chain thereby equipping SMEs to meet the demands of the export market.

The requirements for food safety and quality certification such as HACCP can also be met by integrating the systematic approach of CP into the HACCP process (**Box 3.4** presents the outline of the HACCP methodology). Using CPOA and adopting appropriate CP options the various points in a food processing facility where safety is compromised or that are hazardous can be identified efficiently. In addition the producer can go one step beyond the HACCP requirements and adopt CP options to rectify / mitigate the hazard generating steps in the manufacturing process. Under the ongoing SEAM programme that is promoting CP in Egyptian industry, HACCP certification was obtained by food processing facilities using an approach integrated with the principles of CP. **Appendix 3** of this Manual presents the case study of Edfina Company for Preserved Foods, Alexandria, Egypt where CPOA was used to identify waste reduction and minimization opportunities and this was accomplished by improved quality control and HACCP implementation.

Box 3.4: Outline of the HACCP Methodology

HACCP is a systematic and preventative approach that addresses biological, chemical and physical hazards by anticipating and preventing, rather than by finished production inspection. It is a management tool that provides a more structured approach to the control of identified hazards than that achievable by traditional inspection and quality control procedures. It has the potential to identify areas of concern where failure has not yet been experienced and is therefore particularly useful for new operations or new product lines. By using a HACCP system, control is transferred from solely end product testing (testing for failure) into the design and manufacturing of food products (which is preventing failure to happen). However, some end product testing will remain necessary for verification purposes, to see whether the HACCP system is actually working.

Application of HACCP consists of a logical sequence of twelve steps encompassing seven basic principles.

Preparation Steps

- assemble HACCP team;
- describe product;
- identify intended use;
- construct process Flow Diagram and Plant Schematic;
- on-site verification of Flow Diagram and Plant Schematic;

Implementation Steps

- list hazards associated with each step - (principle 1);
- apply HACCP decision tree to determine Critical Control Points - (principle 2);
- establish critical limits - (principle 3);
- establish monitoring procedures - (principle 4);
- establish deviation procedures - (principle 5);
- establish verification procedures - (principle 6);
- establish record keeping/documentation for principles 1-6 (principle 7).

Information on the detailed activities under each step can be obtained from www.cbi.nl/accessguide/?cbiRef=yes.

3.2.3 Social and Labour Requirements

As discussed in **Section 2**, social welfare and labor standards are increasingly being integrated into ecolabels (e.g., *Certified Performance* from Eco-tex) codes of conduct, sourcing principles of large retailers and also being required as stand alone management systems.

Using CPOA followed by options that improve worker health and safety and overall product safety for consumers e.g., substituting toxic raw materials with safer alternatives, process optimization leading to safer more efficient operations, CP can be used as a good first tool to meet some labor standards and enable business to achieve greater social accountability. Because of its systems-based approach it can also be used in combination with management systems like SA 8000 to meet environmental, health and safety and social standards that are emerging as the challenges for market access and international trade.

3.2.4. Multilateral Environmental Agreements

Multilateral Environmental Agreements (MEAs) are international instruments binding three or more nations that take measures to remedy, mitigate or otherwise deal with global and/or regional environmental concerns and contribute to sustainable development. They are international legal instruments and are increasingly playing a fairly significant role in international trade. As discussed in **Section 2**, of the 238 current international treaties and other agreements in the field of environment, 38 contain trade-related measures. For e.g., Montreal Protocol, CITES, Basel Convention, Convention on Persistent Organic Pollutants, Rotterdam Convention on Prior Informed Consent, Convention on Biological Diversity (CBD).

Implementation of the Montreal Protocol, Basel Convention, POPs, PIC are possible using CP as a tool since its practice requires eliminating toxic and dangerous raw materials; and reducing the quantity and toxicity of all emissions and wastes at source during the production process. Protection of biodiversity is directly dependent on pollution management and efficient use of resources. CP can therefore be used as a tool to implement the relevant MEAs. The UNEP's CP division is promoting the use of CP as a tool to assist in the implementation of MEAs by developing resources such as guidance and training manuals. For more information please see: [http://www.unep.org/pc/cp/library/training/cdgpac/contents/InWEnt\(CP-MEAJan04\)/CP-MEA-Bkgpaper.pdf](http://www.unep.org/pc/cp/library/training/cdgpac/contents/InWEnt(CP-MEAJan04)/CP-MEA-Bkgpaper.pdf)

3.3 Cleaner Production Promotion Efforts in Egypt

The Egyptian government and industry have recognised that Cleaner Production can effectively improve the environmental performance of Egyptian industry, increase its ability to meet market expectations, improve

financial revenues of Egyptian companies, through reduced energy bills, improved housekeeping practices, decreased waste, and improved all-round competitiveness.

In July 2001, the Egyptian Environmental Affairs Agency (EEAA) initiated a process of drafting a policy framework to encourage CP in Egyptian industry, through the Egyptian Pollution Abatement Project (EPAP). This policy was intended to highlight the main issues, identify stakeholders, formulate the motivations and challenges, and propose instruments required to achieve the increased uptake and implementation of Cleaner Production in the Egyptian industry. **Box 3.5** provides highlights of Egypt's CP strategy.

Box 3.5 : Egypt's CP Strategy

Under the Environmental Pollution Abatement Project (EPAP), EEAA formulated the Strategy and Action Plan for promotion of CP in Egyptian Industry. In November 2002, an inter-ministerial committee was formed to oversee this strategy, representing the following organizations: Ministry of State for the Environment/EEAA, Ministry of the Industry, Ministry of Electricity, Ministry of Finance, Ministry of Public Enterprise, Ministry of Foreign Trade, Ministry of Petroleum, Ministry of State for Scientific Research, Federation of Egyptian Industry, Industry Modernization Program, and Local consultants.

The strategy and action plan focus on the role of the Egyptian Government, and the initiatives and policy instruments, which the Government should take to promote the implementation of cleaner production in the Egyptian industry. The action items suggested in the strategy together with their target timelines and responsible agencies, are summarized as follows:

1st Priority: Increase Capacity for implementation of CP

Timeline – Short term

Responsible Agencies: Federation of Egyptian Industries; Ministry of Foreign Trade & Industry; Ministry of Environment; Ministry of Petroleum; Ministry of Housing; NGOs; Local Administration; Ministry of Scientific Research; Technical Service Providers; Ministry of Man Power; Private Universities.

2nd Priority: Ensure cleaner production practices are incorporated into new industrial enterprises

Timeline – Short term

Responsible Agencies: Federation of Egyptian Industries; Ministry of Foreign Trade & Industry; Ministry of Environment; Ministry of Housing; Local Administration; Ministry of Man Power; Ministry of Petroleum.

3rd Priority: Encourage adoption of CP practices in established industrial enterprises

Timeline – Mid-Term

Responsible Agencies – Federation of Egyptian Industries; Ministry of Foreign Trade & Industry; Ministry of Public Enterprises; Ministry of Environment; Ministry of Petroleum; Ministry of Man Power; Local Administration; Technical Services Providers

4th Priority: Introduce correct economic pricing for basic service provision, e.g., water, electricity, etc.

Timeline – Long term

Responsible Agencies – Cabinet of Ministers; Ministry of Planning; Ministry of Environment; Ministry of Finance; Federation of Egyptian Industries; Ministry of Industry; Ministry of Electricity; Ministry of

Box 3.5 : Egypt's CP Strategy

Petroleum

5th Priority: Promote standards labelling for local products*Timeline* – Mid- term*Responsible Agencies* – Federation of Egyptian Industries; Ministry of Foreign Trade & Industry; Ministry of Environment; NGOs.

Other active initiatives in CP include the Support for Environmental Assessment and Management or SEAM Programme⁸. Under this programme, CP initiatives have been successfully undertaken in the textiles, food processing and edible oil and soap sectors. 32 factories were audited and 21 demonstration projects implemented at a cost of L.E1.6 million and an average pay back of 6 month. Examples of interventions include water and energy conservation, eco-labelling for textile exports, sulphur black dyeing, combined scour-bleach processing, oil and fats recovery, HACCP and recovery of cheese whey. SEAM now focuses on low cost CP opportunities in micro, small and medium size enterprises in four Egyptian Governorates. Sectors covered include metal foundries, furniture, food processing, textiles, brick works and auto repairs. The identified projects enhance process efficiency, reduce pollution, yield financial savings and improved the environment for surrounding communities.

Subsequent surveys of the Egyptian market have revealed that a large number of stakeholders have a vested interest in CP. The list includes the following:

- Ministries concerned with trade and investment, industry, environment, finance, economics, education and research, and energy
- Federation of the Egyptian Industries (FEI)
- Non-Government Organizations (NGOs)
- Universities, Research Centers and University Associations
- Financial institutions
- Local government agencies
- Local and international consultants

This is an agreeable state of affairs since the implementation of Cleaner Production requires the commitment of all concerned stakeholders, as mentioned earlier in **Section 2**.

Several institutional building efforts at promoting CP are underway in Egypt including projects supported by donors such as, DANIDA, UNIDO, DfID etc. A summary of some of the predominant CP initiatives by the Government and donors in Egypt is presented in **Box 3.6**.

⁸ More information on the SEAM Programme is available at <http://www.seamegypt.com/indust.htm>

Box 3.6 : CP Projects in Egypt – A Summary*The National Cleaner Production Centers (NCPCs)*

The Ministry of Foreign Trade and Industry established an Environmental Management Group that plays an important role in awareness raising, information dissemination, training and demonstration projects. The National Cleaner Production Center (NCPC) (October 2004 – 2007) was established with the support of UNIDO and housed in the Environment Management Group of the Ministry of Industry. Its objectives are the coordination of CP efforts and promotion of partnership links between public and private institutions at the national and regional levels as well as the enhancement of the capacity building for a more effective market access.

Four NCPCs will be established in Egypt with the main center being in Cairo and the other three in 6th of October City or 10th of Ramadan City, Fayoum, Alexandria. The Centers will focus initially on the textile and food sectors followed by the chemical sector.

The Environmental Compliance Office

In 2002 the FEI established the Environmental Compliance Office (ECO) to facilitate implementation of CP and environmental management practices in SMEs, which serves as a link between the industry, Egyptian technical consultants, EEAA and financial institutions. ECO is the platform for the activities of the component of “Achieving Compliance in Industry” of the DANIDA funded Environmental Support Program (ESP).

An increased level of industrial compliance with environmental regulations will be achieved through support for the implementation of CP in three sectors (food, textile and engineering); with planned implementation of environmental management systems (EMS) in about 90 facilities and increase the capacity of Egyptian consultants to service this requirement. A financial facility is also established and will be institutionalised to provide sustainable financial support for cleaner production and end-of-pipe technology investments.

SEAM Project- The Cleaner Production Component

Support for Environmental Assessment and Management (SEAM) is a major environmental programme implemented by the Egyptian Environmental Affairs Agency (EEAA), Entec UK Ltd and ERM with support from the UK Department for International Development (DfID).

SEAM Programme developed a strategic approach to mainstream Cleaner Production in Egyptian Industry. Broadly, the strategy consisted of three steps.

Capacity Building and Pilot Cleaner Production Projects (1994-99) – CP initiatives were successfully undertaken in medium to large scale Egyptian industrial units in the textiles, food processing and edible oil and soap sectors. 32 factories were audited and 21 Demonstration Projects implemented at a cost of LE16 million, with an average pay back of 6 months. Examples of interventions included water and energy conservation, ecolabelling for textile exports, oil and fats recovery, HACCP, recovery of cheese whey, etc.

Capacity Building and Pilot Cleaner Production Projects (2000-05) - The programme focused primarily on micro, small and medium size enterprises (MSMEs) in Egypt. It focused on 4-5 main priority sectors in five governorates which are the food, metal foundries, textile, furniture and other miscellaneous small industries. About 100 audits and 30 demonstration projects are to be undertaken in MSME priority sectors including food processing, metal foundries, furniture, textiles, and other miscellaneous projects. The aim here is to enhance efficiency, reduce pollution, yield financial savings and improve the environment for surrounding communities.

Promoting Cleaner Production – To ensure information dissemination and replicability of projects, demonstration projects were documented as case studies, guidance manuals, and sector reports. In

Box 3.6 : CP Projects in Egypt – A Summary

In addition to that, dissemination workshops were undertaken in close coordination with trade associations. A CP Clinic was set up in the Dairy Dakahleya Association to offer CP consultancy to dairy factories for different problem areas.

Creating enabling framework by working at Institutional and Policy Levels - The programme has contributed to the National Cleaner Production Strategy. It has also embedded CP concepts in key organizations such as Ministry of State of Environment (MSEA), The Ministry of Foreign Trade and Industry (MoFT&I), Business Resources Centres under the Industrial Modernisation Programme and trade associations.

More information on various sector manuals and case studies may be procured from <http://www.seamegypt.org>

Information on the current status of certification and environmental management systems in Egypt is presented in **Box 3.7**.

Box 3.7: Certification Status in Egypt

According to the Egyptian Organization of Standardization & Quality Control (EOS) of the Ministry of Industry, the status of total quality certification in Egypt is as follows:

- Number of establishments that are ISO9000/2000 certified is 614 establishments.
- Number of establishments that are ISO14001/1996 certified is 123 establishments.
- Number of establishments that are HACCP certified is 17 establishments.
- Number of establishments that got CE Marking certified in Egypt is 4 establishments

In addition, the Business Resource Centres [BRCs] of the Industrial Modernization Program (IMP) in Egypt are currently providing technical assistance to establishments to obtain international quality certifications as following:

- ISO9000/2000 certification: 6 establishments received technical assistance, 65 are currently receiving the assistance and 49 other establishments applied to receive the assistance. Total number of establishments: 120.
- ISO14001/1996 certification: 2 establishments received technical assistance, 13 are currently receiving the assistance and 14 other establishments applied to receive the assistance. Total number of establishments: 29.
- HACCP certification: 2 establishments received technical assistance, 13 are currently receiving the assistance and 32 other establishments applied to receive the assistance. Total number of establishments: 47.
- ISO18001/1999 certification: 6 are currently receiving the assistance and 3 other establishments applied to receive the assistance. Total number of establishments: 9.
- CE Marking: 1 establishment received technical assistance, 9 are currently receiving the assistance and 11 other establishments applied to receive the assistance. Total number of establishments: 21.

Source: EOS & IMP, December 2004

3.4 Benefits of Intensifying Cleaner Production in Egypt

CP has already been applied to various manufacturing sectors in Egypt. It can be applied to other manufacturing sectors and to the rapidly emerging service sector i.e., the tourism industry. As discussed above, the major benefits from adopting CP are:

- Increasing industry's ability to meet export market expectations,
- Preventing pollution,
- Complying with environmental legislations and trade regulations, and
- Making financial gains.

Examples of such effects can already be seen in the CP projects of EPAP and the demonstration projects coordinated by the SEAM Programme and implemented by EEAA.

However, there needs to be an intensification of efforts in mainstreaming CP in trade. The awareness on interlinkages between CP and trade and the potential of using CP in meeting current and future market requirements needs to be spread actively in industry and trade and export promotion departments and agencies.

The benefits of CP can be effectively translated by Egyptian businesses into market opportunities for "greener" or "eco-efficient" products. In fact, CP is absolutely essential if Egyptian industries are to stay competitive in external markets, as well as in internal markets, in the face of the increasing pressures of globalization. CP will also stimulate domestic market and create an environment to facilitate setting domestic standards in preparation to meet international trade challenges

The intensification of CP efforts in the manufacturing processes will result in better quality, cheaper and less polluting products thereby opening more and more world markets for Egyptian products and giving these products a much needed competitive advantage. As outlined in this Section, export market expectations whether in the form of ecolabels, regulatory and trade requirements, environmental agreements, quality concerns, EMS mandates, etc. can be satisfied through the use of CP practices.

3.5 Barriers to Intensifying Cleaner Production in Egypt

The general objective of the CP concept is to restructure industry in an economically profitable manner and at the same time to improve industry's environmental performance. However, a number of barriers exist which limit the widespread implementation and intensification of CP efforts in Egypt. These are described below.

- **Financial barriers:** In a developing country such as Egypt, financial resources may be a major hurdle to the initiation of CP projects. Egyptian SMEs are especially vulnerable to this barrier, due to the lack of access to finance, inadequacy of external capital and the absence of appropriate funding mechanisms. Another financial barrier pertains to economic subsidies; e.g., subsidies for water, energy etc., which may act as a deterrent or disincentive to Cleaner Production. Other financial barriers include economic cycles, which prompt firms to curtail their investment in new(er) technology during periods of recession, and inadequate accounting systems which fail to incorporate the true environmental cost into the company's balance sheet.
- **Technical barriers:** Companies in developing countries, such as Egypt, may lack the technical know-how to assess the short comings of their existing facilities to identify wasteful practices and areas of improvement. Companies may also not have access to the technology required to implement Cleaner Production on-site. This problem is likely to be especially pronounced at SMEs, which may lack the financial and technical resources of larger companies.
- **Information barriers:** Despite the considerable potential of Cleaner Production to improve a firm's competitiveness, in many instances they are incapable of exploiting such opportunities because of lack of information. The information barrier is again perhaps most evident for SMEs, where lack of resources may lead to firms in this category unable to comprehend the specific levels of details that may be required to implement Cleaner Production.
- **Attitudinal barriers:** Cleaner Production requires a shift in approach from reactive to proactive thinking, which some business managers may not be accustomed to. The experience of some countries, where Cleaner Production has not been accepted, is that their national policy makers may have failed to articulate clear goals and implementing policies for the achievement of Cleaner Production.

Perhaps one of the most important attitudinal barriers in a developing such as Egypt, is the lack of transparency in the industry, and lack of accountability and public environmental reporting by the firms. One of the major challenges is changing the attitude of the Egyptian industry to encourage a more open and transparent dialogue, at both the inter-industry level, as well as at the industry-regulators level.

- **Social barriers:** There is a growing trend towards considering environmental aspects in planning, and operation of industrial processes. However, environmental and technical

aspects alone are not sufficient to address the full range of issues at hand. Labour and related social issues need to be integrated into industry's perspective of growth.

- **Lack of public awareness concerning environmental well-being:** Another issue is the lack of pressures exerted in Egypt by the public, due to the lack of public awareness regarding Cleaner Production. Although environmental media campaigns exist on television and in newspapers, the Egyptian public still lacks the awareness and understanding of the consequences of polluting production practices, and how Cleaner Production practices improve the overall situation, both from environmental as well as economic stand points.

It must be noted that while each barrier is important in itself, addressing one barrier alone will not make the task of propagating Cleaner Production possible. In other words, all the barriers must be overcome together to make the application of Cleaner Production in trade issues a reality in Egypt. Egyptian trade is bound to flourish if efforts are made to overcome the barriers posed to the intensification of Cleaner Production practices in Egypt through the creation of a strong enabling framework. **Section 4** of this manual focuses on recommendations for creating this enabling framework.

Section

4

What will we learn from Section Four?

4.0	Creating an Enabling Framework to Stimulate CP for Trade Enhancement
	4.1 Access to Information
	4.2 Technical Assistance
	4.3 Financial Assistance
	4.4 Institutional Development
	4.5 Policies and Regulations

Section 4: Creating an Enabling Framework

The discussion thus far in the Manual has focused on Egypt's trade position, the present and future challenges facing Egyptian trade and the strengths of using CP as a tool to meet some of these challenges. The logical next step appears to be to identify a framework of actions that must be taken by Egyptian policy and decision makers, in the public and private sector, to meet these challenges by stimulating CP. The objective of such an enabling framework should be to enable industry to use CP effectively to enhance productivity and to maximize the benefits by improving their comparative advantage and competitiveness in the international trade market.

Egyptian industry is using CP today primarily to enhance productivity and resource efficiency, improve environmental compliance and for the accompanying cost savings. However, apart from a few individual efforts at using CP practices to enhance exports (e.g., under the SEAM Programme, the Oekotex ecolabel for select textile products was obtained, by Misr Mahalla, using CP practices) a concerted, proactive effort to realize the benefits of CP to trade is absent. It is well-established that CP can be used as an effective tool to meet the challenges of international trade. Section 3 of this Manual has attempted to show through several examples that it is possible for Egyptian exporters to meet many of the market requirements (in addition to those posed by ecolabels) and thereby enhance exports if CP is used effectively.

The discussion in this Section will focus on some of the main elements of an enabling framework to stimulate CP in Egypt and make it effective to achieve the final objective of moving the trade enhancement process forward. The enabling framework includes efforts that are required by both public and private sector at the institutional, technical and financial levels. For any effort to be successful the most important requirement is access to the right information.

4.1 Access to Information

From the preceding sections of this Manual it is very clear that international trade and markets are increasingly becoming more diverse, dynamic and competitive. If Egypt wants to maintain its existing markets and / or enter newer markets it is crucial to avail of up-to-date information, and to study and assess the various target markets in order to formulate an effective CP strategy that is in accordance with industry's capacities and will be effective in enhancing trade.

Access to information is required at various levels: government, industry (including the entire supply chain including the SMEs), policy and research institutions as well as the general public. The information that is required includes: (i) market information and (ii) CP related (tools, case studies and experience in application of CP in trade enhancement).

To obtain market information a good starting point could be business support organizations. These are organizations that aim to create a favourable trade and investment climate in the country. They include governmental trade ministries and departments (e.g., Ministry of Foreign Trade and Industry, Ministry of Commerce), trade promotion offices, private export development organizations (e.g., ExpoLink), chambers of commerce, industry (e.g., Federation of Egyptian Industries) etc. They have an important role to play in export promotion and in facilitating and enhancing business linkages, particularly for small and medium enterprises. Communication lines between exporters and these organizations have to be continuous and open. Some of the areas where business support organizations could be very useful for exporters include: Getting access to networks among suppliers, clients, business development support agencies, financial institutions, government offices, and NGOs;

- Providing support for preparation and updating company profiles for the export market;
- Making exporting companies known to potential clients or partners in other countries;
- Participating in fairs, exhibitions, other trading events, and facilitating participation in such events;
- Training services for management and staff;
- Learning more about potential negative impacts of partnership agreements;
- Publishing detailed sector overviews that can be of help when determining the target export market; and
- Reaching consensus among local producers in order to avoid unsustainable competition. In this respect, business support organizations may often have to liaise with companies and the governments to facilitate the development of clusters of companies.

With specific reference to the EU market, *The Centre for the Promotion of Imports from Developing Countries (CBI)* in the Netherlands is probably one of the best sources of market information – almost a one-stop-shop. CBI is an agency of the Netherlands Ministry of Foreign Affairs which assists companies in developing countries to export to the West European market. It provides the following services:

- up-to-date market information and trade intermediary services amongst others through market reports for specific product sectors. Recent reports can be downloaded from the internet. CBI also produced a manual entitled “Exporting to the European Union, Challenges demand a strategic approach”. In addition CBI produces overviews of environmental, social and health guidelines of the European Union – in the form of ‘quick scans’;
- matching exporters from developing countries with importers in the European Union through their Trade Intermediary Service;

- promoting the competitiveness of companies through long term export promotion programmes for the most relevant, non-traditional export sectors with regard to management, marketing, products, technology and production processes;
- assisting in human resources development through training courses and seminars for export managers of small and medium sized companies and staff of trade promotion agencies;

CBI aims at strengthening the competitiveness of companies from developing countries on the EU market. Exporters in developing countries can register free of charge to enter CBI's virtual community (www.cbi.nl) and obtain information about export development programmes and training programmes, access market surveys and marketing guidelines, download export manuals, hundreds of links to other resources on the internet, and conduct a self assessment of export readiness.

Probably the most comprehensive source of information on Cleaner Production is the UNEP – CP division (<http://www.unep.org/pc/cp/>). Information on the concept of CP, methodology and approach, case studies, tools etc. can all be obtained from here. The SEAM Programme's documents (manuals, case studies and reports) are a good source of information on CP experience in Egypt – including CP tools, detailed case studies, lessons learnt as well as manuals for implementation of various CP options and practices across several industrial sectors (<http://seamegypt.org/>). Other sources of information on CP initiatives and experience in Egypt include the Egyptian Environmental Affairs Agency, and the newly established National Cleaner Production Centre.

To stimulate CP and to establish the linkages between CP and trade enhancement it is not only necessary to have access to the right information but also to set up effective channels for dissemination of the information to all the stakeholders.

4.1.1 Dissemination of Information

For CP to be used effectively in meeting the challenges of international trade, dissemination of information about CP and its linkages to trade requires to be done at various levels – government, industry (across the supply chain), research institutions, academia and the general public. As a result the techniques and tools required for dissemination will vary depending on the target audience. They may include: awareness programmes (seminars, workshops), training (seminars, workshops and on the job training), and demonstration projects at specific facilities.

Awareness programmes range from those that focus on the concept and practice of CP and its benefits to trade to focussed, sector specific training programmes where detailed information on CP practice, tools and techniques and case studies are provided. One of the most effective strategies internationally used in

improving both acceptance and understanding of CP across a wide range of stakeholders has been the use of case studies and examples. Brochures, posters, and videos are effective to reach a wider audience. In addition, campaigns where awareness building graduates to counselling and implementation of practice-oriented sessions have been found to be effective.

Special technical groups or CP cells in government departments dealing with industry, trade, exports, environmental issues, labour, trade policy and negotiations can be very effective in promoting awareness of CP and its benefits and disseminating information to establish cross-sectoral linkages. Apart from conventional approaches such as seminars and workshops, other tools such as newsletters, listservs, e-discussion groups can be set up internally within government departments to enable effective information dissemination. For information dissemination in industry all these tools can be used by industry associations, chambers of commerce, centres such as the Business Resource Centre (established in Egypt under the IMP).

In many cases, CP is communicated through other related programmes and strategies such as eco-efficiency, the Asian Productivity Organisation's Green Productivity Programme etc. Some innovative approaches have been used to create awareness among the general public which is instrumental in creating consumer demand for safer, more environmentally friendly products. For e.g., the use of the Household Eco-Account Book as part of the "*Household Accounting on the Environment*" programme by Japan's Ministry of the Environment. This is a tool for citizens to get to know the relationship between their daily life and environment, to reduce the environmental impacts caused by their day-to-day life, and to shift towards environmentally-friendly lifestyles¹. Public awareness and involvement of citizens is necessary to stimulate demand for cleaner goods which in turn will stimulate the domestic market to prepare it to meet external trade and market expectations in the long term.

Another innovative programme where SMEs have been the target audience includes the Efficient Entrepreneur Calendar for Small and Medium Enterprises (SMEs) developed by the Wuppertal Institute in Germany in collaboration with UNEP. This innovative product provides training specially adapted to the needs of SMEs world-wide. In combination with its users' guide, the calendar provides assistance on how to measure and improve business performance. It introduces action steps that are easy to assess and evaluate. It's "month-by-month" programme starts with appointing a team coordinator in January and ends with a simple Efficient Entrepreneur Report by December. First developed as a general applicable tool, the Efficient Entrepreneur Calendar has undergone several customisations. One of the latest is the e-textile project for efficient textile production in Asia, where it will lay the basis for the "performance management tool"². Partner organizations from Asia and Europe have joined hands to develop this on-line toolbox to help

¹ For more information on this programme visit <http://www.japanfs.org/en/public/resources.html>.

² For more information on this tool visit <http://www.efficient-entrepreneur.net/>;

make textile production more efficient, reduce production costs, improve product quality and achieve a better environmental performance. The integrated toolbox consists of an on-line capacity building module to acquire competitive knowledge, a performance management tool in the form of a monthly calendar as well as a catalogue of technical solutions and examples of their application³.

As discussed in Section 1 and 3, there are several CP programmes ongoing in various industrial sectors in Egypt and there is awareness about CP in select government ministries and departments. There is however, a need to raise awareness of CP and its benefits in other crucial government departments involved in foreign trade and exports, planning and investments, as well as in academia and among the general public. Key players who must be involved in this process are industry and industrial associations, government, financial institutions, institutions of higher learning, and NGOs involved in environmental activities. Some of the tools and techniques outlined above could be very useful in promoting CP in Egypt.

Training is an important element of CP capacity-building efforts and disseminating information. An effective way of ensuring that practitioners are up-to-date on information could be through regular training programs / refresher sessions for national experts and practitioners to update information on CP-trade linkages, new tools on CP assessment and other distinct areas linked to CP for e.g., on the implementation of environmental management systems, the preparation of requests for investment in cleaner technologies, management by companies of CP and other environmental data, or on policy instruments to be used to encourage CP.

Training could be conducted through workshops and seminars or on the job. Training should be aimed at different target groups such as, industry; branch organizations; government officials; research institutes; financial institutions; universities and consultants.

Demonstration projects become a major part of these awareness raising activities (and will be discussed in greater detail in Section 4.2 as a means of technical assistance). Through these projects, information on the practical application of the concept of cleaner industrial production can be demonstrated and they can also be used to illustrate how market requirements can be met using CP.

4.2 Technical Assistance

Technical know-how and constant updating of technical skills are an essential pre-requisite for any producer to meet the growing challenges of the international market. Several programmes and assessments have identified lack of technical know-how and access to up-to-date technology as being one of Egypt's main

³ The e-textile tool can be seen at <http://www.e-textile.org/>

barriers to realising the benefits of CP and meeting the challenges of the external markets. Technical assistance can be provided in the form of:

- (i) Policy level support through technical assistance programmes from multilateral and bilateral development agencies to identify strategies, fiscal instruments, and plans that can stimulate CP e.g., The World Bank and UNEP IE's Promoting Cleaner Production in China Program which included capacity building and policy suggestions that had a substantial catalytic effect on other projects and activities such as the Cleaner Production Law⁴; In Egypt the EPAP a joint project between the Governments of Egypt and Finland, the World Bank (WB) and European Investment Bank (EIB) has provided policy level support to the inter-ministerial CP committee established by the Ministry of State of Environmental Affairs (MSEA) to produce the National CP strategy and has proposed CP related amendments to the executive regulations of the main environmental law. The CP strategy is yet to be implemented.
- (ii) Institutional level support to research and technical institutions (e.g., textile research institutes, Egyptian Centre for Economic Studies etc.) through short-term exchange visits or study tours for technical experts and practitioners in the area of CP and related areas.
- (iii) Industry or plant level support through visits by experts or consultants to provide in-plant evaluations to identify the CP options that are available and evaluate both their environmental benefits and their economic benefits e.g., as part of the SEAM Project international technical consultants and experts have provided this form of technical assistance (see <http://seamegypt.org> for case studies that provide details of the technical assistance).
- (iv) Demonstration and Pilot Projects to illustrate appropriateness and applicability of technologies and the concept of CP. Much of the application of CP can be done with low cost and low technology options that are easy to implement. This is especially true in the context of SMEs However, for situations that demand changes in raw materials, equipment and processes, development of innovative approaches and technologies is necessary. Demonstration projects are effective in facilitating dissemination of the results of CP options to convince other industries of their economic and environmental benefits resulting in the multiplier effect to take

⁴ The other activities in the Promotion of CP Program included, development of the Chinese Cleaner Production Audit Manual For Enterprises, training of 150 Chinese professionals who can conduct CP audits, execution of CP audits in 27 pilot and demonstration companies, and implementation of some 690 cleaner production options at little or no costs.

forward the technology transfer process in CP. Sectors where most demonstrations have been carried out have been textiles, pulp and paper, metal finishing and tanneries. Financing for these demonstration projects requires a significant financial contribution from recipient industries, to obtain their commitment, ownership and continuation of CP process. Some of the successful programmes that used demonstration projects to promote CP include: PRISMA in the Netherlands, Landskrona in Sweden, SPURT in Denmark, AIRE/CALDER and Catalyst in the UK, DESIRE in India (implemented by National Productivity Council, New Delhi with support from UNIDO), ProduksiH in Indonesia (implemented by the BAPEDAL under support of GTZ), and SEAM in Egypt (implemented by EEAA with the support of DFID, UK). Multi-country demonstrations supported by agencies such as the Asian Productivity Organisation (APO), Tokyo under Green Productivity Programme, US AID under the EP3 project, World Environment Centre (WEC) and World Cleaner Production Society (WCPS) have also been noteworthy.

- (v) Enabling technology transfer which facilitates investments in Cleaner Technology e.g., UNIDO's Eco-Investment Forum programme in China. The Administrative Centre for China's Agenda 21 (ACCA21), through its operating arm the Centre for Environmentally Sound Technology Transfer (CESTT) and the local governments of the Taihu Basin in Southern China organised an ECO Investment Forum for Environmentally Sound Technologies (ESTs) in November 1999 in Huzhou City, Zhejiang Province. The Forum, and the promotion program leading up to the Forum, was supported by the Chinese Ministry of Foreign Trade and Economic Co-operation (MOFTEC), the Ministry of Science and Technology (MOST), the Jiangsu and Zhejiang Provincial Governments, and the Shanghai Municipal Government. Technical assistance was provided by the UNIDO. The Forum initiated direct contacts between Chinese enterprises and investment project sponsors and potential foreign partners to discuss selected industrial and infrastructure projects as well as at bringing together local firms with foreign enterprises seeking EST business opportunities in China. About 138 UNIDO-screened eco investment projects from the Taihu Basin were available for discussion. UNIDO and CESTT prepared profiles⁵ on each of the screened projects.

⁵ For details of the project profiles visit: <http://www.cestt.org.cn/English/projects/Eco-Investment/List%20of%20Projects/Projects%20List.htm>; For details on the Eco Investment Forum Project see: www.unido.org/en/doc/4085

More recently, implementation of some of the multilateral environmental agreements such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes (The Basel Convention); the Stockholm Convention on Persistent Organic Pollutants (the POPS Convention); and the UN Framework Convention on Climate Change are providing impetus to the cleaner technology market. Several industrial sector specific institutions have established initiatives to promote adoption of cleaner technologies in their own sectors by setting up business to business web sites, sponsoring technology development projects and by organising thematic trade fairs. Increased foreign direct investments in developing countries have led to some cleaner technology adaptations.

Eco-labels, have also been one of the prime push factors in sectors such as textiles, leather tanning, metal finishing, food and pulp and paper. This has fostered substitution and elimination of hazardous chemicals and processes leading to Cleaner Production interventions along the supply-chains.

There have also been efforts on promotion of cleaner technologies on regional bases. Examples are the Asia Pacific Centre for Technology Transfer (APCTT) in New Delhi, the Centre for Environmentally Sound Technology Transfer (CESTT) in China, the International Centre for Environmental Technology Transfer in Japan and the Ecolinks initiative operated by USAID for Central Eastern European countries.

Effective technical assistance can bring about several improvements such as:

- changing manufacturing processes and technology;
- changing the nature of process inputs (ingredients, energy sources, recycled water etc.);
- changing the final product or developing alternative products;
- on-site reuse of wastes and by-products.

In Egypt there is a wide spectrum of CP related technical assistance being provided by several donor agencies who are involved directly or indirectly in improving technological performance in industry, primarily SMEs. These include The World Bank, IDB, KfW, USAID, GTZ, DANIDA, JICA, CIDA, UNIDO, FINNIDA, DfID and the EU's Industrial Modernization Programme (FEI-DANIDA, 2001)⁶. There however is a tremendous need to integrate the experiences from all these programmes to maximise the benefits of CP both in the domestic market and in enhancing Egypt's position in the international market.

4.3 Financial Assistance

Existence of financial support is one of the critical elements of the CP enabling framework with adequate mechanisms that are designed to promote CP - related investments across various sectors. Lack of adequate

⁶ FEI-DANIDA, December 2001. Cleaner Production Technologies Egypt Present Status. Volume 1, Final Report.

investments and support has been identified as one of the main barriers for stimulation of CP in Egypt. Recognising this need, a number of innovative CP financing programmes have been operated in various parts of the world. These include the NEFCO Revolving Facility set up by the Government of Norway in Russia, Lithuania, Latvia and Estonia that has documented considerable success. In the Latin and Caribbean Region, the Multilateral Investment Fund (MIF) has recently introduced a major cluster financing programme on achieving eco-efficiency through CP and Environmental Management. The United States has demonstrated the most innovation and maturity in its financial sector. Several states in the US have pollution prevention, recycling, or revolving loan fund programmes. Examples are the P2 Loan programme of Ohio State that targets small-to medium-sized businesses, the RENEW Loan Programme in Colorado that emphasises waste recycling or the Nebraska Dollar and Energy Saving Loan programme that promotes small projects for "turning pollution prevention and energy efficiency into corporate assets".

In the last decade, development financing institutions such as the World Bank have set up several CP -related Technical Assistance and Financing Programmes. Notable among these are the Industrial Pollution Control and Prevention Project (IPPP) of the World Bank in India, the Industrial Pollution Control Project in Brazil and in China. The World Bank publication, the *Pollution Prevention Abatement Handbook - Towards Cleaner Production* is used by several financing institutions today, to assist in project appraisal.

Box 1: Success Stories of CP Investments

The following are examples of successful Cleaner Production investments financed by the World Bank. These examples demonstrate how cleaner technology should be integrated in the industrial modernization process on going in Egypt. All of these projects significantly reduce the production or maintenance costs and so increase profitability of the company, improving the sustainability for financing future modernization steps.

- Switching into argon flushing from mercury flushing in the production of fluorescent lamps: This project by El Nasr Electric and Electronic Apparatus Company in Alexandria was financed with 0,2 M\$. It achieved a reduction of mercury consumption by 70% and reduced the mercury concentration in the working environment from 0.25 mg/m³ to 0.01 mg/m³.
- Substituting solvent based spraying in tire manufacturing into water based spraying and simultaneously switching from manual spraying to automated enclosed process. This project by Transport and Engineering company TRESCO in Alexandria was financed with 0,47 M\$. It achieved reduction of heptane consumption per unit by 50% and decreased the heptane concentration in the occupational air to a safe level (about 30% of the limit of the law).
- Replacing a polluting old lime kiln with a modern kiln with superior energy and raw material efficiency. This investment of Alexandria Sodium Carbonate company ASCC will be financed with about 4.2 M\$. Improved raw material efficiency is expected to contribute to a saving of about 15% in the limestone consumption and coke consumption is expected to be reduced by 60%! Improved pollution control is expected to bring down the dust level in the occupational environment from about 20 mg/m³ to the limit of the law, which is 2 mg/m³ for CaO. The supply and installation of the kiln is scheduled in 2004.

- Reducing hexane emissions from soy seed extraction by replacing a highly corroded toaster by a new toaster with low leakage of hexane. This project by Tanta oil and Soap company TOSCO in Banha is financed by 0.2 M\$. The hexane consumption has been reduced from about 11 to about 4 kg of hexane per ton of raw material. The occupational concentration of hexane was decreased from over 600 ppm to under 20 ppm. The hexane residual in the fodder product was also reduced.
- Substituting of a direct cooling system producing wastewater and hazardous waste emissions in a food oil deodorizing process by indirect cooling. This project of Arma company for food oil in 6th of October city will be financed by 2.34 M\$. The main benefit of the project is preventing of contamination of the cooling tower and spreading of oily mist in the environment. Instead of producing hazardous waste in the form of flammable oily waste from skimming the circulated cooling water, the new process will recover uncontaminated fatty acids that can be used in fodder production.

There are however, still a substantial segment of extremely small businesses and entrepreneurs who fail to qualify for these institutional mechanisms. To respond to such a need, the UNEP DTIE started a four year project in 1999 on CP Financing. This project aims at increasing investments in CP in developing countries by helping leaders at financial institutions understand the importance of CP and by helping CP experts develop creditworthy investment proposals. The project, focusing on five demonstration countries - Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe - operates under a trust fund created by the Norwegian government. The results obtained and lessons learned in the demonstration countries will be used at the global level to motivate key decision-makers in the financial sector to pursue Cleaner Production investments in developing countries. Details of the UNEP Financing Cleaner Production Program are available at <http://www.financingcp.org/about/about.html>

4.4 Institutional Development

For CP to be effectively stimulated and promoted the necessary **institutional set-up** must be in place. This requires not only the presence of appropriate institutions in the public and private sector but also the requisite capacity (human resource, technical, and financial) to promote CP. Recognising a need to set up model institutions on CP at the national level and build national capacities, UNIDO and UNEP launched the National Cleaner Production Centres (NCPC) Programme. There are now 25 NCPCs set up with the assistance of various donor agencies – the NCPC at Cairo, Egypt was set up very recently in late 2004. Many international donors, notably the Swiss Government, the International Labour Organisation, NORAD, USAID, the World Bank, and the Global Environment Facility (GEF) have identified NCPCs as highly competent partners for delivering their programmes and projects on the national level.

Taking the lead from NCPC Programme, several Cleaner Production Centres (CPCs) have been set up by many countries by allocating national funds and in some cases drawing assistance of donor agencies. There is currently a global CP network of more than 100 CPCs operating in about 40 countries. Today this network is

a global alliance demonstrating a partnership among international agencies, national governments, financing and developmental institutions, business associations, environmental NGOs and academia. CP Centres may be established as stand alone organizations or as cells within an institution for e.g., in Egypt, under the SEAM programme, a CP Cell has been set up in the Ministry of Foreign Trade and Industry to build awareness and technical capacity on CP and the interlinkages between CP and trade.

To ensure consistent and sustainable building of technical capacity in CP the principles of CP need to be integrated into academic curricula. For **integration into curricula in academic institutions**, CP does not fit neatly into any one educational discipline. It is a concept that requires a 'big picture' examination of the interaction between production, consumption and the environment. Consequently, relatively few courses and training programmes operate as a stand alone CP curriculum. Many programmes operate however on the interface and principles of CP. In fact, in the last decade much of the environmental education has been influenced by some of the core CP messages viz. the preventive strategy, life cycle approach and risk reduction.

There has been an increasing trend towards introducing specialized courses around CP such as eco-balances, environmental accounting and environmental management. Number of technical courses within engineering curricula where preventive environmental concepts can be integrated, (e.g. courses on energy, combustion processes, product development and industrial production), has increased.

Analyses showed that there were 119 CP courses and 147 CP training programmes operated by 104 institutions across the world. In the last decade, some institutions in Australia, Denmark, Sweden, Norway, United Kingdom and the United States have set up CP programmes at the graduate level. There are about 50 undergraduate / graduate -level CP education programmes world-wide. The International Institute for Industry, Environment and Economics (IIIEE) conceived the "Educate-the-Educators" programme (similar to the 'Train the Trainer' approach) to build capacities of the faculty members around the world in preventive environmental education. Web-based resources and distance education programmes related to CP are a more recent and increasingly popular trend along with the emergence of professional journals dedicated to CP such as Journal of Cleaner Production and Journal of Industrial Ecology. Publishing houses specialising in CP have also emerged e.g., Greenleaf Publishing. This is indicative of the increasing demand and circulation of CP - related research and application materials.

Several studies and analyses on the barriers to CP promotion in Egypt have identified lack of adequate local technical skills and expertise as one of the main issues. One of the requirements to filling this lacuna would be to build the capacity of educational institutions and integrate CP related courses into mainstream academics using the resources and experience from various institutions such as the IIIEE.

Institutional capacity can also be built / strengthened through **networking and collaborations**. The evolution of CP over the last decade witnessed a gradual movement from individual approaches to CP to common or collective approaches that are based on partnerships; and networking and collaborations. Partnership models have taken different innovative forms of collaboration among diverse stakeholders and consequently numerous success stories and valuable experiences have resulted from these partnerships. Some of the examples of innovative partnerships include the Victorian Environment Improvement Plan Programme in Australia, the Asia-Eco-Best Programme promoted by the EU, the Waste Minimisation Circles in India, Waste Minimisation Clubs in South Africa, the UK and New Zealand, the Corporate Synergy System in Taiwan and ECOPROFIT in Austria.

CP has been one of the major themes of discussion at the regional and international arena. CP Networking – an essential aspect of building some sort of enabling network has already been in operation across all regions. Several roundtables are now operated on CP. These roundtables not only promote the concept of CP but also help take the CP agenda forward in terms of understanding barriers, sharing experiences and fostering new partnerships. In many ways they catalyse growing regional cooperation. Prominent amongst these include the National Pollution Prevention Roundtable (NPPR) in the US and the European Roundtable on Cleaner Production (ERCP). The NPPR in the US has been very active and the ERCP has organized seven CP roundtables till date, while the Asia-Pacific region has organized three CP roundtables.

A momentum to high level international meetings focusing on CP was given by UNEP DTIE through its High-Level CP seminars. So far, UNEP DTIE has held seven such meetings. Each High-Level seminar has shown a progression in the understanding of the CP concept, from the initial process orientation to products and now intertwined with Sustainable Consumption.

Apart from international and regional networks, UNEP DTIE promoted sectoral CP networks in the form of Working Groups. The mission of the Working Groups was to identify and supply technical expertise, advice and information by setting up informal sector specific networks. Sector/Focus Areas of the Working Groups included Leather Tanning, Textiles, Food, Biotechnology, Metal Finishing, Pulp and Paper, Education and Training, Policies, Strategies and Instruments and Information Sharing and Exchange. Much of the early reservoir of CP information was created by tapping the expertise of these Working Groups. The Working Groups were conceived in this sense more as knowledge networks than as conventional information networks. Unfortunately, due to inadequate financial support, many of the Working Groups are in a dormant condition but clearly their networking with CPCs/NCPCs in particular, holds great potential.

The experience of CP networking world-wide, catalysed several other agencies and programmes to set up their own CP networks. Many of the themes for networking shared a common vision to CP. Examples

include the Greening of Industrial Networks, International Green Productivity Association (IGPA), O2 International Network of Sustainable Design, CDG's Latin American Network, Canadian C2P2 network, O2 international network of sustainable design, PREPARE for Europe etc. UNEP DTIE developed the International Cleaner Production Information Clearinghouse (ICPIC) that has information on technical and policy sources of information. Other important web-based initiatives on CP include the International Cleaner Production Co-operative launched by US Environmental Protection Agency, and the websites of Environment Australia, the Chinese NCPC and the Canadian Centre for Pollution Prevention.

4.5 Policies and Regulations

To integrate the various elements of the enabling framework discussed thus far and to ensure that they are effective, it is necessary to declare CP as an issue of the highest priority at the policy level and as an integral part in the policies and plans towards modernization of industry and enhancement of trade. A number of countries have made progress albeit, to varying extent, in applying a mix of instruments for promoting CP. Markets have started influencing both production and consumption by building awareness through eco-labels, establishing environmental and social codes for products throughout the supply-chain and by developing and implementing environmental management systems. This has provided an overarching framework for a more integrated approach to CP, encompassing process, product, services and consumption. More recently, countries mainly in the North Atlantic (notably the US), the European Union (EU) region (notably Denmark, Netherlands, and Spain), Norway and Australia have placed an emphasis on reforming the legislative framework, stressing the promotion and recognition of voluntary instruments – especially CP. The EU has already established the Industrial Pollution Prevention and Control (IPPC) Directive and many of its member states are in the process of aligning their national CP - related policies and strategies with the IPPC. One of the steps taken in the EU to increase the focus of CP on products and related markets was the development of an Integrated Product Policy (IPP). Some EU Member States have already developed, or are developing Environmental Product Policy (EPP) frameworks. The leading countries, thus far, are The Netherlands, Denmark, Sweden, Austria and Germany. EPPs are also beginning to emerge in countries such as Belgium, the United Kingdom, Finland, Italy and the U.S.

On the supply-side, the leading countries have developed a number of measures to encourage eco-product development, such as the product-oriented environmental management systems (POEMS) in The Netherlands, eco-design grants and awards and product take back and recycling requirements. These countries are also developing demand-side tools, such as eco-labels, product taxes and green product public procurement policies. The most advanced are also exploring multi-stakeholder dialogue tools (such as Product Panels in the Denmark) to bring both sides together to work toward greener products. One of the publicly developed and discussed illustrations of a national CP strategy is that of Australia and of the Czech Republic. Chile and Columbia provide good illustrations of Cleaner Production-related policies in the Latin and Caribbean region.

The Asian Development Bank is supporting several Regional Environmental Technical Assistance Programmes for the Promotion of Cleaner Production Policies and Practices in Selected Developing Member Countries. Cleaner Production strategies are not limited within the national networks. The Asia-Pacific Economic Co-operation (APEC) formally adopted a Cleaner Production strategy in 1997 while China is the only country to have a CP Promotion Law that became effective in January 2003.

Some of the policy level actions that the Egyptian government should consider to promote CP include: signing the International Declaration on Cleaner Production (UNEP) to signify Egypt's commitment to cleaner production on both the national and international levels; establishing a coordinating organization and an inter-ministerial body to evaluate existing policies and identify means of introducing CP initiatives in their framework.

One of the policy level actions that have been taken by the Egyptian Ministry of State for Environment is the development of a CP strategy through an inter-ministerial collaborative effort. The CP strategy identifies specific roles and responsibilities of various ministries and departments.

At a paper presented by EEAA on Egypt's national strategy for CP at the CP7 organized by the Czech Government, UNEP and UNIDO in April 2002, the following policy instruments were identified as necessary to encourage the adoption and implementation of CP initiatives in Egypt (Hamed and Mahgary, 2002)⁷:

- **Legislative instruments** aimed at enacting and enforcing regulations that would encourage the uptake and implementation of cleaner production. These include:
 - identifying means of introducing CP into the already existing vision for Egypt in the 21st century, which is the 20 year plan published by the Cabinet of Ministers;
 - including CP in environmental, industrial, educational and research and development policies;
 - amending the pollution abatement legislations to make environmental limits based on loads and not just on concentrations to prevent the use of dilution as a solution;
 - establishing mechanisms for negotiated agreement for non-compliant firms to encourage CP solutions, instead of hasty end-of-pipe approaches to non-compliance;
 - phasing out some target chemicals in a controlled way, through negotiated agreements with industrial associations, to minimize significant economical impact on the industry

- **Economic / Fiscal Instruments** aimed at removing the inefficiencies of the market that may act as disincentives to the application of CP, and introducing financial policies which encourage CP. These may include:

⁷ Hamed, M.N., El Mahagary, Y. National Strategy For Cleaner Production: The Case of Egypt. Paper presented at CP7, organized by The Czech Government, UNEP and UNIDO, Prague, 28 – 29 April 2002.

- establishing special funds and/or financial arrangements to support CP initiatives, demonstration projects, and activities. Both national and international resources would need to be tapped for this purpose;
 - providing financial incentives (in the form of soft loans and/or grants) to the Egyptian industry to promote resource efficiency (e.g., energy and water conservation), waste minimization, improved productivity;
 - using fiscal measures that involve more realistic pricing of resources e.g., gradual removal of subsidies known to distort the economy and act as disincentives for CP;
 - restructuring taxes, import-export duties to encourage technology and equipment transfer that stimulates CP;
 - providing incentives to industries practicing CP.
- **Information-based Instruments** aimed at promoting awareness and disseminating information to encourage CP. Some of the recommended measures include:
 - facilitating access to information by creating informal or formal industry networks, within individual Governorates, and within individual sectors or subsectors;
 - ensuring easy access to information to all stakeholders and parties involved, through the use of education resources (universities, vocational schools, individual trainers), and media resources (TV campaigns);
 - coordinating with the Federation of Egyptian Industries to ensure the proper flow of information within the industrial establishment, through a variety of training tools, including formal training, study tours, diagnostic workshops, on the-job training, self-managed learning, and in-house learning centers;
 - raising public awareness on environmental issues in general, and on CP in particular, through targeted media campaigns in coordination with other similar campaigns currently being developed and delivered;
 - requiring public disclosure of information on environmental performance by for example, establishing a pollutant release and transfer register, stimulating greater voluntary corporate reporting, and requiring the provision of information on specific materials
 - instituting high profile award schemes to reward companies who have effectively implemented CP.

To illustrate how some of the elements of the enabling framework discussed above have been implemented in other Asian countries to promote CP, **Section 5** of this Manual presents the cases of two of Egypt's competitors – India and China.

Section

5

What will we learn from Section Five?

5.0	What are Egypt's Competitors doing to stimulate CP and enhance trade?
	5.1 India's Efforts and Initiatives
	5.1.1 Policies and Regulations
	5.1.2 Technical Capacity Building
	5.1.3 Institutional Strengthening
	5.2 China's Efforts and Initiatives
	5.2.1 Policies and Regulations
	5.2.2 Technical Capacity Building
	5.2.3 Institutional Strengthening

Section 5: What are Egypt's Competitors doing to stimulate CP and enhance trade?

This Section of the Manual presents the efforts and initiatives being taken by two of Egypt's competitors, particularly in the textile sector – India and China – to stimulate CP in an attempt to meet the challenges of international trade. To provide context and background to the discussion in this Section and to understand the comparative position of Egypt, India and China in international trade particularly with respect to Egypt's leading trade partner - the EU, a summary of some trade statistics is presented below:

Egypt accounts for 0.41% of EU agricultural imports, 0.87% of energy imports, 0.08% of machinery imports, 0.17% of transport material imports, 0.33% chemical products, **0.81% textiles**, 0.32% other products.

India accounts for 1.73% of EU agricultural imports, 0.11% of energy imports, 0.44% of machinery imports, 0.64% of transport material imports, 1.78% chemical products, **6.8% textiles**, 2.09% other products.

China accounts for 3.32% of EU agricultural imports, 0.44% of energy imports, 19.43% of machinery imports, 2.52% of transport material imports, 4.69% chemical products, **21.46% textiles**, 15.59% other products.

Source: http://europa.eu.int/comm/trade/issues/bilateral/countries/index_en.htm

Both India and China benefit from the EU's Generalised System of Preferences i.e., reduced tariffs but also face several of the technical, financial and institutional constraints being experienced by Egypt in promoting CP. To overcome some of these constraints and to strengthen their market position, India and China are initiating proactive measures (some of which are already in place) at the policy, technical, institutional and market level. Most of the initiatives presented in this Section will be with reference to the textile and clothing sector since it occupies a significant share of the trade flows for Egypt, India and China and starting from January 1, 2005 the changes in international trade of textile and clothing are going to have a tremendous impact on trade flows. In addition, as mentioned earlier, the textile and clothing sector is also one of the focal sectors of the SEAM Programme.

5.1 India's Efforts and Initiatives

The EU is India's largest trading partner and main source of foreign inward investment. The EU accounted for 24.2% of India's exports and 22.5% of total imports in 2003. India ranks as EU's 14th trading partner accounting for 1.6% of EU exports and imports. In 2003, EU imports from India amounted to €14 billion (covering mainly textiles/clothing, agricultural products and chemicals). Trade with the EU represents almost a quarter of Indian's exports and import and the EU is also India's largest source of foreign direct investment.

One of the largest contributors to exports from India is the Indian textile and clothing (TC) industry. It contributes to 20% of the industrial output, employs about 38 million people and constitutes about one third of overall exports from India. India's share of the \$400 billion global textile market is expected to double to at least 6% by some estimates. India's TC exports could rise from the current \$14 billion to \$40 billion by 2010. With this objective of increasing exports to US \$40 billion by 2010 some of the thrust areas identified by the Ministry of Textiles, Government of India include:

- establishing a multi-disciplinary institutional mechanism to formulate policy measures and specific action plans, including those relating to the WTO and closely monitoring financing proposals;
- forging of strategic alliances for gaining access to technology;
- operating a brand equity fund exclusively for textile and apparel products, consistent with WTO norms.
- restructuring AEPC and other Export Promotion Councils play the role of facilitators and professional consultants;
- developing infrastructural facilities in the predominantly textile and apparel export oriented areas in close co-operation with State Governments and Financial Institutions and the private sector; and
- evolving a suitable mechanism to facilitate industry associations to deal with disputes under the various agreements of the WTO.

Recognising the challenges posed particularly by the technical barriers to trade (which are increasingly focussing on environmental and social requirements) and the potential impact of the elimination of the ATC (the quotas) starting January 2005, on India's TC exports, the GOI has taken several steps at the policy, technical and institutional levels to enable India's TC industry to compete in the world market. Some of the significant initiatives are presented below.

5.1.1 Policies and Regulations

The overarching policy that has stimulated growth of the textile industry has been the Textile Policy that was established first in 1985. According to the MOT, GOI this policy has resulted in compounded annual growth rates of 7.13% in cloth production, 3.6 % in the per capita availability of fabrics and 13.32% in the export of textiles; raising the share of textiles to 13% of value added domestic manufacturing of the country; and to one third of the export earnings of the country. In 2000, the **National Textile Policy**¹ was strengthened and to further its objectives the following were identified as strategic thrust areas:

¹ The National Textile Policy can be downloaded at: http://texmin.nic.in/policy_scheme.htm

- Technological Upgradation
- Enhancement of Productivity
- Quality Consciousness
- Strengthening of the raw material base
- Product Diversification
- Increase in exports and innovative marketing strategies
- Financing arrangements
- Maximising employment opportunities
- Integrated Human Resource Development

Several of the thrust areas such as enhancing productivity, upgrading technology, enhancing quality, financing arrangements etc., are complementary to other efforts being taken to promote and stimulate CP.

According to the MOT, GOI, the endeavour of the National Textile Policy will be to achieve the target of textile and apparel exports from the present level of US \$ 11 billion to US \$ 50 billion by 2010 of which the share of garments will be US \$ 25 billion. Several of the milestones to be achieved in implementing this policy will also stimulate CP. These include:

- Implement, in a time-bound manner, of a Technology Upgradation Fund Scheme (TUFS) (the TUFS will be discussed in greater detail later in this Section) covering all manufacturing segments of the industry;
- Achieve increase in cotton productivity by at least 50% and upgrade its quality to international standards, through effective implementation of the Technology Mission on Cotton;
- Launch the Technology Mission on Jute to increase productivity and diversify the use of this environment-friendly fibre;
- Assist the private sector to set up specialised financial arrangements to fund the diverse needs of the textile industry;
- Set up a Venture Capital Fund for tapping knowledge based entrepreneurs of the industry;
- Encourage the private sector to set up world class, environment-friendly, integrated textile complexes and textile processing units in different parts of the country;
- Facilitate the growth and strengthen human resource development institutions including NIFT (National Institute of Fashion Technology) on innovative lines;
- Review and revitalise the working of the TRAs (Textile Research Associations) to focus research on industry needs; and

The policy has also proposed certain measures with the specific objective of increasing textile exports to US \$ 50 billion by 2010 from the present level of US \$ 11 billion. These are presented in **Box 5.1**.

Box 5.1: Specific measures in the National Textile Policy to enhance textile exports

- Establishment of a multi-disciplinary institutional mechanism to formulate policy measures and specific action plans, including those relating to the WTO and closely monitoring financing proposals;
- Forging strategic alliances for gaining access to technology;
- Operating a brand equity fund exclusively for textile and apparel products, consistent with WTO norms.
- Restructuring AEPC and other Export Promotion Councils to play the role of facilitators and professional consultants;
- Developing infrastructural facilities in the predominantly textile and apparel export oriented areas in close co-operation with State Governments and Financial Institutions and the private sector; and
- Evolving a suitable mechanism to facilitate industry associations to deal with disputes under the various agreements of the WTO.

Source: *The National Textile Policy 2000.* http://texmin.nic.in/policy_scheme.htm

The GOI has also taken several regulatory measures aimed at cleaner production and environmental protection, thereby preparing the industry to meet market challenges. Some of the significant measures include:

Banning the use of Benzidine from 1993. Forty two benzidine based dyes were banned which are also covered under the ban imposed by Germany. More recently another 70 harmful dyes based on aryl amines have been banned. However, enforcement of this ban has been a challenge for the GOI. Strict enforcement is necessary both in the long-term interest of domestic consumers as well as exporters.

Criteria for labelling of textiles as Eco-friendly Products. GOI notified the following criteria for labelling of textiles as “Eco-friendly Products”:

- All textile products manufactured shall meet the relevant standards of the Bureau of Indian Standards;
- The product manufacturer must produce the consent clearance as per the provisions of the environment legislations while applying for the Ecomark;
- The product packaging may display in brief the criteria based on which the product has been labelled environment friendly;

- The material used for product packaging shall be reusable or made from recyclable or bio-degradeable materials;
- Fatty alcohol based non-ionics as emulsifier should be used wherever required;
- Poly-halogenated based phenolic fire retardants shall not be used.

5.1.2 Technical Capacity Building

Efforts have been made both by industry and the Government to build technical capacity of the TC industry with an emphasis on eco-friendly practices and products. Government efforts range from supporting seminars, and workshops to promote CP to co-operation with bilateral and multilateral agencies in bringing technical and financial support to industry. Some of the significant programmes include:

Waste Minimization Circles (WMCs): The World Bank, through the Ministry of Environment and Forests with project execution by the National Productivity Council has financed to date about 60 Waste Minimization Circles for SMEs in various regions of India focusing on specific industry sectors like textile, metal finishing, tannery etc. It is seen as a cost-effective approach to foster CP. The focus of the circles is on cleaner production. Objective of the WMCs is to promote waste minimisation, and disseminate information, tools and techniques as well as share experiences through case studies. The GOI made a commitment to waste minimisation (thereby creating an enabling environment for promotion of CP) in its Policy Statement for Abatement of Pollution, 1992². The WMC programme is being executed by the National Productivity Council. Details of the WMC programme, the industrial sectors covered and case studies can be found at: <http://wmc.nic.in/index.asp>. According to project developers, a weakness of such circles is the lack of follow-up and technical assistance at the firm level, which limits implementation especially of more complex options.

National Cleaner Production Centre (NCPC)³: The NCPC in India was established at the National Productivity Council as a UNIDO- UNEP joint initiative to help introduce CP in India. This is a unique programme of capacity development to help achieve adoption and further development of the CP concept at the national level. In addition to these institutions that are working essentially at the national level, there are a number of institutions working more at the State level e.g, the two Regional Cleaner Production Centres established in the States of Karnataka and Gujarat, with assistance from the NCPC and fully funded by the Government of these States. The Gujarat Cleaner Production Centre (GCPC) is part of the Gujarat Industrial Development Corporation (GIDC), which has provided financing for three years, starting in August 1998, to establish the GCPC. The CP assessments are undertaken by the local NPC and also by the Centre's own or

² The text of the Policy Statement for Abatement of Pollution, 1992 can be accessed at: <http://wmc.nic.in/govtstatement-polices.asp>

³ For details on NCPC see: <http://www.npcindia.org/cleaner.htm#establishment>

subcontracted staff (e.g. university staff). Assessments are partially financed by the clients. Services concentrate on SMEs and in particular the chemical industry (dyes and dyestuffs mainly). CP activities in industries have concentrated so far on process optimization, good housekeeping and some equipment modifications.

Related Programmes: Through the support of development institutions such as the World Bank and UNIDO, technical and financial assistance was provided to promote CP related investments. For e.g., the DESIRE project in India implemented by National Productivity Council, New Delhi with support from UNIDO demonstrated the environmental and economic benefits of CP in sectors such as textiles, pulp and paper, metal finishing and tanneries; the World Bank's Industrial Pollution Control and Prevention Project (IPPP) provided technical and financial assistance to promote CP related investments.

Technology Mission on Cotton: The GOI established a Technology Mission on Cotton to (i) improve the yield and quality of cotton, particularly in respect of staple length, micronaire, strength, by developing better cotton varieties and through improved seeds and Integrated Water, Nutrient and Pest Management Technologies and to facilitate their transfer to farmers; (ii) to increase the income of the cotton growers by reducing the cost of cultivation apart from increasing the yield per hectare by proper transfer of technology to the growers thereby increasing the production and availability of cotton for internal consumption and exports; (iii) improve the quality of cotton, particularly in respect of contamination by improving the infrastructure in the market yards for cotton, by providing better facilities for cotton marketing and reducing foreign matters, resulting in minimum contamination in cotton; (iv) improve cotton processing facilities by upgrading/modernising the existing ginning and pressing factories, resulting in cotton processing with minimum or no contamination to achieve better value added products like yarn, cloth, garments, made-ups.

Technology Upgradation Fund Scheme: In response to the recognised need to upgrade technology in different segments of the textile industry, the GOI launched a Technology Upgradation Fund Scheme (TUFS) for Textile and Jute Industries, in 1999 for a period of 5 years, i.e. , up to 31st March 2004. Following a review of the scheme the period of implementation has been extended to March 31, 2007. This is an open-ended scheme (with no cap or ceiling amount) depending on the capacity of the industry to absorb funds in bankable and techno-economically feasible proposals. Technology levels are bench marked in terms of specified machinery for each sector of the textile industry. Machinery with technology levels lower than that specified will not be permitted for funding under the TUF Scheme. The scheme provides a reimbursement of 5% point on the interest charged by the lending agency on a project of technology upgradation in conformity with this scheme.

The identified sectors in the textile industry, including spinning, cotton ginning and pressing, silk reeling & twisting, wool scouring and combing, synthetic filament yarn texturising, crimping and twisting, manufacturing of viscose filament yarn (VFY) / viscose staple fibre (VSF), weaving/knitting including non-wovens and technical textiles, garments, made-up manufacturing, processing of fibres, yarns, fabrics, garments and made-ups and the jute sector. These sectors are eligible to avail of concessional loans for their technology upgradation requirements. Investments in common infrastructure or facilities by an industry association, trust or co-operative society and other investments specified are also eligible for funding under the scheme.

Investments in the installation of the following facilities including necessary equipment such as:

- Energy saving devices
- Waste reduction equipment or devices
- Effluent treatment plant (ETP). In case of an individual unit or an independent unit setting up Effluent Treatment Plant for its own use or substantively for a group of willing textile units in that area, it will be eligible for coverage under TUFS on stand alone basis.
- Water treatment plant for captive industrial use;
- In-house R. & D. including design studio;
- Information technology including Enterprise Resource Planning (ERP);
- Total quality management (TQM) including adoption of appropriate ISO / BIS standards. (Lab versions of machinery approved for commercial production purposes under TUFS are eligible).
- Captive power plant of the units availing of TUFS loan or on stand-alone basis.

The TUFS will also support investment in the acquisition of technical know how including expenses on training and payment of fees to the foreign technicians.

The TUFS therefore is creating an enabling environment for introduction and promotion of technologies and equipment that will stimulate CP.

Industrial Development Bank of India is the nodal agency for the textile industry excluding SSI sector while the Small Industries Development Bank of India is the nodal agency for SSI textile sector. All the State Financing Corporations, some of the State Industrial Development Corporations and other financing institutions such as EXIM Bank have been co-opted by SIDBI and IDBI. Further several commercial banks, and co-operative banks have also been co-opted to implement this scheme effectively and efficiently.

Workshops and Seminars: Both the private and public sector have been organising workshops and seminars to promote CP in the TC industry. The Textile Committee of the MOT, GOI has organised over 50 workshops and seminars at various textile centres all over India in the last 2-3 years with support from the Regional Offices of the Textile Committee located at 26 important textile centres all over India. In the private sector, The Tiruppur Exporters Association (TEA) is one of the most active organisations in the TC sector. To develop a strategy to meet the emerging challenges of the international market, the TEA organised an International Workshop on Sustainable Strategy for Promoting Export Competitiveness in Knitwear Industry in August 2000. The workshop was hosted by the GOI-UNDP Umbrella Programme and the Commonwealth Science Council, London. Some of the specific issues that emerged from the workshop were: (i) How can environmental and social issues be integrated in the process/technology/manufacturing approach that addresses emerging customer requirements and a healthy financial bottom line? (ii) Does it make business sense to adopt cleaner technology and processes rather than react to regulatory pressures? And (iii) Why should such an approach be essential for textile industries to be globally competitive? (TEA, 2000)⁴.

Publications and Video Films: Manuals, case studies and video films have been developed as part of several of the programmes discussed above to disseminate information and create a multiplier effect. In addition the Textile Committee has also developed brochures on “Do’s and Don’ts for the manufacture of eco-friendly textiles” which has been translated from English into several local languages for greater accessibility. A video film has also been developed on Eco-friendly Textiles that contains information on the implication of banned dyes on the Indian TC sector, safer alternatives available for toxic dyes used, eco-testing facilities available in India, comments of technical experts and manufacturers of eco-friendly textiles.

5.1.3 Institutional Strengthening

Among the various initiatives that have been taken towards institutional strengthening to promote CP in the TC sector as well as to enhance exports some of the significant ones are: setting up of centres that can provide technical and technological assistance for e.g., NCPCs, WMCs (as discussed above); modification of the role of the Textiles Committee at the MOT, GOI; establishment of an Economic Research and Market Intelligence Unit (ERMIU); and strengthening of testing laboratories.

The Textiles Committee is a statutory body under the MOT, GOI with a regulatory function e.g., inspection of goods, collection of cess etc. Recognising the need to strengthen the developmental activities in the area of quality and ecofriendly textiles, the Textile Committee was restructured. Since then the Committee has:

- assisted in upgrading existing testing facilities, and set up new laboratories to cater to the need of industry and exporters;
- conducted technical surveys to: assess whether process houses in two important textile centres in India are aware of the ban on specific dyes; understand the problems encountered by industry in obtaining ecofriendly dyes and auxiliaries; identify their training requirements for ecofriendly processing; identify their testing requirements for quality and environmental parameters;
- provide training and technical support (through seminars, publications, videos) for manufacturing units to obtain ISO 9000 and ISO 14001 EMS certification.

Considering the importance of information collection and dissemination on production, designs and fashion and other related market and trade developments and its analysis, in meeting the market challenges, the Textile Committee has established the Economic Research and Market Intelligence Unit (ERMIU). The main unit is located in the Office of Textile Commissioner, Mumbai and two satellite units are located in the Ministry of Textiles, New Delhi and in the Office of the Textile Committee, Mumbai. The functions of ERMIU include:

- provide information related with textiles to Government, Industry and Trade
- organise data/ information available at various organisations in India and abroad related with textiles
- conduct spot studies/ surveys/ census to study market intelligence
- create a Data Bank of all such data/ information
- analyse, interpret and forecast trends

To provide facilities to exporters for testing of banned amines and other environmental parameters required by the importing countries the MOT, GOI provided financial assistance for the establishment of eleven Eco laboratories in 1995-96 at important textile centres all over India. The Textile Committee as the nodal agency initiated action on procurement of equipment, and training the technical staff. In addition a Master Plan has been prepared for upgradation of laboratories and establishment of new eco-laboratories to ensure that adequate state-of-art testing facilities are available for exporters. Third party performance audits are conducted of these laboratories and regular training is also imparted to the technical staff to update their skills.

⁴ TEA, NTADCL, IL&FS. August 2000. Proceedings International Workshop on Sustainable Strategy for Promoting Export Competitiveness in Knitwear Industry. Hosted by GOI-UNDP Umbrella Programme, The Commonwealth Science Council, London.

5.2 China's Efforts and Initiatives

China has five major trading partners – Hong Kong China, Japan, USA, EU and South Korea. In 2003 China's biggest trading partner was the United States followed by the EU. These markets together account for 65% of China's export of textile and clothing. To help withstand international trade competitiveness and protect against risks of international trade protectionism, China has been promoting a strategy of diversifying export markets with markets in Africa and the CIS growing extremely rapidly. China also achieved export growth rates higher than 50% in Russia, United Arab Emirates, Macao China, India, Vietnam and Morocco.

From 1980 to 2003, EU imports from China grew by 3.07% on average per year, and EU exports by 3.25%. Trade with China represents 12.04% of total EU imports and 4.85% of total EU exports. China's GDP was 1246 billion euro in 2003, which represents 3.46% of the world total and its ratio of trade (imports and exports) to GDP is 56.22%⁵. In 2003, China's imports and exports represented 6.54% and 8.38% of the world flows respectively. China is the main beneficiary of the EU's Generalised System of Preferences (GSP) scheme, under which the EU grants autonomous trade preferences to imports from developing countries, with a share of more than 30% of all preferential imports under GSP. China's formal accession to the WTO in December 2001 has had a significant impact on world trade and is likely to have greater significance after January 2005 when the ATC comes to an end and the textile sector quotas are lifted.

China is the world's largest producer and exporter of textiles and clothing with the labour-intensive textile and clothing industry as the traditional mainstay industry of the country. Over the last decade since 1994 China's export of textiles and clothing has increased 1.3 times with the annual average reaching 13%. The share of textiles and clothing in the country's total goods export, however, is on the downward slope, from 28% in 1994 to 18% in 2003. The import of textiles and clothing, on the other hand, has been growing rather slowly, with an annual increase of 2.2% from 1994 to 2003. Meanwhile the share of textiles and clothing in China's total goods import has dropped to 3.8% from 11%⁶. Trade surplus generated by textiles and clothing industry during the last decade has increased as much as nearly two times, climbing up from 21.3 billion US dollars to 63.2 billion US dollars, a huge contribution to the country's foreign currency reserve and the balance of payment. In 2002, China's export value of textile and apparel accounted for about one-seventh of the world's export. About 13 million people are in employment in the TC industry which accounts for close to 15% of China's labour force. China is the EU's largest supplier of textiles and clothing products. In 2003 such imports from China represented 17.5 % of total EU imports in this sector. This was an increase of 8.3% over 2002, 18 % over 2001, and 156% over 1995. At present, imports from China still subject to WTO

⁵ Source : http://europa.eu.int/comm/trade/issues/bilateral/countries/china/pr231104_en.htm

⁶ China Textile and Clothing Trade 2003/2004 : Review and Outlook.
www.ccct.org.cn/ccct/english/import20034/a1.jsp

quotas represent 12 % of China's total textile and clothing exports to the EU. China is expected to take 50% of the market by 2007 as against 17% of the world's TC market share of 2003⁷.

In spite of its strong position in the international TC market China has some major problems which it needs to overcome if it is to achieve the target of increasing its market share discussed above. The main problems facing the TC sector are:

- Need to improve fabric quality through research and development of new fibres, and modernization of post-treatment dyeing and finishing to meet international market quality requirements.
- As international competition becomes fiercer, China's low cost advantage is being weakened. China's traditional advantage of low cost is diminishing in comparison with the Southeast Asian economies because the labour cost and cost for the use of land, water and electricity keep rising in coastal areas such as Guangdong, Zhejiang, Jiangsu, Shanghai and Shandong where export of textiles and clothing is concentrated. More efficient utilization of resources is therefore critical to retain competitive advantage.
- International retail chains carry out the strategy of contacting producers directly and attract producers with orders in large quantity. Producers, in particular SMEs, on the other hand, then make even heavier investment in order to expand and upgrade technical and production capacity while trying to meet delivery time, quality, and the environmental and social requirements of the buyers. Many retailers and multinational corporations have also set up labour supervision departments in China e.g., in the Guangdong Province to verify whether the factories meet the labour standards. Access to financial investment and the technical ability to meet these requirements becomes a critical issue to retain market position.

To overcome these challenges China is making significant efforts in technology and infrastructure upgradation. The China Textile Industry Council views China's accession to the WTO as being an opportunity for its textile industry to introduce advanced technology and managerial experiences and attract overseas investment for expediting the process of industrial upgradation, establishing reforms and increasing the competitiveness of the industry. As quotas will be eliminated completely in 2005, many SMEs of foreign countries are stepping up their investment and cooperation in China. Facing uncertainties brought about by safeguard measures on Chinese textiles and clothing, foreign enterprises are still eager to take advantage of China's low cost labour, huge domestic market and international competitiveness. The inflow of advanced technology and management together with capital will help China in the upgrading of textiles and clothing industry, creating more opportunities for the country to further expand international trade.

⁷ Source: <http://www.bharattextile.com/newsitems/1992650>

These efforts and other significant initiatives already underway in China since the late 90s to promote CP and enhance exports, are likely to help China overcome some of the challenges listed above and probably achieve the target of taking 50% of the world TC market by 2007.

5.2.1 Policies and Regulations

Different governmental organizations in China have developed policies and guidelines which are relevant to the promotion and implementation of CP⁸. The National Development and Reform Commission (NDRC) and the State Environmental Protection Administration (SEPA) are the two key organizations involved although sectoral agencies also play a role. Some of the major policies and regulations include:

Cleaner Production Guideline (1999): NDRC has issued a number of policy and guideline documents relating to the promotion of cleaner production. One of the key documents is one that provides guidelines defining a demonstration site programme for the promotion of CP.

Ten Demonstration Cities (1999): These guidelines identify ten cities (Beijing, Shanghai, Tianjin, Chongqing, Shenyang, Taiyuan, Jinan, Kunming, Lanzhou and Fuyang) as demonstration sites for the promotion and introduction of CP.

Five Priority Sectors (1999): The guidelines also identify five priority sectors -- the petrochemical industry, metallurgic industry, chemical industry (nitrogen fertilizer, phosphate fertilizer, chlor-alkali and sulphuric acid), light industry (pulp and paper, fermentation and beer-making), and ship building.

Three Identified Lakes and Five Identified Rivers (1999): SEPA has identified five rivers (Huai He, Hai He, Liao He, Chang Jiang (Yangtze River) and Huang He (Yellow River) and three lakes (Tai Lake (Tai Hu), Chao Lake (Chao Hu) and Dian Chi) which have high environmental priority.

The Tenth Five-Year Plan for the National Economy and Social Development (2001): Official plans for conservation and development in various sectors. In this Plan, the policy of control and treatment of industrial pollution and expediting CP are announced. An English summary of the whole plan as related to environmental protection is available at <http://www.zhb.gov.cn/english/plan/Tenth.htm>.

Cleaner Production Promotion Law (2002): On June 29, 2002, the National People's Congress approved a new and comprehensive cleaner production legislation. This new law is the most significant of a number of initiatives the Chinese government has taken to establish CP nationwide as one of China's key strategies for sustainable development. It is unprecedented, being the first national law in the world to establish CP as a

national policy, and to lay out a strategy for its promotion and implementation. This law became effective January 1, 2003.

Circular Economy (2003): The concept of Circular Economy (CE) maybe defined as interlinked manufacturing and service businesses seeking the enhancement of economy and environmental performance through collaboration in managing environmental and resource issues i.e., industrial symbiosis where one facility's waste, including energy, water, materials - as well as information - is another facility's input. The 16th National Congress of the Communist Party of China, held in November 2002, pledged an ambitious blueprint for China's development in the next twenty years, i.e. to realize an overall well-off society by the year 2020. The pursuit of a new industrialization model with CE as the basis was recognized as the most effective strategy to sustain high-speed economic growth and to reverse environmental degradation. The characteristics of such industrialization will be focused on featuring the high-technology products, good economic returns, low natural resource consumption and environmental pollution, and efficient deployment of manpower. CP has been identified as the first and most vital step for reaching the ultimate goal of the Circular Economy, especially for industrial sectors. In less than three years, the concept of ecological industrial parks (EIP) and CE was introduced into China and has been spreading rapidly. However, there is a need for a theoretical framework, and the practical tools and the experts who can disseminate the pertinent information for effective application of this concept.

In addition to the above policies several of the environmental regulations were revised to integrate CP in enforcement. For e.g.,

- Revision of the “Water Pollution Control Act” was revised in 1995, to adopt CP to decrease waste water discharges
- Revision of “Air Pollution Control ACT” in 1995 for implementation of CP technology to reduce emission of air pollutants
- “On the decision for environmental protection” by State Council, 1996 - For any new, renovated and expanded projects CP technology is to be used. Strictly forbidden for using equipment banned by the State
- “On the implementation of CP” by SEPA, 1997. Framework, conceptual design and practice of CP implementation
- “On acid rain, sulfur dioxide control areas” by State Council, 1998. To reduce sulfur content in coal to be used by industries, promote CP for energy saving and comprehensive utilization.

⁸ For details on CP programmes in China see <http://www.chinacp.com/eng/>

In addition to regulations focusing on CP, specific laws and regulations were enacted in China to limit the production and use of harmful substances (such as the banned azo dyes), however the enforcement has been difficult. To ensure that the exports are not affected, there is a need to strengthen law enforcement and exercise effective supervision and management over the production, processing, sales and use of these banned dyes so as to prevent the production, sales and use of these banned dyes.

The concept of CP has been well integrated into the national development policies and legislation and market-based economic systems are also being developed to achieve the objectives of these policies. However, all this is relatively new to the society, government personnel and the public stakeholders. The challenges facing China (as in the case of India) are how to raise awareness and implement these strategies so that the benefits of CP to trade enhancement and economic growth can be realised.

5.2.2 Technical Capacity Building

As in other developing countries like India, in China too technical assistance for promotion of CP has been through support from bilateral and multilateral development agencies. Some of the significant programmes are summarized below. Details on each of these initiatives are available at http://www.chinacp.com/eng/cp_projects.html.

One of the first technical assistance projects in China was the **World Bank funded project "Promoting Cleaner Production in China"** (Subproject B-4). It was the major component of the Environmental Technical Assistance Project (ETAP) in China. From March 1993 to September 1996, China National Cleaner Production Center undertook and implemented the project. The following goals were achieved by the project: (i) Developed and tested a Chinese methodology for implementing cleaner production by pollution prevention (the methodology generated by Subproject B-4 is now being used as a standard procedure in China nationwide); (ii) Demonstrated the newly established Chinese own CP methodology in 27 demonstrative enterprises and proved applicability of the methodology in China; (iii) Fostered the first group of cleaner production experts in China; (iv) Developed and published "Cleaner Production Audit - Manual for Enterprises" of China and compiled a Training Kit explaining detailed techniques for each step of the audit procedures specified in the audit manual generated, and technical guidelines for four industrial sectors: processing of chemical raw materials, printing and dyeing for silks, electroplating and brewery;

Technical assistance was provided for a **national CP policy** by the China-Canada Cooperation Project in Cleaner Production funded by CIDA in 1996 and through a co-operation project with Asian Development Bank from 1999 to improve the policy framework, strengthen the environment management capability of related agencies and to improve the network efficiency and increase the CP information exchanges. Technical support and capacity building at the policy level (Provincial level) was also provided through the Cleaner

Production Component in China-EU Liaoning Integrated Environmental Programme between 1998 and 2002. In this project, the European Commission, Ministry of Foreign Trade and Economic Cooperation (MOFTEC), UNEP-IE, State Environmental Protection Administration (SEPA, former NEPA), Liaoning Provincial Government, Liaoning Environmental Protection Bureau, and municipal authorities collaborated to raise awareness and create a consensus among government institutions and industrial enterprises to not only build capacity but to integrate CP into the Province's strategies for industrial development and pollution control. This was achieved through high level seminars, creation of Liaoning Production Centre, and creating a CP revolving fund.

Technical assistance in the form of **awareness programs and training** was provided through the China-Australia Cooperation Programme on Cleaner Production - a collaborative effort between the Environmental Protection Agency, China's NCPC, Australian EPA, and Australian Centre for Cleaner Production. A workshop was conducted in June 1996. The Australian EPA proposed to support a series of CP studies in China as a follow-up to the workshop.

Technical assistance through **training and institutional capacity-building** has been provided by the EU since the mid 1990s. This program has supported economic reforms with a particular focus on training and institutional capacity-building. After China's accession to the WTO, smooth, timely and accurate changes to the trade regime have become even more important. A major EU-China Cooperation Programme to support China's integration into the world trading system was launched on 1 February 2004, further to a pilot programme that ended in December 2003. With funding of 15 million Euros from the EU side and 5 million Euros from the Chinese side, this new five-year WTO programme is the biggest of its type in China. The new WTO Integration Program will focus on core elements of China's integration into the world trading system. It will consist of six components: Customs and import/export regulatory system; Agriculture and Agro-food; Technical barriers to trade/Sanitary and Phytosanitary Measures; Services; Legislative and legal aspects of domestic implementation, IPR enforcement; and Policy development, co-operation and transparency. A Project Management Unit has been set up in Beijing where the main direct beneficiaries are located. However, activities will be implemented all over China, and will include **study tours** in Europe.

Demonstration projects to promote CP were a part of several technical assistance programmes e.g., NORAD assisted Sino-Norwegian Cooperative Programme on CP which had the textile sector as one of its focal sectors.

Technology transfer of environmentally sound technologies was stimulated by the UNIDO supported project Eco-Investment Forum. As part of the project a forum including a seminar was held for Environmental Sound Technology for the Taihu Basin, in Huzhou City, China in November 1999. 65 foreign

and 300 Chinese participants attended the forum, which focused on eco-investment projects from the Taihu Basin. Organized by the Chinese Centre for Environmentally Sound Technology Transfer, with support of the China International Centre for Economic and Technical Exchanges, the Governments of Jiangsu and Zhejiang Provinces and UNIDO, the event aimed at initiating direct contacts between Chinese enterprises and foreign project investment sponsors. Participants had an opportunity to participate in panel discussions on local investment policies and environmental regulations applied in the cities of Shanghai, Huzhou, Jiaxing, Wujin and Yixing. Section 4.2 of this manual provides more details about this project.

China NCPC Project was created by the State Environmental Protection Administration (SEPA) within the Chinese Research Academy of Environmental Sciences (CRAES) located in Beijing with assistance from the UNEP/UNIDO National Cleaner Production Centre program. CNCPC created its Sub-centre for Education and Training within Qinhua University located in Beijing. Its role is a technical supporting institution on CP for SEPA and is guiding local environmental protection bureaus (EPBs) to develop their CP programs. CNCPC offers CP training courses domestically and internationally. A national cleaner production network with more than 60 members was established in Dec 1996. The members include CP centres, local EPB's, CP promotion offices and companies with CP activities. The NCPC also promotes CP through CP newsletters, and annual meetings for its participants to exchange CP information and successes and lessons learned. Manuals and guidelines have also been published in Chinese for several sectors including textile dyeing and printing and demonstration projects have been carried out.

Technical assistance from the ADB and the support of the Ministry of Science and Technology of China led to the formation of the **Center for Environmentally Sound Technology Transfer (CESTT)**⁹. This Centre was established to provide integrated intermediary services for the emerging EST needs of China's SMEs and to strengthen the ability of China's SMEs to access, assess, develop, introduce, and apply EST. CESTT was created in 1997 with technical consultancy of the Environmental Resource Management and began full institutional operation in July of 1998. CESTT is a non-profit organization under the direction of the Administrative Centre for China's Agenda 21. Its objective is to provide EST-related information to both Chinese and international clients; introduce appropriate foreign environmentally sound technologies into China; present the EST needs of Chinese SMEs to the international community; and promote commercialization of Chinese environmental technologies.

Technical capacity building has also been in the form of **publications** such as CP guidelines, handbooks etc. which have been produced by the NCPC, and as part of several donor agency assisted programs (described above). These include: CP guidelines for Pulp/Paper, Brewery, Organic chemicals, Petroleum refinery,

⁹Source: <http://www.cesstt.org.cn/English/index.htm>

electroplating process, textile dyeing and printing, and steel industry. Semi-annual newsletters are also prepared and distributed to the public both in English and Chinese. The Chinese government has also published a list of production equipment for CP called “The equipment catalogues for CP implementation in national major enterprises.” It includes 57 CP technologies for five industrial sectors: metallurgy, petrochemicals, chemical industries, light industries and textile. Another publication that disseminates sector specific information is the Report of China's Textile Industry Development which is an annual publication from CNTIC. It provides statistics and information released from the State Statistics Bureau on macro-economic data with analysis, experts' comments, data from various specialized associations, and figures from international agencies. It also provides analyses and forecasts for the industry's performance, growing trends, industrial policy, and investment guides.

5.2.3 Institutional Strengthening

Institutional strengthening to promote CP has been done at the government (central and provincial) level, in industry and through technical networks / centres. The EU and development agencies such as the World Bank, ADB, and the British ODA have been instrumental in strengthening capacity at the government level. For e.g., In 1999, the ADB provided support to develop the encouraging mechanism for new project on financial borrow and marketing, in order to promote CP in small and medium size enterprises with the high ratio of cost to efficiency; The British ODA in partnership with Shanghai EPA provided support to build the CP capacity for Shanghai Municipal EPA and its training centre. The project called the Cleaner Production Component in Shanghai Urban Reconstruction Project financed also helped conduct CP assessments and demonstrations in selected industrial sectors.

Two prominent technical networks were established to strengthen institutional capacity – government and industry. These include: the National CP Center, and the other associated with the Canada-China CP project. The National Center Network with over 80 member organizations, provides the communication exchange and dissemination of information and experience. At an annual conference, they share the experience and information on existing problems. The network of the Canada-China CP project provides inputs to and retrieves project related CP information. There are no charges for using the network, and it facilitates the sharing of knowledge and experience among Chinese and Canadian counterparts and others involved in CP world-wide, with opportunities to both access and contribute to existing database. Another national network is being planned for environmentally sound technology transfer. This is being planned with technical assistance from the ADB and will be linked to the Centre for Environmentally Sound Technology Transfer (CESTT) located in Beijing. The first step will be identifying potential partner agencies in Shanghai, Wuhan, Guangzhou, Shenyang, Chengdu and Xian which are industrial and technological centres respectively for

East, Central, South, Northeast, Southwest and Northwest China. These agencies will then be linked to CESTIT-Beijing, and will form the Information System for Environmentally Sound Technology Transfer at the national level.

At the industry level, the China National Textile Industry Council (CNTIC) is being strengthened to meet the challenges of the international trade market. It is the national Federation of all textile-related industries, and is a non-profit organization. The aim of CNTIC is to provide services in the modernization of China's textile industry. In 2001, CNTIC was re-constituted as a national federation of the textile industry according to the relevant streamlining reforms in the government bodies. It integrated 22 specialized industrial associations and 10 former service institutes into a national intermediate body for the entire textile industry. CNTIC's thrust areas for the immediate future are:

- Upgradation and modernization of the textile industry technology and equipment from fiber manufacturing, yarn spinning, fabric weaving, non-woven production, dyeing-finishing, textiles through to apparels manufacturing. Special attention is being given to fabric production to enable value-chain optimization in an attempt to improve the quality of both the textiles and the apparels. Towards this end, in 2001, China's imports of advanced textile machinery increased 31.4% in value compared to 2000 and imports of improved dyestuffs and textile chemicals went up by 22.8% compared to 2000¹⁰.
- Automation of manufacturing processes and establishment of integrated systems linking production, sales and marketing and management processes. This is being promoted to increase the industry's capabilities of allocating domestic and international market resources and increase their response time thereby enhancing competitiveness.
- Enhance collaborations and cooperation between industry, research institutions and academia to improve comparative advantage in the world apparel, home-textile and tech-textile markets.

It is evident from the discussion above, that significant efforts and reforms are underway to modernize and upgrade the textile industry which in turn provides an enabling environment for promotion of CP. However, China still has to overcome barriers such as: low environmental awareness and low level of public understanding of environmental problems leading to inadequate support for CP implementation; institutional issues such as weak enforcement of laws, regulations, and guidelines; lack of clarity in the roles played by different stakeholders in promoting CP; difficulties for industry to obtain financial incentives from the institutions which are not familiar with CP; educating the large SME or township and village enterprises (TVEs) (the basis of the textile industry) that are not familiar with the modern management practices, technological know-how which makes it difficult to make them aware of the benefits of CP.

¹⁰ Source: http://www.cntextile.com/cntex/english2/2002_du.htm



The various sections of Part A of this Manual provide references to sources of information used in the Manual where applicable. Some additional sources of information on CP and Trade that could be useful for practitioners / consultants in the course of their work on CP and Trade in Egypt are listed in this Annex.

Links on Cleaner Production

(i) <http://www.uneptie.org/pc/cp/>

This is the most comprehensive source of information on CP providing information on the definition of CP, publications, case studies and training resources on CP.

(ii) UNEP: <http://www.unep.org> and UNIDO: <http://www.unido.org>

The United Nations Environmental Programme (UNEP) developed the concept of CP. Together with the United Nations Industrial Development Organisation (UNIDO), UNEP has promoted CP extensively worldwide. One of the most significant collaborative initiatives of the UNEP and UNIDO to promote CP has been the establishment of NCPCs. Information on the NCPC programme can be obtained from the UNIDO and UNEP websites.

Links on International Trade Organisations

(i) http://r0.unctad.org/trade_env/test1/openF1.htm

United Nations Conference on Trade and Development (UNCTAD) is the focal point within the United Nations for the integrated treatment of trade and development and related issues in the areas of investment, finance, technology, enterprise development and sustainable development. Information on integration of trade, environment and development in the form of policy papers, reports, presentations and statistics on international trade can be obtained at this site.

(ii) <http://www.intracen.org/mds/sectors/textiles/ecour99.htm>

The International Trade Centre (ITC) is the technical cooperation agency of the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO) for operational, enterprise-oriented aspects of trade development. Technical information on helping businesses understand WTO rules; strengthening enterprise competitiveness; and developing new trade promotion strategies can be accessed from this website.

(iii) <http://www.wto.org>

The World Trade Organization (WTO) is an international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible. This website provides all the information related to international trade in the form of news on developments, documents and reports.

Links on EU Trade

(i) http://europa.eu.int/comm/trade/issues/index_en.htm

This is the official website of the European Union's Director General of Trade. Information on trade between the EU and various trading partners is available by country and by sector. Statistics on trade flows, trade agreements, new and upcoming market developments related issues etc. can be obtained from this site.

(ii) <http://mkaccdb.eu.int/cgi-bin/stb/mkstb.pl?action=countries>

Country specific market access data for exporters to the EU and market access reports are available in this website.

(iii) http://europa.eu.int/comm/trade/issues/global/environment/index_en.htm

This link provides useful documents, reports and discussions on trade and environment issues with respect to the EU market and international trade.

(iv) <http://export-help.cec.eu.int/>

The Expanding Exports Helpdesk is an online resource, provided by the European Commission, to facilitate access for developing countries to markets within the European Union. The Expanding Exports Helpdesk provides relevant information required by developing country exporters interested in supplying the EU market.

(v) www.cbi.nl/accessguide

The Centre for the Promotion of Imports from developing countries (CBI) is an Agency of the Ministry of Foreign Affairs. This website provides CBI's market access guide for various industrial sectors. Information on all EU legislative and market requirements relating to health and safety, environmental and social requirements are available in the form of downloadable documents.

(vi) http://europa.eu.int/comm/trade/issues/global/social/index_en.htm

This site provides information in the form of news updates, documents and reports in the EU market on trade, labour and social welfare issues.

Links on Environmental and Social Standards

(i) www.iso.org

This is the official website of the ISO - International Standardisation Institute from where information on ISO standards 9000 and 14000 series can be accessed.

(ii) <http://www.cepaa.org/SA8000/SA8000.htm>

This is the official website of Social Accountability International's first social accountability system, SA8000. This is an international standard for social accountability and is a way for retailers, brand companies, suppliers and other organizations to maintain just and decent working conditions throughout the supply chain.

(iii) <http://www.un.org/esa/agenda21/natlinfo/agreem.htm>;

Information on all the multilateral environmental agreements can be accessed from this website.

(iv) http://www.wto.org/english/tratop_e/envir_e/cte01_e.htm

This is a link on the WTO website that provides information on the interrelationships between trade and Multilateral Environmental Agreements.

(v) <http://www.uneptie.org/pc/pc/tools/est.htm>

This link on the UNEP IE website provides definition and examples of Environmentally Sound Technologies. It is a useful resource for policy makers while developing policy instruments to promote CP.

Links on Trade and Egypt

(i) http://europa.eu.int/comm/trade/issues/bilateral/countries/egypt/index_en.htm

Information on the EU - Egypt trade agreements, trade statistics and other trade related issues can be accessed from this website.

(ii) www.ecces.org

This is the official website of the Egyptian Center for Economic Studies (ECES), a non-profit, non-government think-tank. Useful reports, critiques and publications related to Egypt's trade policy, future of the textile following the elimination of quotas etc. are available on this website.

(iii) <http://www.mfti.gov.eg/>

This is the official website of the Egyptian Ministry of Foreign Trade and Industry. This is a useful source of information on Egypt's trade related information, policies and agreements.

Links on Sector Specific Trade Issues

(i) <http://trade-info.ccc.eu.int/textiles/index.cfm>

Trade related information specific to the textile sector in the EU such as legislation, trade agreements on textile, statistics of trade flows etc. are available at this website.

(ii) <http://europa.eu.int/comm/enterprise/textile/development.htm>;

This is the official website of the EU Director General Enterprise specifically dealing with the textile sector. Information available on this website include structure of the EU textile sector, future market trends, and policy issues.

(iii) http://europa.eu.int/comm/trade/issues/sectoral/agri_fish/index_en.htm

This is the official website of the EU Director General Enterprise specifically dealing with the food sector (agriculture and processed food). Information available on this website include structure of the EU food sector, future market trends, and policy and regulatory issues.

Links on Trade Information about India

(i) http://texmin.nic.in/policy_scheme.htm

This is the official website of the Ministry of Textiles, Government of India. Information on India's textile policy, export statistics, and various initiatives being taken by the GOI to upgrade the textile industry can be obtained from here.

(ii) http://www.indiaonestop.com/tradepartners/indias_trade_partners.html

Export-related information on India and its various leading trade partners can be obtained from this website.

(iii) <http://www.cuts-india.org/>

Consumer Unity & Trust Society (CUTS) is a non-profit consumer support and awareness building organization that is involved in several areas of public interest, including trade and development issues, working simultaneously at the grassroots, national, regional and international levels. This is a useful source of information on analysis, critiques and policy review documents and reports on India's trade policy, and India's position in WTO.

Links on Trade Information about China

(i) <http://www.chinatoday.com/law/a07.htm>

This link provides the text of the Foreign Trade Law of the People's Republic of China including regulations for import and export of goods and services to and from China.

(ii) <http://www.cnfti.org.cn/ecnfti.htm>

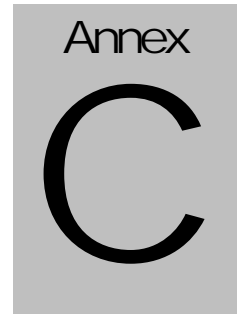
This is the official website of the China National Textile Industry Council. It provides very useful information on the structure of the textile sector in China and news on developments and trends in the textile sector.

(iii) http://europa.eu.int/comm/trade/issues/bilateral/countries/china/pr060504_en.htm

This link on the EU – DG trade website provides trade related information and statistics of trade flows between EU and China.

Annex

B



	Future Trends in Market Requirements
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Appendix

1

**Additional Information on
Egypt's Trade and Exports in the
Food, Tanning and Leather and Tourism industry**

Appendix 1– Additional Information on Egypt’s Trade and Exports in the Food, Tanning and Leather and Tourism industry

Box 1: Case Studies to Illustrate Impact of not meeting EU’s Quality and Safety Requirements

Case Study 1: EU ban on Egyptian peanut imports

On May 28, 1999 the European Commission suspended the import of peanuts from Egypt due to the presence of aflatoxin in concentrations in excess of maximum levels specified in EU regulations. Egypt is a major peanut exporting country and the European markets account for 68% of its peanut exports. Peanuts are an important agricultural crop for Egypt grown mostly in the north of the country. This decision was repealed on 1 December 1999 and was replaced by another Decision, which imposed a requirement for certification to accompany every consignment and required systematic analysis of consignments and documentation by the importing member state. Under this system only 18 Egyptian exporters were allowed to ship to the EU.

In August 2003, the 1999 Decision was replaced by another Decision that required the competent authorities in EU Member States to undertake random sampling and analysis of 20% only of peanut consignments from Egypt for aflatoxin B1 and total aflatoxins. This improvement came as a result of the efforts that the Egyptian Government put in complying with the requirements of the EU.

It takes years, a lot of resources, and coordination among different stakeholders before a country could achieve compliance. In the case of aflatoxins in Egyptian peanuts, the Government has been actively trying since 2000 to reduce the content of aflatoxins in peanuts.

Some of the steps taken by the Egyptian Government in order to comply with EU mycotoxin standards in peanuts include:

The Egyptian Ministries of Agriculture and Land Reclamation (MALR) and Ministry of Foreign Trade (MOFT) issued Ministerial Decree No. 2/2000, which covers all stages of production, processing, sampling and exporting of peanuts. The main provisions of the decree were:

Article (1): exported peanuts must be produced, inspected and prepared according to set scientific procedures

Article (2) exporters who violate the rules will be suspended for 1 year

Article (3) publication and dissemination of requirements

The decree also established the legal limit for aflatoxin in peanuts in both the domestic and EU export markets. In the Egyptian domestic market the legal limit was 5 mg/kg aflatoxin B1 and 10 mg/kg total aflatoxin content. For the EU market, the legal limits were 2 mg/kg aflatoxin B1 and 4 mg/kg total aflatoxin content. In addition, the decree specified the sampling procedures that must be followed for export certification.

In September of 2001 the Food and Veterinary Office sent a mission to Egypt to assess Egypt's compliance with its certification system requirements. A number of recommendations on steps Egypt should take to improve the control system of foodstuffs intended for export to the EU were made. In response, the Egyptian authorities declared that they were taking actions to address the Mission's recommendation. But to achieve that there was a need to coordinate among a number of Egyptian agencies involved in the production and export of peanuts and aflatoxin control: MALR, The Central Administration for Plant Quarantine (CAPQ), The Agricultural Research Centre (ARC), The Ministry of Foreign Trade (MOFT), and The Customs Service. Also a laboratory capable of testing for mycotoxins was necessary. Along side this; Egypt had technical assistance from international organizations in order to build human and physical capacities necessary for achieving compliance.

While in the peanuts case, Egypt has achieved a lot of progress in complying with EU safety requirements, the situation was different in the case of potatoes, which will be illustrated in case study 3.

Box 1: Case Studies to Illustrate Impact of not meeting EU's Quality and Safety Requirements***Case study 2: Egyptian potato exports to the EU and disease-free areas***

Starting from September 1998, the EC has been banning potato imports from Egypt because of contamination from potato brown rot, following an EU decision requiring imports to be derived from certified disease-free production areas. Before that date, Egyptian potato imports were treated under the regime "all products considered disease-free unless proven otherwise", but after that date the regime that applied to Egyptian potatoes was "imports are considered diseased unless proven to be disease-free". As a result Egypt prepared 133 dossiers for the recognition of pest-free areas. However, only 23 were taken into consideration by the EC Standing Plant Protection Committee and ultimately only five pest-free areas were approved, while additional documentation was requested for another 14 areas. According to the EC authorities, the very low score of approval of disease-free areas was due to the fact that the documentation prepared by Egypt was inadequate (e.g. maps were not readable, documentation was in Arabic), which was due to the lack of technical capabilities in the country to deal with this issue.

The EC ban led to disrupting trade in a product which ranks third in Egypt for the generation of foreign exchange as only a handful of exporters had access to potatoes from disease-free areas mid of January 1999, a month into the peak season, while 41 exporters were not able to meet contractual obligations for deliveries in EU markets.

Even though Egypt felt that the EC measure was unjustified based on the fact that brown rot was endemic in the EC and that it had actually been introduced to Egypt because of infected seeds imported from the EC, this did not change the situation of disrupted trade for Egypt and consequent economic losses.

The United States Food and Drug Administration (FDA), keeps records in a databases on shipments that were detained following its border inspection. In these records they give information on each shipment detained, including the name/address of the exporter, the product and the reason for detention on a monthly basis. In reviewing the reasons for detention for the agro-food products from Egypt, Jordan, Lebanon, and Syria, for the period of January to June 2001, it was found out that 27% of the shipments were rejected for reasons related to filth, microbiological contamination, low acid food, pesticide residues, and food additives and 58% for food labelling.

Source: <http://www.fao.org/DOCREP/MEETING/007/ad388e/ad388e.htm>

A. The Tanning and Leather Industry

The Tanning Industry, together with the Leather Industry constitutes the fifth largest industrial sector in Egypt. Most tanneries are located in a run down, densely populated section of Misr Al Kadima in southern Cairo, also known as the “Tanners’ District.” This district supplies 85% of Egyptian tanned leather with the only other notable tanning district, although much smaller than the one in Cairo, being in Alexandria. As a part of future development plans for the Tanning Industry, the tanneries are to be relocated from the area of Old Cairo to the new Badr City, which is 45 Kilometres outside Cairo where a Leather Complex will be founded over 2.2 million sq. meters. The complex will adopt the latest advanced technologies in the fields of leather tanning and finishing in a clean environmental atmosphere through the Waste Treatment Centre. **Box A** provides some more facts and figures related to the leather industry in Egypt.

Box A: Facts and Figures of the Leather Industry in Egypt

- Egypt's leather industry is comprised of four main divisions: tanning, footwear, garments and other leather products (belts, bags etc.).
- The tanning industry consists of 350 tanneries, (299 licensed and 51 unlicensed). With the exception of a few medium-sized ones and two large public sector tanneries, most tanneries are small and informal. Despite their large size, the two public sector tanneries operate at much less than full capacity and in 1995 accounted for only 15% of total production.
- The tanning industry employs a total of 20,000 workers, but a mere 10% of total employment in the leather sector.
- Egypt produces 125-130 million square feet of tanned leather annually.
- Egyptian cow and buffalo hides have excellent natural qualities and are best suited for the tanning industry. Other hides used include those of camels, calf, goat, and sheep.
- The footwear industry, with its 25,230 factories, provides 65% of total employment in the leather sector. While the vast majority of the factories are of the cottage and small-scale variety, there are 230 larger ones that use more sophisticated technology. Many of these larger factories are integrated with tanneries and account for the majority of the sector's exports.
- Leather garments and other leather products employ 50,000 workers (25% of the total) and account for 10% of the total value of production from the leather sector. Once again, with only a few exceptions, cottage and small-scale factories dominate.
- The footwear industry is the largest contributor to exports in the leather industry, followed by other leather goods and finally garments.
- In the interest of import-substituting industrialization, exports of tanned leather were prohibited by law between 1981 and 1991. Although such exports were permitted again beginning in 1991, they remain

Box A: Facts and Figures of the Leather Industry in Egypt

insignificant.

Source: *Coping With Environmental Constraints on Exports.* Abba M. Abdel-Latif, Department of Economics, American University in Cairo and Jeffrey B. Nugent, Department of Economics, University of Southern California. May 1999.
<http://www-rcf.usc.edu/~nugent/papers/envexports.pdf>

The traditional markets for Egyptian leather products are Arab countries, the former Soviet Union, Eastern Europe and more recently Western Europe. Although at this point, exports of leather products are small, there is believed to be great potential for growth. Italy is the main importer of Egyptian tanned leather, importing an average of L.E. 7 million (approximately US\$2.11 million) of Egyptian tanned leather annually. Other importers include Greece, Cyprus, Jordan, and Libya. Libyan import levels however, are sensitive to change and tend to fluctuate greatly. Leather products are counted upon to be among Egypt's most important manufactured exports by 2005.

Although Egypt's leather industry has export potential, the lack of timely access to market information, technology and information on international environmental constraints puts the Egyptian exporter at a disadvantage when compared to exporters from other countries, such as India and East Asia. In these countries, such information is better organized and available on a more timely basis, thereby lowering the transaction costs of entry into international markets subject to environmental regulations.

B. The Tourism Industry

The Tourism sector in Egypt has witnessed rapid growth during the last decade. In 2000, tourism in Egypt grew at a rate of 10% (higher than the world average of 7%), with a share of around 25% of the Middle East tourism market. International tourist inflows were over 5 million in 2000 -- a growth rate of 14.8% from 1999. This was reflected by an increase in international tourist nights, tourist receipts, hotel occupancy levels, and hotel capacity, particularly in the Red Sea and South Sinai areas. President Mubarak has referred to this sector as “Egypt’s future industry”. This dynamic industry sector has been the largest earner of foreign exchange with receipts reaching a value of US\$4.3 billion in 2001. **Box B** provides additional statistics related to the tourism sector in Egypt.

Box B: Facts and Figures of the Tourism Sector in Egypt

- Tourism attracted 2.98 million visitors and generated an estimated US\$3.8 billion in 2001.
- The tourism sector contributes significantly to the Egyptian economy, representing around 4.4% of GDP and 7% of total employment (at least 8% of all jobs in Egypt are connected with tourism, according to the World Travel and Tourism Council. If the secondary/indirect effects are also taken into account, then percentages rise to 11.6% and 15%, respectively.
- The greatest numbers of tourists visiting Egypt are from Europe, representing over two-thirds of all foreign visitors.
- Cairo is the main tourist destination followed by the Red Sea and South Sinai.

Egypt attracts tourists for a range of purposes, mainly recreational, to a variety of destinations, and from various countries, particularly Europe. Tourism in Egypt experienced remarkable expansion over the last half century, despite a drop in 2001 due to a decrease in the economic growth and the September 11th 2001 attack on the U.S. **Box C** sums up the factors affecting the growth of the tourism sector in Egypt.

Box C: Factors Affecting the Growth of the Tourism Sector in Egypt

There are several external and internal factors affecting tourism growth in Egypt. The external factors include:

- Political instability,
- The impact of the Euro/dollar relation on hotel prices (especially for the Europeans), and
- Foreign competition from other Mediterranean countries, such as Turkey.
- The General Agreement for Trade and Services (GATS) is expected to result in greater foreign competition, but also in a potential transfer of foreign technology and skills to Egypt enhancing service quality.

The internal factors include:

- Institutional obstacles (administrative complexity, financing limitations, fees and taxes),

Box C: Factors Affecting the Growth of the Tourism Sector in Egypt

- Government policies (the exchange rate, tourism regulations, environmental, pricing and marketing policies),
- Human resources (particularly education and training) and
- Tourism-related services (including travel agencies, tourist guides, public tourist establishments, transportation, and infrastructure).
- The great need to protect Egypt's unique desert and Sustainable Development and the preservation of natural resources. These are the pillars of the Ministry of Tourism's plans and the primary concern is to protect the environment through limiting tourism projects in nature preserves.

Tourism has also fuelled growth in the Egyptian economy, especially in the construction field, services and agricultural industries. Thus, maximising Egypt's tourism potential means higher revenues -- from more than US\$4 billion in 2000 to a projected US\$10 billion by 2005. This sector is experiencing growth in both supply and demand, creating potential investment opportunities. Despite the recent decrease, long-term expectations for tourism in Egypt remain optimistic. In 2000-2001, investment in tourism was worth L.E.99.3 million, representing a significant and growing share (7.3%) of total investment. The Tourism Development Authority provides investment opportunities, specifically in the Red Sea, Aqaba Bay, Ain El-Sokhna, Ras Sudr, and Ras El-Hekma areas. In addition, investment opportunities related to privatization, hotels, tourism-related services, and eco-tourism exist.

The private-sector has also been responsible for the revitalization of Egypt's tourism sector. Incentives such as tax exemptions, low-cost land and ownership rights for foreigners have encouraged private-sector involvement in nearly 700 projects since the early 1990s. Egyptian and foreign investments contribute to every aspect of development, infrastructure, large-scale integrated resort communities and a variety of services.

Long-term prospects are good for the tourism industry in Egypt. With its long history and extraordinary legacy of monuments, Egypt will always attract visitors and most analysts say that tourism still has a huge potential for growth. The World Travel and Tourism Council figures have tourism demand growing at an annual average rate of 3.8% until 2011. The major industry players, who are continuing to invest in Egypt's tourism infrastructure, reflect this optimism. Hotel and resort construction continues to be strong; although many projects have been delayed because of the attacks in September. Infrastructure within the tourist centres is provided by the private sector, whether through a single development company or, more commonly, through individual investors, who group together for infrastructure provision. So far, the private sector investment in such infrastructure amounts to an estimated LE7 billion.

Appendix

2

**Illustrations and Additional Information on
Market Requirements**

Appendix 2 Illustrations and Additional Information on Market Requirements

A. Legislation / Technical Regulations and Voluntary Requirements

Box 1: Benchmarking criteria used by H&M

H & M was founded in Sweden and has developed into a multinational concern with stores in 19 countries. The company's concept is fashion at the best price. The H & M clothes are produced in many different countries, and the company has developed a code of conduct that all suppliers and subcontractors must follow.

The issues listed below are addressed by international standards, such as ILO conventions and ISO standards. The policies and codes of conduct that companies develop are generally based on these internationally-recognized standards. Only a select set of criteria are listed here by way of illustration and this is not a complete overview.

Suppliers' Requirements (Benchmarking Criteria)

Consumer Health and Safety

- Awareness of existing national and international legislation
- Awareness of draft legislation (H&M does not state that their suppliers must be aware of draft legislation. However, H&M have gone further in their requirements than international law, which means their requirements are stricter. H&M does not allow PVC in any of its products)

Social (based on ILO)

- Occupational health and safety
- Child labour
- Forced labour
- Minimum wage
- Working hours

Environment

Environmental management system (H&M does not work with environmental management systems, but states the following: "H&M is not ISO14001-certified. Our ways of working do not correspond with the type of bureaucracy that comes with ISO certification. Nevertheless, we consider it important with a systematic approach to our environmental work." It is also worthwhile to point out that despite not having introduced the systems listed in this table, H&M has introduced other strict requirements that its suppliers should meet and has set up environmental targets for the company as a whole.

No specific criteria are listed to include requirements for recycling or Life Cycle Assessment.

Other

- Monitoring & inspections of suppliers
- Same requirements for subcontractors

Source: This information is derived from AccessGuide, Centre for the Promotion of Imports from developing countries' (CBI) database on European non-tariff trade barriers. For more details see: www.cbi.nl/accessguide

Codes of Conduct

Box 2: Codes of Conduct used by Otto Versand

The codes of conduct adopted by Otto Versand are presented below to give an example of a large buyer's requirements from a company trading with the European Union. Otto's codes of conduct are used as a guiding principle and as a standard for the company in all environment-related activities. Central to this policy is the commitment to continual improvement of environment related performance within the Otto enterprise.

Otto Versand environmental principles:

1. We have identified the environmental effects of each of our business activities and are monitoring and evaluating these on a continual basis.
2. Environmental effects are identified and evaluated prior to beginning all new activities and processes.
3. We are working continually on the avoidance and - where this is not possible - the reduction of pollution. In this regard we consider the compliance with legal regulations a matter of course.
4. In every business decision and in all functions as well as on all process levels environmentally relevant points of view are taken into consideration.
5. The continual improvement of our eco-related performance is guaranteed through an environmental management system. Strategic environmental goals and corresponding programs are derived from this eco-policy for the functional branches with environmental effects as well as for our main location. We regularly scrutinize and assess this management system and will adapt it to the general eco-political conditions.
6. We attach great importance to the sense of responsibility of our employees in regard to eco-relevant activities. This is promoted through practical encouragement, training and the providing of extensive information.
7. We are making use of communication possibilities to convince suppliers and consumers of the importance of environmental protection and to strengthen the environmental factor in the constant give and take of supply and demand.
8. We take into consideration the observance of environmental standards in regard to cooperation with suppliers, other contract partners and the authorities.
9. We have determined the necessary technical and organizational procedures for the adherence to this environmental policy. These will be regularly checked in regard to their suitability and practicality and - when necessary - updated.
10. We will inform the public about the environmental management system, the social management system and environmental-related business activities through a regular sustainability report.

Otto Versand social principles:

1. The industrial relations law in force within that nation is to be adhered to.
2. Child labour is forbidden in the manufacture of goods or the contribution of services for the companies of the Otto group. The definition of child labour is determined by, either the regulations of the United Nations or, if they are stricter, the nationally regulations currently in force.
3. The employees must receive wages and other benefits corresponding either to the current laws in force and / or, if they provide greater wages and benefits, to the practices of the local manufacturing industry. Wage cuts as disciplinary measures are not admissible. The goal is the payment of wages which cover the cost of living, insofar as the legal minimum wages are insufficient. The regular maximum working hours per week is 48 hours. All additional hours must be paid as overtime according to either the current laws in force and / or, if they are higher, the current branch practices in the region. On a regular basis, the weekly working time, including overtime hours, is not allowed to exceed 60 hours. The employees have the right to at least one day off a week.
4. The legal right of the employees to found trade-unions, to become members of these unions and to conduct wage negotiations may not be restricted in any way by the supplier.
5. There shall be no discrimination due to employees' personal characteristics or persuasions.
6. The use of forced labour, corporeal punishment, physical or mental/emotional coercion is forbidden.
7. Safe and healthy working conditions are guaranteed. Corresponding codes apply for the employees' accommodations when they are provided for. The suppliers and their sub-

Box 2: Codes of Conduct used by Otto Versand

suppliers declare themselves to be in agreement with the possibility that the compliance with these Codes of Conduct may be checked, be it through the companies of the German Otto Group or through independent organizations. Every violation of these Codes of Conduct which becomes known the companies of the German Otto Group can lead to the cessation of the business relationship.

Source: This information is derived from AccessGuide, Centre for the Promotion of Imports from developing countries' (CBI) database on European non-tariff trade barriers. For more details see: www.cbi.nl/accessguide

Ecolabels**Box 3: Salient Features of the EU-Flower Ecolabel**

The EU-Flower is an eco-labelling scheme put forth by the European Commission. A manufacturer, retailer or service provider who meets the criteria for a product group and who applies for the award of this ecolabel, can market his eco-labelled product throughout the 15 Member States of the European Union. The Flower is also accepted and present in those countries which are signatories to the EEA Agreement (Norway, Iceland and Liechtenstein). The European approach avoids having to make an application in every country and thus avoids time-consuming and costly procedures. The same logo is used regardless of the product group in question, thereby eliminating consumer confusion prevalent at the moment given the numerous self claims and green logos in existence.

The EU Flower is applicable to a wide category of products including textiles and footwear. In the textile sector it can be awarded to all kind of textile clothing and accessories, interior textiles, and fibres, yarn and fabric.

The **European Union Eco-labelling Board** (EUEB) develops ecological criteria for product groups in close collaboration with the Commission. Criteria are voted upon by the Regulatory Committee. The Commission cannot adopt criteria before governmental experts of the Member States have given their opinion by voting in this Eco-label Regulatory Committee by qualified majority.

There is considerable input of representatives of industry, commerce, environmental and consumer organisations and trade unions. International observers are regularly invited and informed by the Commission and by the members of the EUEB. At present, non European manufacturers are represented by the organisation Eurocommerce. The final consumer, therefore, will increasingly recognise that the Flower logo represents demanding ecological criteria which have been established according to scientific and technical guidelines with widespread participation from independent and neutral bodies.

EU Flower criteria are not based on one single parameter, but rather rest on studies which analyse the impact of the product or service on the environment throughout its life-cycle, starting from raw material extraction in the pre-production stage, through production, distribution and disposal of the product or service.

The scheme is not establishing ecological standards which all manufacturers must meet. It is for the producer, retailer or service provider to decide whether or not to apply once the criteria are published in the Official Journal. Given the underlying rationale of the scheme to provide incentives for green manufacturers and public purchasers, the success of the scheme will offer a considerable pull effect for retailers, SMEs and manufacturers to better promote and market their products.

The voluntary nature of the scheme means that it does not create barriers to trade. Foreign and Community producers may apply for the logo if they meet the criteria and want to market their products in the EU/EEA. Of course, they may sell their products within the EU/EEA markets also without the flower.

Each Member State of the EU has designated a Competent Body which is responsible for receiving applications from manufacturers, retailers, service providers or importers for the award of the Eco-label to their products and services.

Box 3: Salient Features of the EU-Flower Ecolabel

The Competent Body decides on standard application forms with explanatory notes based on the product group definitions and ecological criteria which have been adopted. Each decision to award an eco-label is in the hands of a Competent Body who in the case of the same product marketed in other countries will consult other Competent Bodies.

A successful applicant is required to sign a contract with the Competent Body for the use of the Flower for the remaining period of validity of the ecological criteria. The Competent Body charges a certain fee for the application and the annual use of the Flower logo.

The **award of the Eco-label** means that successful applicants are permitted to use the official Flower logo on their approved product in a market of more than 375 million consumers. Thus a consumer in a supermarket who is faced with a line of different brands of laundry detergents (for instance) will be able to pick out, by checking the Eco-label logo, the ones which achieve a high standard of environmental performance compared with the rest of the field.

Source: http://europa.eu.int/comm/environment/ecolabel/index_en.htm

B. Future Challenges in Market Requirements

New Generation Ecolabels

Box 4: Ecotex's new ecolabels

The Eco-tex Institute, Germany, with over ten years experience in compliance management in textile and apparel fields has a well established ecolabel *CSM 200 (Compliance and Supply Chain Management)*. European and Asian buying organizations seek this ecolabel in their suppliers. This standard is based on environmental criteria as well as criteria on quality, social, health & safety compliance issues. The standard specifies the overall qualitative ecological performance, where the individual company has the flexibility to define the quantitative limits on various ecological aspects (e.g., energy and water consumption etc) depending on company's size, processes and activities. Once the quantitative limits are defined, they can be implemented and verified by the standard.

The main concept is to develop an integrated system formed of three compliance modules Sustainable Social Responsibility (SSR), Environment (ENV) and Quality (QUA), which have their own modularity. Each module has its own typical function of compliance issue. The modularity of CSM therefore exists in two ways: It leaves the applicant the choice, which module to implement first. Furthermore he has the possibility to add further compliance. Because of the underlying common system requirements the additional compliance modules can be easily integrated.

The requirements incorporated in CSM, the minimum requirements, have to be extended by defining so called additional requirements. These additional requirements are industry specific and consist of requirements of the importing countries, specific customer requirements (i.e. Codes of Conduct), already implemented standards, (i.e. ISO, SA8000 etc.) and eventual future compliance requirements of the business organization.

These requirements are generic and applicable to all the business enterprises, regardless to type and size. Throughout the CSM system, emphasis is placed on the satisfaction of industry and customer's needs, the establishing of the functional responsibilities, and the importance of assessing potential risk and benefits. The CSM system has given the consideration and recognition to the principles of QMS (i.e., TQM, ISO 9000), EMS (i.e., ISO 14000, EMAS) and other standards pertaining to social responsibilities (i.e., SA 8000).

The important aspect of this standard is that it includes the compliance of defined criteria/requirements in a complete supply chain which means the fulfillment of criteria/requirements are screened, verified and assured by all the members in the whole production chain right from the beginning (begin-of pipe system), which includes suppliers of raw materials, semi product, components and finally the end producer. The CSM standard includes both product and process criteria. Since the fulfillment of the requirements are implemented and checked from the beginning, having a complete documentation which obviously assists in post-production evaluation for LCA.

In early 2004, Eco-tex launched a global sustainable compliance scheme on social and environment issues for textile and apparel manufacturing organizations. It is called *Certified Performance*. For more information on both these standards please see <http://www.eco-tex.de>.

Global Sourcing Principles

Box 5: Global Sourcing Principles – Marks and Spencers

Marks & Spencer takes great care in choosing the companies who supply us directly with goods and services and with whom we aim to build long term partnerships. Our Global Sourcing Principles establish the minimum acceptable standards necessary for working with us. But as our business relationship develops, we expect suppliers to steadily raise standards and improve working conditions, taking account of internationally recognised standards.

Supplier's Responsibility

Together with each supplier we establish a set of standards appropriate to the relevant industry and country and it is their responsibility to achieve and maintain these standards.

Workforce Rights

The people working for our suppliers are to be treated with respect, and their health, safety and basic human

Box 5: Global Sourcing Principles – Marks and Spencers

rights are to be protected and promoted. Each supplier must, as a minimum, comply fully with all relevant local and national laws

and regulations, particularly with regard to:

- Working hours and conditions, rates of pay and terms of employment
- Minimum age of employment.

Regardless of local regulations, workers should normally be at least 15 years old, and free to join lawful trade unions or workers' associations.

Production Sites and Labelling

Suppliers must agree their production sites with us in advance and not subcontract our orders from these agreed locations. All goods must be labelled with their country of origin.

Regular Assessment

Our suppliers and by our own staff will visit and assess all production sites regularly. Together we will strive for continual improvement.

Environmental Responsibility

At the very least, suppliers must meet all relevant local and national regulations. In addition, we expect them to improve their environmental performance steadily by aiming to comply with international standards.

Dedicated Production Units

Once we have established significant levels of business with a supplier, we expect them to produce our goods with production units and workers dedicated to Marks & Spencer orders.

Commitment to Extending Principles through the Supply Chain

We expect our suppliers to adopt similar principles in dealing with those who, in turn, supply them.

Suppliers must apply these principles at all times and be able to demonstrate this. We work with our suppliers to support any necessary improvements but we reserve the right to cancel our orders and to cease to trade with suppliers who are not prepared to make appropriate changes.

Source: Global Sourcing Principles, 28th May, 2003.

http://www2.marksandspencer.com/thecompany/ourcommitmenttosociety/ethical_trading/global_sourcing_principles.shtml

Food Sector – Role of Supermarkets**Box 6: Salient Features of product policies of supermarkets in Europe*****The Netherlands: Ahold***

Ahold is a Dutch multinational operating in 18 countries across four continents. Ahold's global turnover in 2001 amounted 66.6 million dollars. Ahold's supermarkets have the largest share of these operations. Ahold pays attention to social and environmental issues throughout the entire supply chain. Albert Heijn, the Dutch supermarket chain of Ahold, is, along with other supermarkets, actively involved in the development of standards for good agricultural practices, known as the EUREPGAP¹ initiative. The standards, officially laid

¹ **EurepGap:** is a code for fresh fruit and vegetables which is gaining ground in Europe. The Euro-Retailer Produce Working Group (EUREP) has developed the Good Agricultural Practice (GAP) standards. This is in response to increasing consumer interest in food safety and environmental issues. The framework of EurepGap requires companies to have a good management system in place to deal with quality, hygiene and environmental matters. Although EurepGap standards are yet not common practice in all the EU member states, it is expected that they will be increasingly accepted and applied in the future, particularly by the large supermarket chains. The EurepGap Protocol was launched by a group of leading European food retailers in 1999. **As of January 1, 2004, the leading European supermarket chains will trade only fresh fruit and vegetables, which comply with EurepGap standards. In the EU, several projects have been launched, in which developing country exporters are guided through the process towards EurepGap certification.** For more information please refer to www.eurep.org.

Box 6: Salient Features of product policies of supermarkets in Europe

down in protocols, need to assure product safety, reduced agro-chemical use, environmental protection and labour safety. There are no official dates for implementation of the EUREP-GAP protocol guidelines, but Albert Heijn is already busy with implementation.

The Ahold supermarkets chain Albert Heijn introduced its first private label for organic food products in 1998. Currently, there are 275 organic products in 15 categories (e.g. fruit and vegetable products, dairy products, bakery products, teas), which have positioned Albert Heijn as a market leader in organic products in The Netherlands.

Albert Heijn's strategy for marketing organic products is to make organic food available for wider groups of consumers and to provide more choice in virtually every category. With this strategy, Albert Heijn wants to create a demand for organic products with 'mainstream' customers. Currently majority of organic products are produced in the Netherlands.

Ahold is actively co-operating with the Ghanaian agricultural sector in the area of product development, institutional support and input of staff and technical know-how. As part of the project, Ahold entered into a public-private partnership of Ghanaian authorities, producers and exporters. The objective of the partnership is to help Ghanaian exporters comply with safety, quality and environmental demands established by the global market.

United Kingdom: Tesco

Tesco, one of the largest supermarket chains in the United Kingdom, is a leading company in the area of corporate social responsibility. Tesco has developed a specific policy to deal with the suppliers for its supermarkets and affiliated stores (e.g. petrol stations), recognising its responsibility to investigate the product chain.

Tesco is an active participant in the EUREP-GAP initiative. Other activities that Tesco has developed in the light of its suppliers' policy include:

Supplier Code of Conduct - In 2001, The Department of Trade and Industry (the UK Ministry of economic affairs) introduced a Supermarkets' Code of Practice to regulate trading relationships between the four largest UK supermarkets and their suppliers. Tesco is a signatory to the Code and has met its obligations for implementing the Code fully. For example, Tesco's buying teams have been trained in accordance with the Code of Conduct. Participants are reviewed annually if the requirements are being met.

Fair Trade Products - Tesco is actively supporting the promotion of fair trade products. For example, the supermarket participates in public events and the stores sell a range of Fair Trade marked products. Fair Trade bananas sourced from Dominica in the Windward Islands were rolled out nationally to all 730 Tesco stores. Other Fair Trade products sold by Tesco are a selection of coffees, teas, chocolates and fruit juice.

Participation in Ethical Trading Initiative - Tesco has been a member of the Ethical Trading Initiative (ETI) since it was founded in 1998. The supermarket is committed to ensuring that the principles of the ETI Base Code on worker welfare are followed throughout the UK supply chain for its own Tesco brand products. Tesco has challenged itself to manage standards across the large supplier base and to work in joint co-operation with its suppliers to maintain, develop and improve these standards.

Source: *This information is derived from AccessGuide - CBI's database on European non-tariff trade barriers*
www.cbi.nl/accessguide

C. Tariffs, Taxes and Quotas in the EU Market

Tariffs

Since 1992, following completion of the EU's internal market, the EU has one Common Customs Tariff i.e., the same tariffs apply across the external border of the EU irrespective of the member state where the goods are imported. Within the EU, goods can circulate freely between Member States. The level of the tariff depends upon the type of product and the country from which it is imported. For more information on the applied duty rates by product and origin please refer to EU's TARIC database at: http://europa.eu.int/comm/taxation_customs/databases/taric_en.htm.

The EU can also temporarily increase tariffs to limit imports e.g., when products are dumped on the EU market. This is done as a safeguard measure to protect the domestic industry. Such tariffs however can be applied subject to WTO rules established to prevent use of such instruments for protectionist purposes.

Taxes

All products sold in the EU are subject to Value Added tax (VAT) which is a general consumption tax and is directly proportional to the price of goods and services. VAT rates differ among and within Member States. There are plans to simplify and modernize VAT rules in the EU.

Excise duties are levied on products such as alcoholic beverages and tobacco. The choice of excisable products is partly dictated by public health, environmental and energy-saving considerations. Level of the excise tax differs by member state although minimum rates are set at the EU level. The level of excise taxes for imports is equal to that levied on goods produced within the EU.

Quotas, licenses, bans

Quotas are restrictions on the quantity of imports or exports and are used to regulate supply. Quotas have in the past been widely used to regulate textile and clothing and agricultural imports. Under the WTO's Agreement on Textiles and Clothing all quotas must be eliminated before January 2005. For agricultural products quotas have been phased out, as the WTO agreements stipulated that quantitative trade measures should be replaced by tariffs. The EU does make use of tariff rate quotas. Under tariff rate quotas a relatively low tariff rate applies to a certain quantity of imports, while above this limit a higher tariff is charged. The EU has some 87 tariff rate quotas. The tariff rate quotas are filled in either on a first come first served basis, on the basis of licenses, or on the basis of imports to the EU in the past.

For the exports of some products to the EU, import licenses are required. This is often the case for products that face quantitative restrictions (e.g. textiles and clothing), but also for some sensitive or strategic products, like alcoholic beverages, weapons and arms, certain drugs and chemicals, and certain food products.

In some cases, the EU can prohibit the imports of certain goods. The bans are mainly applied to trade in dangerous products, such as chemical waste. Well-known examples are also bans on products of protected animals and plants, e.g. on the imports of coral products. Other products that can be subject to bans include medicines, pesticides, plants and foodstuff, and electrical products, usually on the basis of safety and health considerations. In the past few years, the EU has banned imports of a number of food products, e.g. genetically modified food, and British cows as a result of the mad cow disease. Some countries feel that trade bans on health and safety grounds are used for protectionist purposes, as there is not always convincing scientific evidence for health or safety risks.

Appendix

3

**Case Studies From SEAM Programme
Showing Interlinkages with Trade**

S

Industrial Pollution Prevention Case Study: Food Sector

Waste Reduction by Improved Quality Control and HACCP Implementation

Edfina Company for Preserved Foods, Alexandria, Egypt

E

INTRODUCTION

Waste minimisation through improved quality control procedures was implemented at Edfina Company for Preserved Foods (Edfina), Alexandria. A number of interventions costing LE65,200 have yielded annual savings of LE382,622. Quality control training and the implementation of Hazard Analysis and Critical Control Point (HACCP) system will lead to improved product quality and further savings. Although it is difficult to quantify at this stage further savings of LE550,000 could be expected in the short term.

A

THE FACTORY

Edfina is a public sector company and its factory at Montazah, Alexandria is one of the largest producer of preserved foods in Egypt. Built in 1958 on 56,000 m² the

plans, to its current level of 600 employees. Production is seasonal and is around 12,100 tons per year comprising: 4,600 tons of fruit juice and syrup; 3,900 tons of jam; 1,700 tons of canned beans and vegetables; 1,050 tons of frozen foods; 500 tons of tomato paste; and 350 tons of honey and other products.

M

Project



Improved quality control can reduce wastage of raw materials and products

Process Description

Processing of the 5 main products can be summarised as follows:

- ❖ Fruit Juices - fresh fruits are received, sorted, washed and squeezed. Pulp is heated, screened and mixed with ingredients. The mixture is heated, screened, homogenised, either bottled or canned then pasteurised. Product is incubated before final packaging and storage.
- ❖ Jam - fresh fruits are sorted, washed, peeled then cut. The fruit is then mixed with sugar, steam cooked and concentrated under vacuum. Concentrate is packed in tin cans, or jam pots, sterilised and stored.
- ❖ Frozen Vegetables - fresh vegetables are received, weighed, sorted, trimmed, peeled and cut manually. Peeled vegetables are sorted, blanched, frozen, sieved, and packed in pouches.
- ❖ Canned Beans - green beans are received, weighed, sprayed with insecticide, sieved, sorted, dip and spray washed, and soaked. This is followed by steam cooking, rapid cooling and final sorting. Cooked beans are seasoned, canned and sterilised.

- ❖ **Tomato Paste** - raw tomatoes are received from suppliers, weighed, sorted and washed. Clean sorted tomatoes are pressed for juice and screened. Seasoning is added and juice is concentrated under vacuum and heat treated. Paste is automatically canned, sterilised, sealed, cooled and stored.

Process and Service Units

There are two canning facilities, a freezing unit, two can making plants, and a varnishing and printing facility on site. Service units include a water treatment facility, boiler station, quality control laboratories, freeze-storage and refrigerators in addition to cooling towers, garages and maintenance workshops.

Energy and Water Consumption

Annual consumption is typically:

- ❖ Electricity: : 5.95 million kWh
- ❖ Fuel : 2,419 tons
- ❖ Water : 700,000 m³

Wastewater

Around 520,000 m³/year of effluent are discharged untreated into the public sewerage system. Effluent quality is: BOD - 845 ppm; COD - 1,445 ppm; TSS - 2,225 ppm; Oil and Grease - 95 ppm; and TDS - 1,275 ppm. The factory is in the process of installing a wastewater treatment plant.

CLEANER PRODUCTION OPPORTUNITIES

Cleaner production opportunities were initially identified by means of an industrial audit of the factory. An assessment was made of the different factory processes which highlighted high product losses and recalls at around 400 tons per annum. Juice losses accounted for 204 tons (4.5%); jam losses, 58 tons (15%); tomato paste losses, 57 tons (11.5%); frozen vegetables losses, 45 tons (4.5%); and cooked bean losses, 23 tons (1.5%). Issues that need addressing included:

- ❖ Quality control capabilities needed strengthening through additional employee training programmes.
- ❖ Product reject rates were high and could be reduced by better on-line production controls.
- ❖ Considerable amounts of jam pots were wasted due to faulty packaging.
- ❖ Manual packaging and poor handling of the vegetable paste resulted in unnecessary losses.
- ❖ For frozen food production, vegetables are washed and cooled manually. Product rejects arise due to improper handling and post blanching contamination.
- ❖ Insects were posing a problem to product quality particularly in jam production.
- ❖ Considerable amounts of packaging waste were generated particularly tin and reject cans (1,500 ton/year) and glass bottles (22 ton/year).
- ❖ Large amounts of steam and water were being wasted due to condensate losses, leaking valves, insufficient thermal insulation and excessive use of water (see SEAM Case
- ❖ Pollution loads in discharge effluents were above permissible limits.

CLEANER PRODUCTION APPLICATIONS

To address the above issues a series of improvement measures were identified and implemented through the SEAM Project as outlined below. Priority was given to improvements that could entail significant savings at least cost.

Involving the Employees

An in-house team was established to identify opportunities for improvements that will minimise wastage in the

by the quality control manager, and included members from other key departments. The team enhanced the communication between all levels of management and workers and facilitated co-operation between the different departments.

Quality Control Training and Awareness Raising

A training needs assessment was undertaken with management, process engineers, production supervisors and line workers in order to tailor an appropriate employee training and awareness programme. Training over 8 weeks was provided for 23 employees, mainly from the production and quality control departments, in the following areas:

- ❖ Improved quality control for food industries.
- ❖ Good manufacturing practices in food processing.
- ❖ Hazard Analysis and Critical Control Point (HACCP) Systems.
- ❖ Cleaner Production principles and waste reduction techniques.
- ❖ On-line quality control monitoring and environmental measurements.
- ❖ Computer applications to improve monitoring, data analysis and reporting.

Training manuals were disseminated and on the job training was an integral part of the programme.

Monitoring to Improve Process Control

were upgraded with partitioning, new benches and air conditioning. Additional equipment purchased to improve on-line monitoring included:

- ❖ Portable refractometers, pH meters, thermometers and colour meters that provide quick and reliable on-line analysis of product quality.
- ❖ Turbidity meters to test process water quality.
- ❖ Computer, printer and software to improve monitoring of data and reporting of results.

LE33,230 was invested in the above equipment.



Improved food quality monitoring to reduce product losses

Consideration is also being given to obtaining:

- ❖ Equipment for testing coating thickness, can seams and vacuum seals, to reduce losses caused by canning defects.
- ❖ Environmental test kit and BOD incubator to monitor effluents and final discharges.

Cleaner Production Interventions

Improve Packaging of Fruit Jam

Packaging of jam in single-use foil pots was resulting in around 15% losses due to poor cutting and seal defects. During seasonal production as many as 12,000 pots (0.36 ton) were lost daily giving rise to annual losses of 43.2 tons. Improving the design of the trimming machine has overcome the problem and led to higher quality packaging. Operational costs are marginally lower.

The new machine reduced downtime by 80% thereby increasing production capacity by 6% or 36 tons per year. Net marginal value of the increased capacity is LE16,200.

Implementation costs: LE18,000

Annual savings: LE190,056

Net margins on increased production: LE16,200

Improve Packaging of Vegetable Pastes

packed manually resulting in handling and packaging losses of 17.5 tons per year. A semi-automatic packaging system made of a dispensing assemblage and a sealing device has been introduced to eliminate these losses. As a result packaging time has been reduced by 50% thereby saving labour costs and increasing productivity.

Implementation costs: LE13,950

Annual savings: LE57,750



Semi-automatic vegetable paste packing has eliminated handling losses

Modification to Vegetable Processing

The production of frozen vegetables involved a lot of manual handling resulting in product losses and increasing the risk of contamination. To minimise manual handling during cooling of the vegetables after blanching a special sprinkler and screening system was installed. This measure has reduced product rejects by 10 tons per year. In addition, cooling water requirements were reduced by 25% (10,920m³/year) and labour requirements reduced by 30%.

Implementation costs: LE10,750

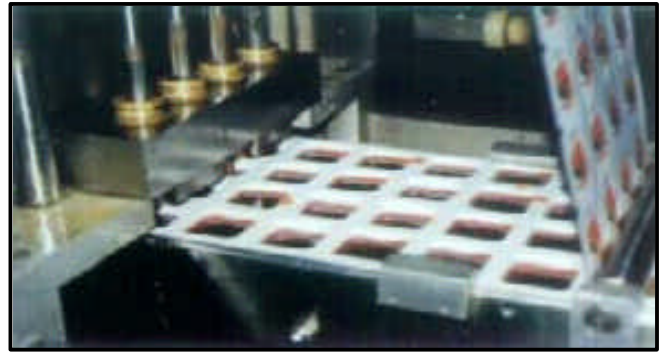
Annual savings: LE49,720.

Improve Pest Control

The current pest control program was upgraded by installing window screens and insectocuters to control flying insects. Frequent inspection and pest surveys were also initiated. These improvements were required to bring the factory into line with international hygiene specifications and have eliminated 29.3 tons per year in product losses.

Implementation costs: LE22,500

Annual savings: LE68,986



15% losses in jam packaging were eliminated by improving the trimming mechanism for foil pots

HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP)

HACCP was introduced for the fruit drinks bottling line. Steps for implementation were as follows:

- ❖ All necessary quality control procedures were verified for completeness and to determine if they are being implemented to required standards.
- ❖ A Hazard Analysis was conducted to identify hazards that may occur in the product cycle, from farm delivery to retail, and to assess the preventative measures for controlling them.
- ❖ Critical Control Points (CCPs) were determined to control the identified hazards. CCP signs were then posted on the factory floor.
- ❖ Critical Limits were established at each CCP.
- ❖ Appropriate monitoring system was established for each CCP to monitor its control.
- ❖ Corrective actions to be taken when monitoring indicates deviation or loss of control were established.
- ❖ Verification procedures were established to confirm that the HACCP system is working effectively.
- ❖ Documentation concerning all procedures and records were established.
- ❖ Integrating HACCP with ISO 9000 under one management system.

BENEFITS AND ACHIEVEMENTS

The main benefits of this project have been to reduce raw material wastage and product rejects through better quality control. Employee training, improved process monitoring and the preventative approach of HACCP have led to greater efficiencies and operational controls yielding benefits that are better quantified over time.

The application of HACCP will be essential in maintaining and

assured products from the United States and European buyers are already evident for the following:

- ❖ **Frozen vegetables**, for which Edfina have exported 2,000 tons to Europe and the United States, valued at LE7.6 million.
- ❖ **Fruit drinks**, for which Edfina presently exports 25 tons per year valued at LE73,000.

HACCP that was implemented for bottled fruit drink production is being replicated by the factory in other production lines.

Environmental improvements have included a reduction in water consumption, pollution loads and volume of effluent discharges.

ECONOMICS

A summary of the cost benefits that have been quantified for the four interventions is given below.

Intervention	Costs LE	Annual Savings	Payback Months
Improve packaging of fruit jam	18,000	206,256	1
Improve packaging of vegetable paste	13,950	57,750	<3
Modifications to vegetable processing	10,750	49,720	<3
Improve pest control	22,500	68,896	<4
TOTAL	65,200	382,622	2

In addition to the above costs LE33,230 was spent on on-line monitoring equipment and a further LE40,000 was spent on quality control training and HACCP implementation. Although the direct benefits of improved quality control practices are difficult to quantify it is expected that in the short term at least a further 2% of wasted raw materials and products will be recovered yielding savings in excess of LE550,000.

CONTACTS

More information on this project and the SEAM Project, are available from:

- ❖ **Edfina Company for Preserved Food**
Quality Control Department
Ras El-Souda, Alexandria, Egypt
Tel.: (20) 3 534 5446 Fax: (20) 3 534 9017
- ❖ **Egyptian Environmental Affairs Agency (EEAA),**
Technical Co-operation Office for the Environment (TCOE)
30 Misr Helwan Agricultural Road
5th floor, Maadi, Cairo, Egypt
Tel.: (20) 2 525 6452 Fax: (20) 2 525 6457
E-mail: EEAA2@idsc.gov.eg
- ❖ **SEAM Project/Entec UK Ltd.**
30 Misr Helwan Agricultural Road
4th floor, Maadi, Cairo, Egypt
Tel.: (20) 2 525 6452 Fax: (20) 2 349 9795
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July 1999

The SEAM Project

Support for Environmental Assessment and Management (SEAM), is a multi-disciplinary

Department for International Development (DFID). This project is being implemented by the Egyptian Environmental Affairs Agency (EEAA) through the Technical Co-operation Office for the Environment (TCOE) and Entec, a UK engineering and environmental consultancy.

SEAM: Pollution Prevention

This is being implemented under the National Industrial Pollution Prevention Programme (NIPPP). NIPPP focuses on the introduction and promotion of low-cost improvement measures, which can be easily and quickly implemented by factories. It also emphasises the importance of economic benefits of any such intervention, particularly those with short pay-back periods.

Methodology - A Description

Pollution prevention opportunities can be identified through an industrial audit¹. This

and processes, focusing on reducing waste, improving efficiency and alleviating pollution. This aims to identify and prevent losses from occurring in the first place, rather than resorting immediately to a treatment facility.

The SEAM Project has carried out audits in 32 factories in the food, textile and oil and soap sectors, which identified a wide range of low-cost pollution prevention opportunities, including water and energy conservation, the importance of good housekeeping, in-process modification and hazardous materials substitution. The SEAM Project is presently implementing 23 of these opportunities as demonstration projects.

Benefits of Pollution Prevention

It can **REDUCE** :

- production costs;
- losses of valuable raw materials;
- on site treatment costs;
- energy and water costs;
- the volume of solid and liquid wastes generated;
- the risk of spills and accidents.

... and **IMPROVE** :

- overall operating efficiency;
- generation of income through reuse and recycling of wastes;
- this approach can be easily replicated in sister factories to achieve similar savings;
- safety of employees;
- legislative compliance;
- company image.

¹ Guidelines for Industrial Audits have been prepared by the SEAM Project.

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Industrial Pollution Prevention Case Study: Textile Sector

Eco-friendly Processing and Obtaining Eco-labels

Misr for Spinning & Weaving Co., Mahalla, Egypt

Giza Spinning, Weaving, Dyeing & Garments Co., Giza, Egypt

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Under the SEAM Project, eco-friendly processing has been introduced at the following factories:

Misr for Spinning and Weaving Co., Mahalla El-Kobra is a public company, the largest in the Middle East. It has an average annual production of 48,000 tons, of which approximately 50% is exported. The factory occupies an area of 600 acres (including residential area) and has a workforce of over 30,000. It processes cotton, wool, synthetics and blends to produce a wide range of products, including ready-made garments, yarns, finished fabrics, bandages, blankets.

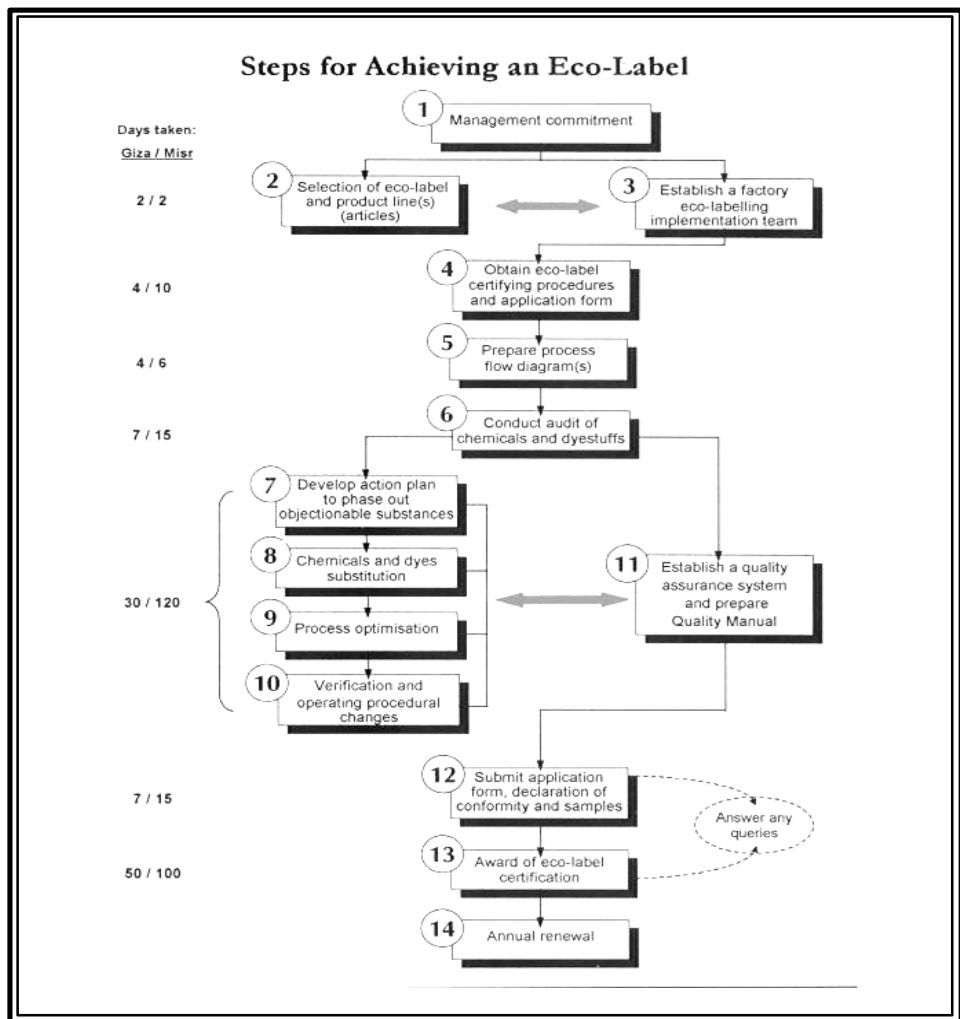
Giza Spinning, Weaving, Dyeing and Garments Co. is privately owned, with an average annual production of 1,440 tons, approximately 95% of which is produced for export. The factory is on a 25 acre site and has a workforce of around 2,400. The main products are cotton, polyester ready-made garments, yarns and finished fabrics.

This case study gives a step-by-step description of what actions were taken to achieve eco-labels for each of these factories.

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WHAT IS AN ECO-LABEL?

An Eco-label can be defined as A guarantee that the fabric purchased does not contain chemicals which might be harmful to the consumer.

The export of textiles to Europe, particularly Germany, requires that stringent standards are met regarding the chemical and physical quality of the fabric. The manufacturer is expected to use environmentally friendly processes and environmentally acceptable chemicals. Possession of an eco-label can show that these conditions are being met.

From the range of eco-labels available, OkoTex-100 was selected, as this is widely accepted throughout Europe.

WHAT ARE THE BENEFITS OF AN ECO-LABEL?

Increased Export Market Access

Buyers are increasingly requiring that their imported goods meet a defined set of quality standards. An eco-label will help meet these requirements and can facilitate both entry and expansion into export markets.

Other benefits include:

- ❖ Optimising raw materials consumption.
- ❖ Phasing out hazardous materials.
- ❖ Reducing wastewater volume and toxicity.
- ❖ Reducing pollutants in air emissions.
- ❖ Improving factory working conditions.
- ❖ Increased competitiveness in the domestic market.

STEPS FOR ACHIEVING AN ECO-LABEL

Step 1. Management Commitment

Senior management support for achieving an eco-label must be present from the outset. This is essential in:

- ❖ allocating appropriate human resources.
- ❖ ensuring that work is completed on time.
- ❖ releasing financial resources.
- ❖ encouraging the implementation of recommended optimisation measures.
- ❖ encouraging the development of quality control procedures.

Step 2. Select the Article to be Eco-labelled

Two general issues need to be considered; which eco-label to use and which product line to start on. Experience gained during implementation showed that the following points needed to be addressed:

- ❖ Identify buyer preferences on the type of eco-label.
- ❖ Select the eco-label that is able to maximise market penetration in potentially a number of different countries.
- ❖ Identify the main export product lines and initiate eco-labelling on that product line where it will yield the greatest return.
- ❖ Articles manufactured from the same raw materials and using similar processes can be eco-labelled at the same time.
- ❖ Balance market expectations against ease of implementation. Eco-labels based on final product quality are easiest to obtain.

SEAM Project: Selection of Product Lines		
Factory:	<i>Giza Co.</i>	<i>Misir Co., Mahalla</i>
Fabric:	100% cotton.	100% cotton.
Product:	T-shirts; knitted, bleached and dyed.	Pyjamas, bleached, dyed, printed, colour-woven.
Selection rationale:	<ul style="list-style-type: none">❖ Represents 45% of total exports.❖ Buyer request for an ecolabel.❖ Easy to replicate in similar lines.	<ul style="list-style-type: none">❖ Largest export product.❖ Expanded to include shirts and trousers line (similar raw materials and processing).

Step 3. Factory Eco-labelling Implementation Team

For each of the factories, a Factory Team was selected to be responsible for achieving the eco-label. The Team consisted of Managers from:

- ❖ Sales and Marketing (to provide advice on customer requirements).
- ❖ All production and service departments likely to be affected by any changes.
- ❖ Quality Control (to ensure quality control procedures are followed and maintained).
- ❖ Purchasing (to ensure that raw material purchases - dyes, process chemicals, etc. - comply with eco-label requirements).
- ❖ Financing (to quantify savings or profits).

Step 4. Obtain Eco-Label Certification Procedures

For the selected eco-label, all necessary paperwork and background information should be obtained from the certifying organisation. This includes an application form, Eco-label standards, declaration of conformity, the list of approved certifying institutes and a renewal form from the selected eco-labelling institute.

Step 5. Prepare Process Flow Diagram(s)

This describes the steps involved in the production of the selected product(s) and includes:

- ❖ each relevant step in the manufacturing process.
- ❖ all inputs, including water, energy, dyes, process chemicals and accessories in the final product such as buttons, zippers, elastic and cord.
- ❖ all outputs, including the final product and any wastes (solid and liquid).

Once completed, the Factory Team should walk through the factory to verify the process diagram.

Step 6. Conduct Chemical Audit

This step will identify all chemicals which are toxic, hazardous or banned by the ecolabelling organisation.

A detailed survey of the chemicals used in each production stage must be carried out to identify all chemicals used in the production of the fabric, from the processing of the raw fibres (including pesticides) through the manufacturing process to the production of the finished article. Wherever possible, material safety data sheets for each chemical should be obtained from the supplier - this will save time and money later.

Hazardous materials identified at Giza and Misr Mahalla:

- ❖ Sodium hypochlorite (Giza and Misr Mahalla)
- ❖ Kerosene in pigment printing (Misr Mahalla)
- ❖ Pigment colours based on banned amines (Misr Mahalla)
- ❖ Binder containing high levels of formaldehyde (Misr Mahalla)
- ❖ Resin containing high levels of formaldehyde (Misr Mahalla)
- ❖ Copper sulphate used in after-treatment of direct dyes (Giza)

Step 7. Action Plan to Phase-out Objectionable Substances

An Action Plan should be developed to address the results of the chemical audit. This is essential when there are a number of substances to be phased out and/or when there is a range of options for doing so.

In SEAM, some substitutions were relatively straightforward (e.g. substitution of hazardous dyes with eco-friendly alternatives), whereas others required a series of trials to be carried out:

- ❖ **Laboratory Bench Testing.** A low-cost way of assessing a wide range of possible substitutes and/or process modifications.
- ❖ **Pilot Scale Testing.** This assesses the most promising options (identified during the laboratory trials) under production scale conditions.
- ❖ **Production Scale Testing.** Fine-tuning of the pilot scale tests, whilst maintaining optimum conditions.

Step 8. Chemicals and Dyes Substitution

A summary of the substitutions made are as follows:

Substitutions made at Misr Mahalla and Giza factories	
Hazardous Chemical	Substitute
Sodium hypochlorite	Hydrogen peroxide
Pigments based on banned amines	Safe pigment colours
Kerosene	Synthetic thickener
High formaldehyde binder	Low formaldehyde binder
High formaldehyde resin	Low formaldehyde resin
copper sulphate	polymeric agent

Note: Whenever a substitution is made, tests to confirm their suitability should always be carried out.

After substitution, fabric quality tests were carried out to determine:

- ❖ pH of the final product.
- ❖ colour fastness properties.
- ❖ free formaldehyde content of the final fabric.

Step 9. Process Optimisation

By modifying the process, opportunities to improve efficiency, both in the modified process itself and in downstream processes may develop. In both factories, all recipes and procedures were reviewed to identify where raw material could be minimised and where process steps could be eliminated or reduced.

Process Optimisation Benefits: Elimination of Sodium Hypochlorite (Giza Spinning and Weaving)
60% savings in water usage and wastewater treatment.
14% savings in steam consumption.
73% savings in processing time.
Elimination of sodium hypochlorite (hazardous chemical).
Improved working conditions - no chlorine gas generated.

Step 10. Verification and Operating Procedural Changes

Once all substitutions have been made, ongoing testing is required to ensure that the fabric complies with eco-label requirements.

Step 11. Establish Quality Assurance System

This is usually presented in the form of a Quality Assurance Manual, produced and maintained by the Quality Manager.

Suggested outline of Quality Assurance Manual contents:

- ❖ Dyes and pigments in use along with their C.I. number
- ❖ Chemicals in use.
- ❖ Material Safety Data Sheet (MSDS) for all items.
- ❖ Processing sequence used.
- ❖ Process control check points.
- ❖ Quality parameters of final product.
- ❖ Test methods for each of the items.
- ❖ Frequency at which each test needs to be conducted.
- ❖ Eco-Label requirements.
- ❖ Mode of verification, in case of correction, if any.

Step 12. Submit Application

The following items need to be submitted to the eco-labelling institute:

1. **Application Form.** A detailed description of the goods to be tested must be given, such as the composition of the textiles, dyes, auxiliary agents etc. If possible, material safety data sheets of the process chemicals used should be submitted.
2. **Declaration of Conformity.** This confirms that the factory has a Quality Assurance System in place which guarantees that the fabric is always in compliance with eco-label requirements.
3. **Samples - send to Eco-labelling Institution.** The goods (including the fabrics and any accessories, such as buttons and zippers) are sent to the eco-labelling institution for analysis.

Step 13. Award of Eco-label Certification

Copies of the certificates awarded to Misr Spinning and Weaving and to Giza Spinning and Weaving follow:



Step 14. Annual Renewal

Eco-label certificates are valid for a period of 1 year and must be renewed annually.

HOW LONG WILL IT TAKE?

The length of time that this will take will vary depending on:

- ❖ How many chemicals are used and how many are hazardous.
- ❖ How quickly suitable alternatives can be identified and obtained.
- ❖ How much work is required for successful substitution.
- ❖ How well developed the existing quality system is.
- ❖ How much factory staff time is available to complete the work.

The time required to achieve an eco-label will also decrease as staff become familiar with what is required.

In **Giza factory**, a relatively uncomplicated line was selected (dyed T-shirts) where only 2 hazardous chemicals were identified. Consequently, the application was submitted to OkoTex in 8 weeks. Giza factory are now considering eco-labels for other products, including knitted and woven shirts, trousers, shorts and pyjamas.

In **Misr Mahalla**, a much more complex line was selected, producing pyjama suits, shirts and trousers, where 12 hazardous chemicals were identified. Consequently, more work had to be carried out and the application was submitted after 24 weeks.

ADDITIONAL INFORMATION:

More information on this project and the SEAM Project are available from:

- ❖ **Misr for Spinning and Weaving Company**
Mahalla El-Kobra, Egypt
Tel. (Office): (02) 225 592
Fax. (Factory): (040) 227 833 (Office): (02) 355 7079
- ❖ **Giza for Spinning, Weaving, Dyeing & Garments Company**
Head Office: 162 Gohar El-Kaid Street, Darassa, Cairo, Egypt
Tel. (Factory): (20) 18 401 354/5/6
Fax. (Factory): (20) 18 401 353 (Office): (20) 2 284 0733
- ❖ **Egyptian Environmental Affairs Agency (EEAA),
Technical Co-operation Office for the Environment (TCOE)**
30 Misr Helwan Agricultural Road
5th floor, Maadi, Cairo, Egypt
Tel.: (20) 2 525 6452 Fax: (20) 2 525 6457
email: EEAA2@idsc.gov.eg
- ❖ **SEAM/Entec UK Ltd.**
30 Misr Helwan Agricultural Road
4th floor, Maadi, Cairo, Egypt
Tel.: (20) 2 525 6452 Fax: (20) 2 524 6162
email: entecegy@eis.com.eg

Eco-Labeling Organisation:

- ❖ **Zertifizierungsstelle OekoTex**
Frankfurter Str. 10-14
Postfach 5340,
D-65760 Eschborn, Germany.
Tel.: +49 61 96 966 230. Fax.: +49 61 96 966 226.

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