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Enhancement of the Business Environment in the Southern Mediterranean

National Seminar for Egypt

Eco-efficiency, eco-innovation and environmental management standards and certifications

Jérémie Fosse

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TABLE OF CONTENTS

1. INTRODUCTION	4
2. EUROPEAN ECO-EFFICIENCY AND ECO-INNOVATION POLICIES	5
2.1. ECO-EFFICIENCY FLAGSHIP INITIATIVE	6
2.2. GREEN ACTION PLAN FOR SMES (GAP).....	6
2.3. ECO-INNOVATION ACTION PLAN (ECOAP)	7
3. INTERNATIONAL ECO-INNOVATION STRATEGIES	8
3.1. OECD ECO-INNOVATION TOOLKIT	8
3.2. UNIDO GREENING INDUSTRIES POLICIES.....	9
3.3. IMPROVE ECO-EFFICIENCY IN THE MEDITERRANEAN (MED-TEST)	9
4. ENVIRONMENTAL MANAGEMENT STANDARDS AND CERTIFICATION	13
4.1. CONTINUOUS IMPROVEMENT CYCLE	14
4.2. ISO 14001	14
4.3. EMAS	16
4.4. EMAS EASY.....	17
4.5. OTHER RELEVANT CERTIFICATIONS AND STANDARDS	18
4.6. ECOLABELS	18
5. CONCLUSION	21
BIBLIOGRAPHY.....	22

1. Introduction

1.1. ENVIRONMENT, INDUSTRY AND ECONOMY

Natural resources, from raw materials to food, water, air and ecosystems, are fundamental to the functioning of the economy and quality of life. Global strains on them, however, are increasing. In particular, manufacturing industries account for a significant part of the world's consumption of resources and generation of waste. Manufacturing industries nevertheless have the potential to become a driving force for the creation of a sustainable society. They can design and implement integrated sustainable practices and develop products and services that contribute to better environmental performance. This requires a shift in the perception and understanding of industrial production and the adoption of a more holistic approach to conducting business.

1.2. ECO-EFFICIENCY AND RESOURCE-EFFICIENCY

Eco-efficiency or resource-efficiency is based on the principles of the use of less natural resources and energy for the same amount of production and the production of less waste. Eco-efficiency does not just address environmental concerns; instead it also addresses preservation of natural resources, industrial efficiency and economic development. In short, eco-efficiency provides both environmental and economic benefits through production efficiency. In the eco-efficiency approach, once waste has been generated instead of using disposal and treatment which are set forth in the end-of-the-pipe method a more integrative and pro-active approach involving a broad range of prescribed management involving environmental impact product design, buying preferences and production processes.¹

1.3. ECO-INNOVATION STRATEGIES

Eco-innovation provides a comprehensive solution to improve economic competitiveness and sustainability of a company. Operationally, It works through a new business strategy that incorporates sustainability throughout all business operations, based on life cycle thinking and involves partners across the value chain. By implementing a set of coordinated modifications to products (goods / services), processes, market approaches and organizational structures, eco-innovation enables the creation of novel solutions leading to enhanced sustainability performance and competitiveness. The growing market, reputational and regulatory pressures in response to rising resource scarcity and environmental degradation reinforce therefore the business case for eco-innovation.²

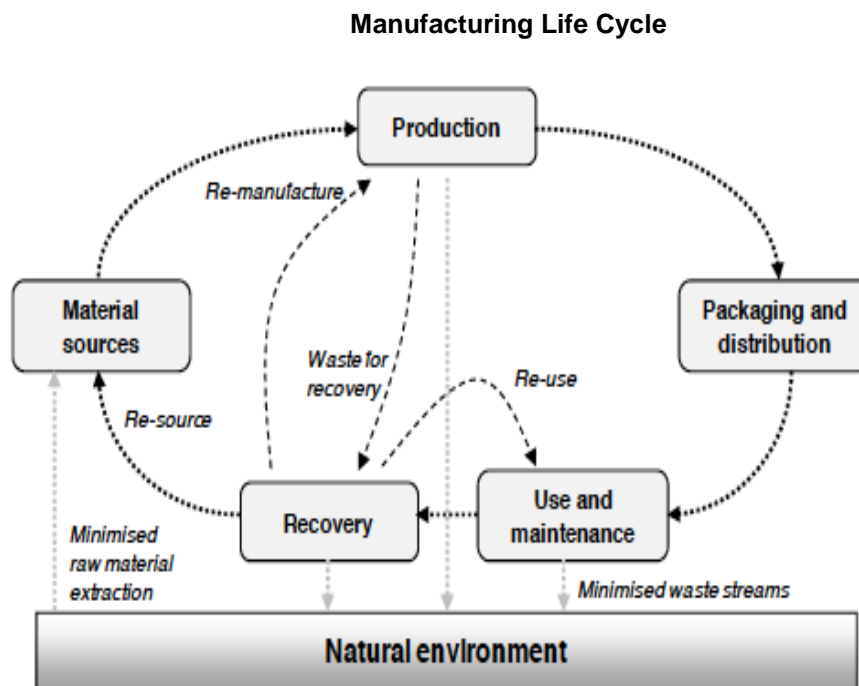
1.4. LIFE CYCLE APPROACH

The environmental impact of industrial production has historically been dealt with by dispersing pollution in less harmful or less apparent ways. Driven in part by stricter environmental regulations, industry has used various control and treatment measures to reduce the amount of emissions and effluents. More recently, its efforts to improve environmental performance have moved towards thinking in terms of lifecycles and integrated environmental strategies and management systems, and companies have also begun to accept larger environmental responsibilities throughout their value chains. The adoption of more integrated and systematic methods to improve sustainability performance has laid the foundation for new business models which can potentially lead to significant environmental benefits. Efforts to create closed-loop, circular production systems have particularly focused on revitalising disposed products into new

¹ <http://www.ecoefficiency-tr.org/?cat=4>

² <http://www.unep.org/resourceefficiency/Business/Eco-Innovation/tabid/78761/Default.aspx>

resources for production, for example by establishing eco-industrial parks where economic and environmental synergies between traditionally unrelated industrial producers can be harnessed³.



Source: Sustainable Manufacturing and eco-innovation (OECD)

2. European eco-efficiency and eco-innovation policies

In Europe as in most of the industrialized countries, manufacturing costs are heavily related to raw materials (40%) and natural resources (energy/water) consumptions. Therefore to maintain the competitiveness of its industry while reducing its environmental footprint, the European Union has developed ambitious strategies to boost resource efficiency (so called "eco-efficiency") and environmental innovation ("eco-innovation"), with a special focus on SMEs that represent 99% of businesses and 66% of jobs. The potential saving has been estimated at €630 billion per year - equivalent to increase GDP by up to 3.9%⁴. To support this smart, sustainable and inclusive growth (as by Lisboa agenda), several flagships initiatives have been launched such as resource efficiency platform, multi-stakeholders alliances (so called European Innovation Partnerships), R&D funding schemes (Horizon 2020), and waste and energy policies (climate and circular economy packages). Many of those initiatives could be used, adapted or implemented in Egypt at a national or regional scale.

³ Sustainable Manufacturing and Eco-Innovation, OECD
<http://www.oecd.org/innovation/inno/43423689.pdf>

⁴ Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies". Europe INNOVA (2012) & Ellen MacArthur Foundation (2012) Towards the Circular Economy: Economic and business rationale for an accelerated transition.

2.1. ECO-EFFICIENCY FLAGSHIP INITIATIVE

The *eco-efficiency flagship initiative*⁵ is the seventh and last of the Europe 2020 flagship initiatives which aim at building smart, sustainable and inclusive growth for Europe (Lisboa agenda). It establishes resource efficiency as the guiding principle for EU policies on energy, transport, climate change, industry, commodities, agriculture, fisheries, biodiversity and regional development. By using synergies across these policy-areas, the strategy is instrumental in reaching a variety of EU objectives, from reducing European greenhouse gas emissions by 80 to 95% by 2050 to reforming the agricultural and fisheries sectors, from reducing food insecurity in developing countries to making the Union more resilient to future rises in global energy and commodity prices.

The strategy lists a number of specific initiatives, e.g.:

- A low-carbon economy roadmap 2050;
- A 2020 energy efficiency plan;
- An energy roadmap 2050
- A roadmap for a resource-efficient Europe;
- Reforms of the Common Agricultural Policy, the Common Fisheries Policy, Cohesion Policy, energy infrastructure and trans-European transport networks;
- A new EU biodiversity strategy for 2020;
- Measures regarding commodity markets and on raw materials.

2.2. GREEN ACTION PLAN FOR SMEs (GAP)

*Green Action Plan (GAP) for SMEs: Enabling SMEs to turn environmental challenges into business opportunities*⁶ launched by the European Commission in 2014 emphasises the role of green growth in ensuring a lasting economic recovery within the longer term vision of a resource-efficient and low-carbon European economy. More specifically, the *Green Action Plan* sets out a series of objectives and lists actions to be implemented at European level within the framework of the Multiannual Financial Framework 2014-2020:

- Provide European SMEs with **practical information, advice and support**:

- Launch of an European Resource Efficiency Excellence Centre
- Eurobarometer on 'SMEs, resource efficiency and green markets'
- European Resource Efficiency Campaign by the Enterprise Europe Network (EEN)
- Revision of the classification methodology of green technologies in the EEN database;

- **Facilitate the access to finance** for resource-related improvements and energy efficiency in SMEs:

- Resource efficiency financing by European Investment Bank
- Private Finance for Energy Efficiency instruments (PF4EE) for SMEs
- Creation of a network of public and private financiers and investors
- Environmental competitiveness supported by European Regional Development Fund

- **Promote all forms of eco-innovation**, including non-technological eco-innovation, through Horizon 2020 Research and Development financing scheme:

- SME Instrument to explore feasibility and commercial potential of highly eco-innovative ideas;
- Societal challenge 'Climate Action, Environment, resource Efficiency and Raw Materials' to support resource efficiency

⁵ <http://ec.europa.eu/resource-efficient-europe/>

⁶ http://ec.europa.eu/enterprise/policies/sme/public-consultation-green-action-plan/index_en.htm

- Facilitate business **partnering, skills and knowledge** for green entrepreneurship:
 - Green Employment Initiative to propose a roadmap for green skills development
 - Environmental Technology Verification (ETV) to verify performance of green technologies;
 - LIFE programme to promote new business models;
 - European Enterprise Promotion Awards to support green business.
 - Cluster Excellence Programme to integrate resource efficiency as a specific topic in trainings.

- **Address systemic barriers** to cross-sectorial and cross-national value chain collaboration:
 - Analysis of the systemic barriers impeding the deployment of circular business models by SMEs;

- **Facilitate cross-sectorial collaboration** in view of promoting the circular economy:
 - Horizon 2020 action on 'Cluster facilitated projects for new industrial value chains'
 - Geographic mapping of eco-industries by European Cluster Observatory;
 - Establishment of an expert group to focus on a systemic approach to eco-innovation.

- Promote a **greener European internal market**:
 - Encourage European Standardisation Organisations to integrate circular economy objectives.

- Facilitate access to international markets for green entrepreneurs:
 - Establishment of European Strategic Cluster Partnerships for internationalisation;
 - International matchmaking missions in the fields of resource efficiency and eco-innovation;
 - Financial instruments under COSME to support SMEs to internationalise.

- Facilitate resource efficiency technology in partner countries through cooperation with European SMEs;
 - Provision of technical assistance for the establishment of Cooperation Partnerships between EU businesses and their counterparts in middle income countries
 - Building of new entrepreneurial activities based on green technologies in South Mediterranean countries through cooperation with European SMEs.

- Ensure **monitoring and updating of the actions** :
 - Actions to be regularly monitored, evaluated and published in dialogue with SME stakeholders
 - SME Performance Review to complement the Green Action Plan monitoring.

- Coordination, cooperation and best practices exchange at European, national and regional level:
 - The Network of SME Envoys to discuss implementation of best practices, results and obstacles;

2.3. ECO-INNOVATION ACTION PLAN (EcoAP)

The *Eco-innovation Action Plan (EcoAP)*⁷ launched by European Commission in 2011 comprises seven actions to help build stronger and more stable market demand for eco-innovation. These actions focus particularly on market supply and demand, on research and industry, and on policy and financial instruments. They bring together stakeholders, the private and public sectors, and the European Commission.

- **Environmental policy and regulation**

⁷ http://ec.europa.eu/environment/ecoap/index_en.htm

European environmental policy has moved European industries towards greater sustainability. The goal is for eco-innovation to be at the heart of the revision of EU legislation – from air and water to waste and infrastructure. The Commission performs a selective screening of European regulations in these areas, leading to specific and evidence-based recommendations for action.

- **Demonstration projects**

However promising they may look on paper, many eco-innovation technologies still fail to make the leap from lab to market. Starting in 2012, the Commission funds eco-innovation demonstration projects. Participation is open to all industrial sectors and themes – from demolition waste and soil remediation to pesticides and climate change adaptation. This approach is continued under the Horizon 2020 programme, the EU research and innovation framework programme from 2014 to 2020.

- **Standards**

Eco-innovation benefits from ambitious standards and performance targets. Working with Member States and international standardisation bodies, the Commission identifies and prioritises areas where standards and targets could have the biggest impacts. Areas likely to be included are waste treatment, drinking water, sustainable construction materials, and building insulation.

- **Funding and SME support**

Public sector finance is crucial to accelerate eco-innovation in the private sector, especially in SMEs (small and medium-sized enterprises). To bring new investors on-board, the Commission aims to create a European network of eco-innovation financiers. It plan also launch new funding instruments, in order to offer targeted debt and equity facilities in support of eco-innovative businesses, and expand other services to SMEs, so they can find and exploit eco-innovation opportunities in the EU and beyond.

- **International cooperation**

Emerging economies such as China, India and Brazil offer new market and partnership opportunities for European eco-investors. To capitalise on these opportunities, the Commission promotes the establishment of European business and technology centres in support of European businesses seeking to expand their market.

- **Skills and knowledge**

EU Skills Panorama is a Commission initiative mapping out current and future skills needs in Europe, with a focus on green jobs. The aim is to drive forward the transition to a green economy by equipping tomorrow's labour force with relevant skills and knowledge. The Commission will also facilitate information exchange between Member States on training schemes targeted at eco-innovation.

- **European Innovation Partnerships**

European Innovation Partnerships are initiatives that aim to bring together public and private actors in key sectors where eco-innovation could contribute to create greater resource efficiency. Partnerships are being set up for raw materials, sustainable agriculture, and water.

3. International eco-innovation strategies

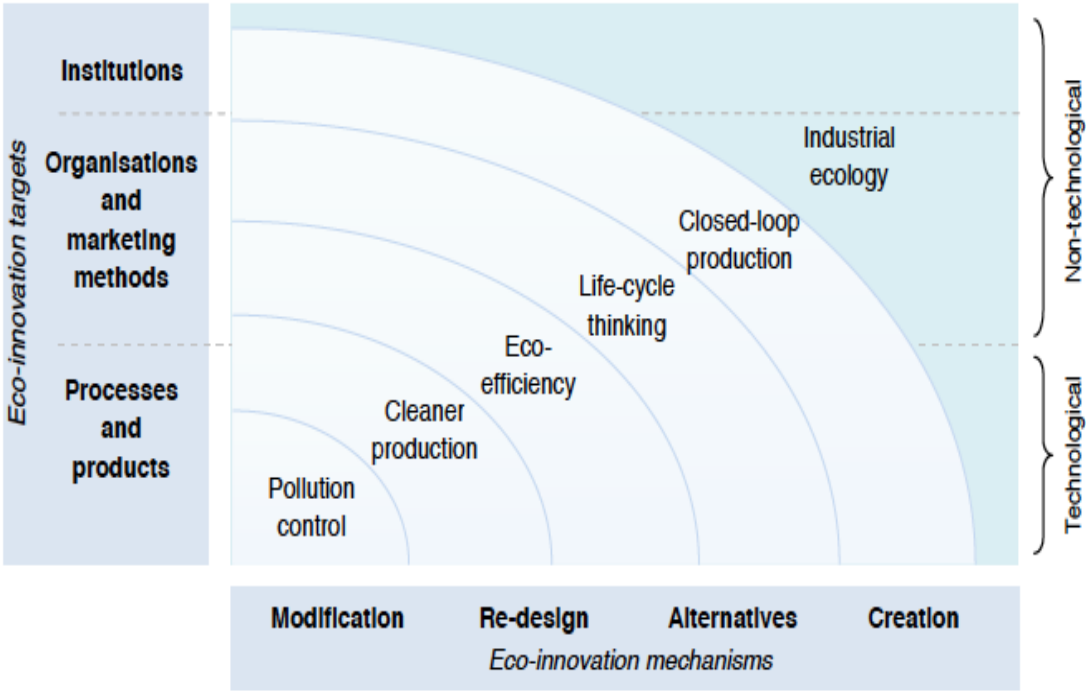
3.1. OECD ECO-INNOVATION TOOLKIT

Both industry and government need to better understand and determine how to move towards a sustainable future. Innovation plays a key role in moving manufacturing industries towards sustainable production. Evolving sustainable manufacturing initiatives – from traditional pollution control through

cleaner production initiatives, to a lifecycle view, to the establishment of closed-loop production – can be viewed as facilitated by eco-innovation.

In this context, the **OECD Project on Green Growth and Eco-innovation**⁸ was launched in 2008 with an initial aim to better understand how innovation can result in new technological and systemic solutions to global challenges and to provide industry with a means to improve their contributions to sustainable development.

The figure below provides a simple illustration of the general conceptual relations between sustainable manufacturing and eco-innovation. The steps in sustainable manufacturing are depicted in terms of their primary association with respect to eco-innovation, i.e. with innovation targets on the left and mechanisms at the bottom. The waves spreading towards the upper right corner indicate the path dependencies of different sustainable manufacturing concepts.



Source: Sustainable Manufacturing and eco-innovation (OECD)

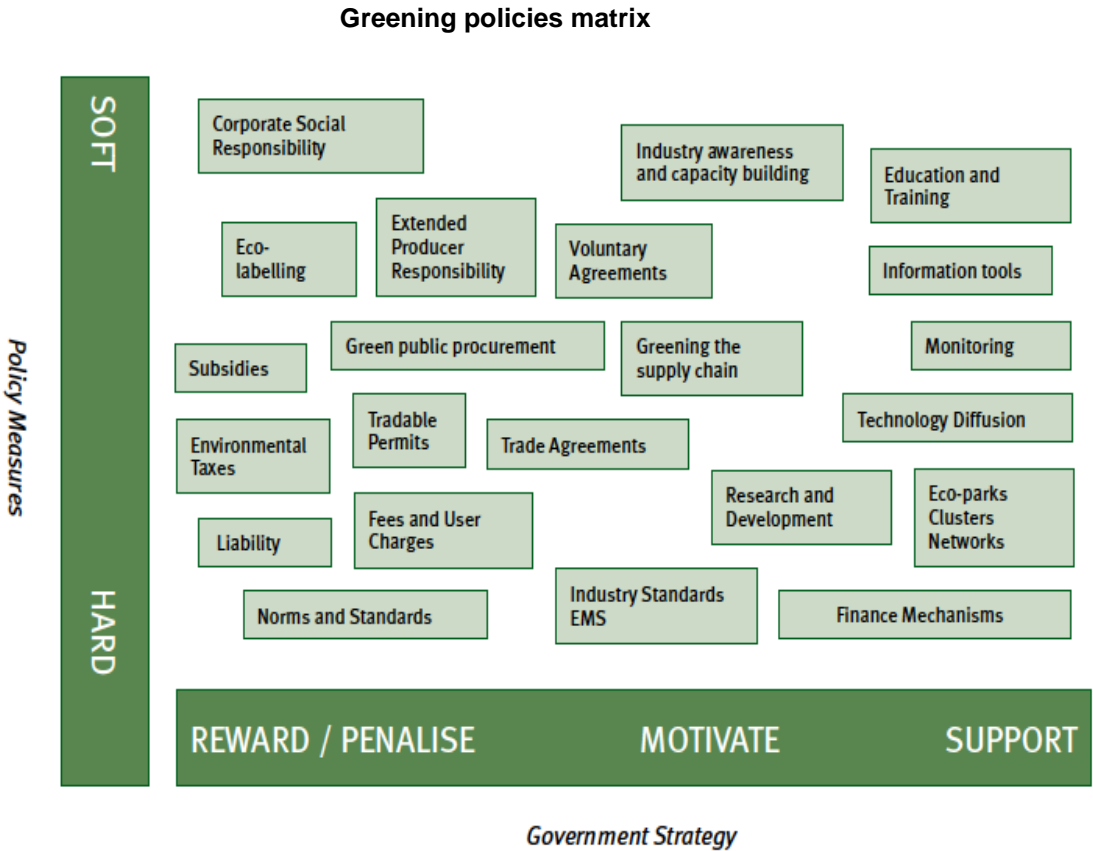
While more integrated sustainable manufacturing initiatives such as closed-loop production can potentially yield higher environmental improvements in the medium to long term, they can only be realised through a combination of a wider range of innovation targets and mechanisms and therefore cover a larger area of this figure. For instance, an eco-industrial park cannot be successfully established simply by locating manufacturing plants in the same space in the absence of technologies or procedures for exchanging resources. In fact, process modification, product design, alternative business models and the creation of new procedures and organisational arrangements need to go hand in hand to leverage the economic and environmental benefits of such initiatives. This implies that as sustainable manufacturing initiatives advance, the nature of the eco-innovation process becomes increasingly complex and more difficult to co-ordinate.

⁸ <http://www.oecd.org/sti/inno/greengrowthandeco-innovation.htm>

3.2. UNIDO GREENING INDUSTRIES POLICIES

From a public policy perspective, the greening of industries is a cross-cutting exercise, which traverses a range of policy streams. These include industrial policy (e.g. technology development), environmental policy (e.g. resource conservation measures), and regional development policy (e.g. provision of local infrastructures). Within this policy context, UNIDO is exploring the notion of “greening” industrial policy, in which institutional processes promote the comparative advantage for resource efficient and low polluting sectors of the economy. For the purposes, “green industry policies” refer to the broad range of government interventions which directly or indirectly support the greening of industries.

As illustrated in the figure below, the policies outlined contain a mixture of hard and soft measures aimed at rewarding/penalising, motivating, and supporting SMEs. This illustrates the point that a broad policy mix which combines a “carrot and stick” approach, and broad-based awareness raising is necessary to achieve the overall goal of greening industries.



Source: Policies for supporting Green Industry⁹ (ONUDI)

3.3. IMPROVE ECO-EFFICIENCY IN THE MEDITERRANEAN (MED-TEST)

The MED-TEST project has been designed to address pollution from land-based activities of priority industrial pollution hot spots identified in the [Strategic Action Plan](#) of the Mediterranean Sea. The project primarily addresses industrial hot spots of the Mediterranean basin in each of the participating countries, which are associated with persistent toxic substances (PTS), and serve to demonstrate the introduction of

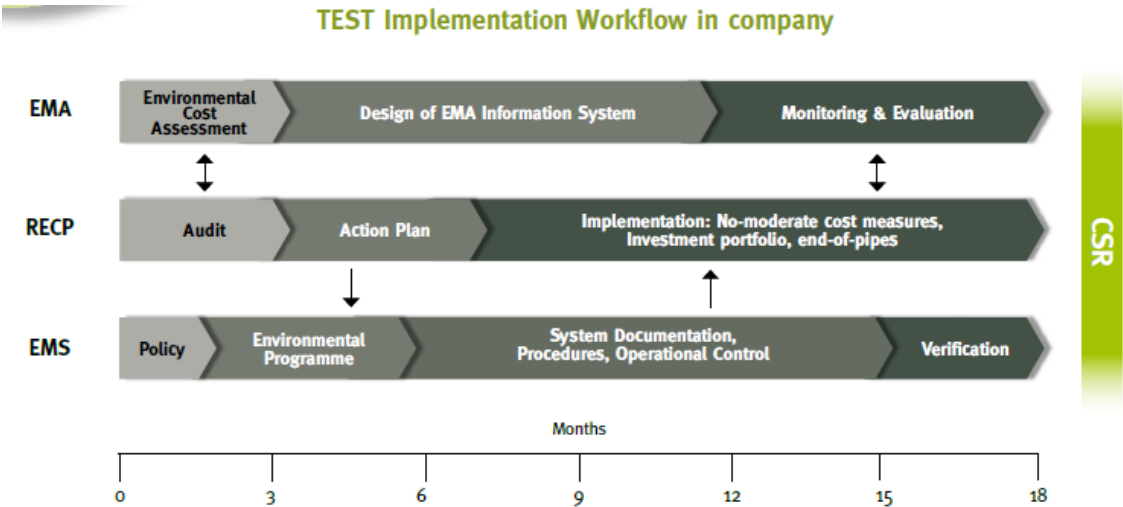
⁹ http://www.unido.org/fileadmin/user_media/Services/Green_Industry/web_policies_green_industry.pdf

an [integrated approach](#), including the adoption of best available techniques (BAT), cleaner production technology, appropriate environmental management and accounting practices. The project aims to build national capacity to apply the UNIDO-TEST integrated approach in order to facilitate the transfer of environmentally sound technology (EST) that improves the environmental performance and the productivity of priority industrial installations in the southern Mediterranean region.

The effectiveness of the TEST integrated approach has been demonstrated at a number of pilot enterprises within the Mediterranean priority hotspots in Morocco, Egypt and Tunisia. The enhanced institutional capacity will then be made available through the dissemination of project results to assist other enterprises in the pilot countries, as well as in other southern Mediterranean countries.

TEST combines the essential elements of tools like Resource Efficiency & Cleaner Production (RECP), Environmental Management Systems (EMS) and Environmental Management Accounting (EMA) as part of Corporate Social Responsibility (CSR), applied on the basis of a comprehensive diagnosis of enterprise needs (Initial Review). As a result of the customized integration and implementation of these tools and their elements, the key output is the adoption of best practices, new skills and management culture, enabling the company to carry on the improvement journey towards sustainable entrepreneurship. TEST is building on management of change and addresses not only the operational level of a business, but also the managerial and strategic levels, along the following lines:

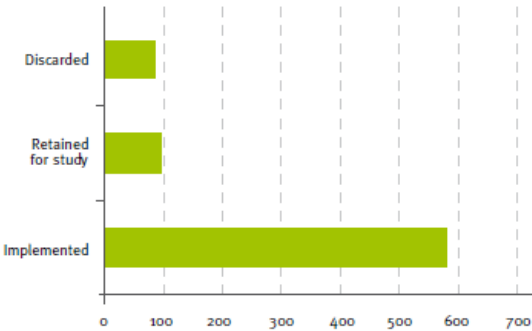
- At the operational level, TEST gives priority to resource efficiency & pollution prevention techniques (RECP) in production processes, followed by transfer of cleaner technologies and pollution control solutions (end-of-pipe). Existing processes are optimized by implementing no-cost & low-cost measures with a short pay-back period (PBP), before a portfolio of high investment needing measures is put in place.
- At the level of management systems, EMS and EMA tools are used to establish the necessary information management system on relevant material, energy and related financial flows in order to link together the strategic and operational level of the business. The EMA reveals to top management the real costs of production, including hidden environmental costs like non-product output costs. The EMS provides procedures and resources to ensure that the outputs of the RECP audit are implemented, sustained and further developed.
- At the strategic level, TEST places environmental management within the broader strategy of environmental and corporate social responsibilities (CSR) by leading companies towards the adoption of sustainable enterprise strategies.



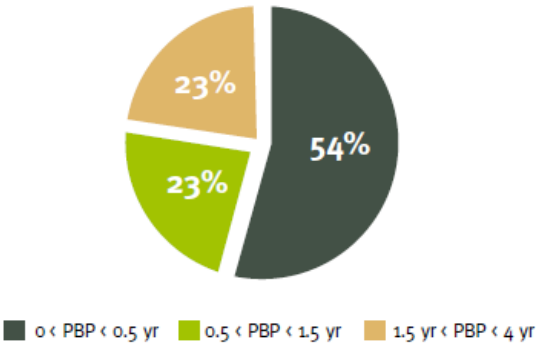
The effectiveness of the TEST approach has been largely demonstrated in the 43 companies participating in the Mediterranean initiative through the implementation of a large number of resource efficiency measures and cleaner technology investments. The benefits of TEST at the management and strategic levels have resulted in the adoption of new vision and policies by top management, as well as in the implementation of management systems (e.g. ISO 14001) that integrate the environmental dimension.

A total of 765 measures have been identified, of which 76% have been implemented, 14% retained for further technical and economical investigations and only 10% discarded. Approximately 54% of the total identified MED TEST demonstration projects: highlights measures have a return on investment of less than 0.5 years, the rest is equally split among measures with PBP between 0.5 and 1.5 years and between 1.5 and 4 years. In the three countries, the project has identified total annual savings of approximately 17 M USD in energy, water, raw materials and increased productivity corresponding to a portfolio of around 20 millions USD of private sector investments in improved processes and cleaner technology. These investments do not include end-of-pipe solutions, which in some companies have also been launched in order to achieve full environmental compliance with national laws. The total annual water and energy savings are respectively 9.7 millions m3 and 263 GWh.

Number of measures implemented, retained for study, discarded at the demonstration sites



Return on investment of identified measures at the demonstration sites



MEDTEST in Egypt¹⁰

Over the past decade, Egypt has transformed into a liberal private-led economy, implementing a comprehensive program of structural reforms and privatizations to attract foreign investment ensure economic growth and integrate the environmental dimension into national planning. The Egyptian Environmental Affair Agency (EEAA) is actively leading the enforcement of the environmental protection law, which includes command and control measures, appropriate standards and the application of the polluter pays principle with a stringent penalties and fines regime.

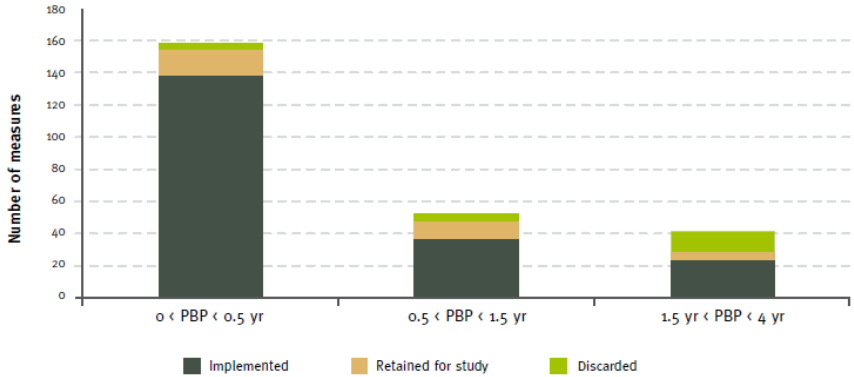
The Egyptian Government, with the essential support of the international donors community, has implemented several programmes to minimize the adverse impact of industrial pollution. The most important schemes are: EPAP II & KfW for investments in cleaner technology and end-of-pipes, IMC for technical assistance and Italian credit lines for technology transfer. Industry represents about 38% of the GDP and the most important sectors are textile, food and chemicals. Approximately 40% of the Egyptian industrial capacity is Country framework conditions for implementing MED TEST located in the Alexandria

10

http://www.unido.org/fileadmin/user_media/Services/Environmental_Management/Water_Management/C/Carolina/MEDTEST_%20Brochure_%20English.PDF

region, which is affected by intense pollution into the Mediterranean Sea. The wide industrial base of Alexandria mostly comprises SMEs but also many large industries predominantly within the chemical and petrochemical sectors. MED TEST has targeted 16 industries in Egypt, both SMEs and large industries, across several industrial sectors, contributing to the industrial pollution hot spots of Abou Qir, El Mex Bay and Maryut Lake, within the Alexandria Region.

Results of the demonstration projects in Egypt Following an extensive marketing campaign entailing workshops and one-to-one company site visits, a pool of 16 motivated companies were selected. At project startup, companies were seeking advice on technological solutions and support in accessing financing to address existing problems and environmental compliance, as well as training of their staff and workers on resource efficiency. The project opened up a wide range of measures new to the management, as well as opportunities for accessing investment subsidies. Many companies were supported in establishing a proper monitoring system for water & energy consumption, including the installation of metering and internal accounting procedures. A total of 252 measures were identified, out of which 79% have been implemented by the companies, 13% retained for further assessments and 8% discarded. The identified measures have a PBP of less than 0.5 years in about 63% of the cases, between 0.5 and 1.5 years for 20% of them, between 1.5 and 4 years for the remaining 17%. Most of the measures have demonstrated an attractive return on investment, which accounts for the high implementation rate, as illustrated in the chart below.



Distribution of identified measures by pay-back period and implementation rate in Egyptian demonstration companies

4. Environmental management standards and certification

Environmental management system (EMS) refers to the management of an organization's **environmental** programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for **environmental protection**. More formally, EMS is "a system and database which integrates procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm."^[1] The most widely EMS standard is International Organization for Standardization (ISO) 14001. Alternatives include the European EMAS scheme.

4.1. CONTINUOUS IMPROVEMENT CYCLE

An EMS encourages a company to continuously improve its environmental performance. The system follows a repeating cycle (see figure). The company first commits to an environmental policy, then uses its policy as a basis for establishing a plan, which sets objectives and targets for improving environmental performance. The next step is implementation. After that, the company evaluates its environmental performance to see whether the objectives and targets are being met. If targets are not being met, corrective action is taken. The results of this evaluation are then reviewed by top management to see if the EMS is working. Management revisits the environmental policy and sets new targets in a revised plan. The company then implements the revised plan. The cycle repeats, and continuous improvement occurs.¹¹

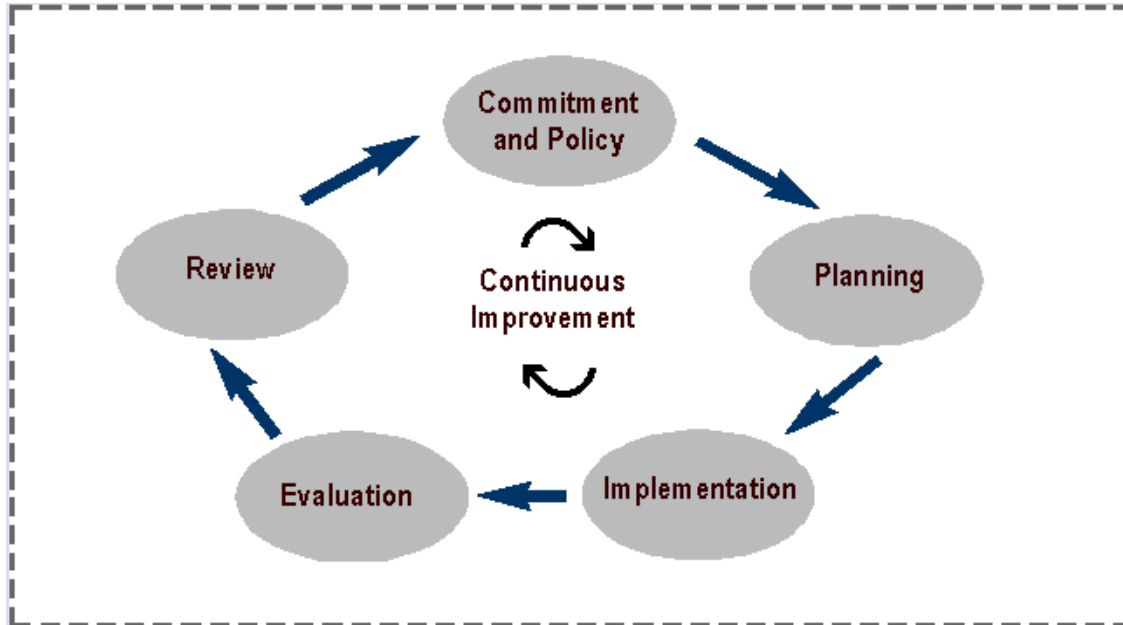


4.2. ISO 14001

The most commonly used framework for an EMS is the one developed by the International Organization for Standardization (ISO) for the ISO 14001 standard. Established in 1996, this framework is the official international standard for an EMS. The five main stages of an EMS, as defined by the ISO 14001 standard, are described below:

¹¹ <http://www.epa.gov/ems/>

Flow chart of continuous improvement cycle



Source: Environmental Protection Agency (EPA)

1. Commitment and Policy: Top management commits to environmental improvement and establishes a company environmental policy. The policy is the foundation of the EMS.

2. Planning: A company first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste that can have negative impacts on people and/or the environment. A company then determines which aspects are significant by choosing criteria considered most important by the company. For example, a company may choose worker health and safety, environmental compliance, and cost as its criteria. Once significant environmental aspects are determined, a company sets objectives and targets. An objective is an overall environmental goal (e.g., minimize use of chemical X). A target is a detailed, quantified requirement that arises from the objectives (e.g., reduce use of chemical X by 25% by September 1998). The final part of the planning stage is devising an action plan for meeting the targets. This includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the targets.

3. Implementation: A company follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.

4. Evaluation: A company monitors its operations to evaluate whether targets are being met. If not, the company takes corrective action.

5. Review: Top management reviews the results of the evaluation to see if the EMS is working. Management determines whether the original environmental policy is consistent with company values. The plan is then revised to optimize the effectiveness of the EMS. The review stage creates a loop of continuous improvement for a company.

4.3. EMAS¹²

The EU Eco-Management and Audit Scheme (EMAS) is a management instrument developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide.

Currently, more than 4,500 organisations and approximately 8,150 sites are EMAS registered worldwide. Among them are many multinational enterprises and smaller companies as well as public authorities.

Key elements

EMAS' distinctive key elements are performance, credibility and transparency:

- **Performance:** EMAS is a voluntary environmental management instrument based on a harmonised scheme throughout the EU. Its objective is to improve the environmental performance of organisations by having them commit to both evaluating and reducing their environmental impact, and continuously improving their environmental performance.
- **Credibility:** The external and independent nature of the EMAS registration process (Competent Bodies, Accreditation/Licensing Bodies and environmental verifiers under the control of the EU Member States) ensures the credibility and reliability of the scheme. This includes both the actions taken by an organisation to continuously improve its environmental performance, and the organisation's disclosure of information to the public through the environmental statement.
- **Transparency:** Providing publicly available information on an organisation's environmental performance is an important aspect of the scheme's objective. It is achieved externally through the environmental statement and within the organisation through the active involvement of employees in the implementation of the scheme. The EMAS logo, which can be displayed on (inter alia) letterheads, adverts for products, activities, and services, is an attractive visual tool which demonstrates an organisation's commitment to improving its environmental performance and indicates the reliability of the information provided.

The main stages

To receive EMAS registration an organisation must comply with the following steps:

- Conduct an **environmental review** considering all environmental aspects of the organisation's activities, products and services, methods to assess these, relevant legal and regulatory framework and existing environmental management practices and procedures.
- Adopt an **environmental policy** containing commitment both to comply with all relevant environmental legislation and to achieve continuous improvements in environmental performance.
- Develop an **environmental programme** that contains information on specific environmental objectives and targets. The environmental programme is a tool to help the organisation in its everyday work when planning and implementing the improvements.

¹² http://ec.europa.eu/environment/emas/index_en.htm

- Based on the results of the review, establish an effective **environmental management system (EMS)** aimed at achieving the organisation's environmental policy and at improving the environmental performance continually. The management system needs to set responsibilities, means to achieve objectives, operational procedures, training needs, monitoring and communication systems.
- Carry out an **environmental audit** assessing in particular the management system in place and conformity with the organisation's policy and programme as well as compliance with relevant environmental regulatory requirements.
- Provide an **environmental statement** of its environmental performance which lays down the results achieved against the environmental objectives and the future steps to be undertaken in order to continuously improve the organisation's environmental performance.
- The environmental review, EMS, audit procedure and the environmental statement must be approved by an accredited environmental verifier. The validated statement needs to be sent to the EMAS Competent Body for registration and made publicly available before an organisation can use the **EMAS logo**.

Benefits

In 2009, the European Commission completed its '**Study on the Costs and Benefits of EMAS to Registered Organisations**'. The study identified the benefits (and costs) of EMAS registration. Convincing evidence was found of various benefits arising from EMAS registration.

The three benefits most commonly identified in the study are:

- Increased efficiency savings;
- Reduced negative incidents; and
- Improved stakeholder relationships.

4.4. EMAS EASY

In order to facilitate the process towards EMAS-registration and to facilitate maintenance of EMAS registration for small and medium sized organisations (SME's), EMAS Easy, a lean and standardized methodology has been developed with small and micro businesses in mind. This methodology, which covers all requirements of the environmental management standards for EMAS and/or ISO 14001, is based on the Eco-mapping concept, where the business is mapped in terms of both location and internal processes to identify its environmental aspects. Using simple and sequential tables and prompts, smaller businesses can develop an Environmental Management System (EMS) and either register for EMAS or achieve certification to ISO 14001. Under the slogan "in 10 days, with 10 people, on 10 pages, in 30 steps", the methodology is set out in a brochure which walks the user through each step on the way to EMAS in an easy way.

Implementing EMAS via the EMAS Easy methodology is one way for SME's to reduce their first year and annual implementation costs. Data originating from the study on the Costs and Benefits of EMAS to Registered Organisations¹, were combined with recent estimates based on data provided by SMEs during evaluations performed at EMAS capacity building seminars for SMEs, and during various EMAS Easy coaching's in different member states. This resulted in the following indicative numbers on cost reductions that are included in this table.

Costs and potential annual efficiency savings in EMAS

Organisation size ²	Potential annual efficiency savings (€)	EMAS First year implementation costs (€)	EMAS Annual costs (€)	EMAS Easy First year implementation costs (€) ³	EMAS Easy Annual costs (€) ⁴
Micro	3,000 – 10,000	22,500	10,000	11,000	2,200
Small	20,000 – 40,000	38,000	22,000	17,000	3,300
Medium	Up to 100,000	40,000	17,000		
Large	Up to 400,000	67,000	39,000		

Although the numbers have an indicative nature they illustrate that the EMAS Easy tool can help small and micro businesses to implement an Environmental Management System (EMS) and become EMAS registered with considerably lower human resources and costs.

It must be noted that in general implementation costs for organisations increase relative to the size of the organisation. As a whole, micro and small organisations face proportionally higher fixed and external costs than medium and large organisations, since medium and large organisations benefit from economies of scale, with a higher proportion of costs borne internally by environmental departments and lower external costs associated with the use of consultants. However, this is true also for very large organisations. Therefore it is advisable to assess the implementation costs in more detail and in an organisation specific context.

Finally it must be noted that the costs and benefits when implementing EMAS, can also be influenced by the technical and financial support and/or subsidies in place in the different EU Member States, national, regional or local authorities and/or EMAS Competent Bodies.

4.5. OTHER RELEVANT CERTIFICATIONS AND STANDARDS

While ISO 14001 and EMAS are the most common used Environmental Management Schemes, other certifications and standard can apply according to the size, sector and impact of the company:

- **OHSAS 18001** is an internationally applied standard for occupational health and safety management system. It helps all kinds of organizations to put in place demonstrably sound occupational health and safety performance.
- **ISO 26000** is an International Standard providing guidelines for Corporate Social Responsibility (CSR). Its goal is to contribute to global sustainable development, by encouraging business and other organizations to practice social responsibility to improve their impacts on their workers, their natural environments and their communities.^[1]
- **ISO 14064** provides governments, businesses, regions and other organisations with a complimentary set of tools for programs to quantify, monitor, report and verify [greenhouse gas](#) emissions. It supports organisations to participate in both regulated and voluntary programs such as [emissions trading](#) schemes and public reporting using a globally recognised standard.
- **ISO 5001** provides a framework for energy saving management mainly for energy intensive companies.

4.6. ECOLABELS

General definition

Eco-labels are voluntary labeling systems for consumer products intended to make it easy to take environmental concerns into account when shopping. Some labels quantify pollution or energy consumption by way of index scores or units of measurement, while others assert compliance with a set of practices or minimum requirements for sustainability or reduction of harm to the environment. Many ecolabels are focused on minimising the negative ecological impacts of primary production or resource extraction in a given sector or commodity through a set of good practices that are captured in a sustainability standard. Through a verification process, usually referred to as "certification", a farm, forest, fishery, or mine can show that it complies with a standard and earn the right to sell its products as certified through the supply chain, often resulting in a consumer-facing ecolabel¹³.



Source: UNEP, *Green Economy and Trade*, 2013

European eco-labels¹⁴

The EU Ecolabel identifies products and services that have a reduced environmental impact throughout their life cycle, from the extraction of raw material through to production, use and disposal. Recognised throughout Europe, the EU Ecolabel is a voluntary label promoting environmental excellence which can be trusted. The criteria have been developed and agreed upon by scientists, NGOs and stakeholders to create a credible and reliable way to make environmentally responsible choices.

The functioning of the EU Ecolabel is set through a Regulation of the European Parliament and of the Council. Its daily management is carried out by the European Commission together with bodies from the Member States and other stakeholders.

¹³ <http://en.wikipedia.org/wiki/Ecolabel>

¹⁴ www.ecolabel.eu



5. Conclusion

The support to greener SMEs is a complex issue that need to be well analysed and assessed by policy makers and stakeholders. Coherent eco-innovation strategies, right choice of eco-efficiency measures and adapted Environmental Management Systems will help to green the value chain of SMEs, reducing their dependency to raw materials, decreasing their environmental impact and increasing their overall economic competitiveness.

In this context, the Green Economy initiative launched by UNEP at Rio+20 and supported by major international actors such as OECD, European Commission and international donors (GIZ, EIB, World Bank...) offers a new level field to catalyse the green transition. Multilateral agreements such as Kyoto protocol, to be renewed in Paris late 2015, and the Barcelona convention on the reduction of environmental pollution in the Mediterranean region, are showing the way forward a more sustainable economy.

A broad range of public policies and strategies, including tax reform, education and training campaign, incentive and financing schemes, are already available to promote greener market and businesses. Mediterranean countries should now take this opportunity to accelerate their socio-economic development, create inclusive jobs and protect their natural environment.

Bibliography

- Green Economy and Trade: Trends, Challenges and Opportunities, UNEP, 2013;
- Sustainable Industry Toolkit, OECD, 2011;
- Eco-innovate! A guide to eco-innovation for SMEs and business coaches, EIO, 2013;
- A systemic perspective on eco-innovation. Thematic Report, European Commission, 2013;
- MEDTEST: Transfer of Environmental Sound Technology in the South Mediterranean Region, UNIDO, 2012 ;
- Roadmap to a Resource Efficient Europe, European Commission, 2011.

Useful links

On European eco-efficiency and eco-innovation initiatives:

- European eco-innovation observatory: www.eco-innovation.eu
- Connecting SMEs to green Economy: www.greeneconet.eu
- Eco-innovation Action Plan (EcoAP): http://ec.europa.eu/environment/ecoap/index_en.htm

On European Environmental Management Systems schemes

- Eco-Management and Audit Scheme (EMAS):
http://ec.europa.eu/environment/emas/index_en.htm
- Environmental Compliance Assistance Programme for SMEs (ECAP):
http://ec.europa.eu/environment/sme/programme/programme_en.htm
- European eco-labels: http://ec.europa.eu/environment/ecolabel/index_en.htm

On Mediterranean environmental initiatives:

- Horizon 2020 to depollute the Mediterranean: www.h2020.net
- Switch-Med Sustainable Consumption and Production: www.switchmed.eu
- Med-Test to green Mediterranean industries: www.unido.org/medtest