

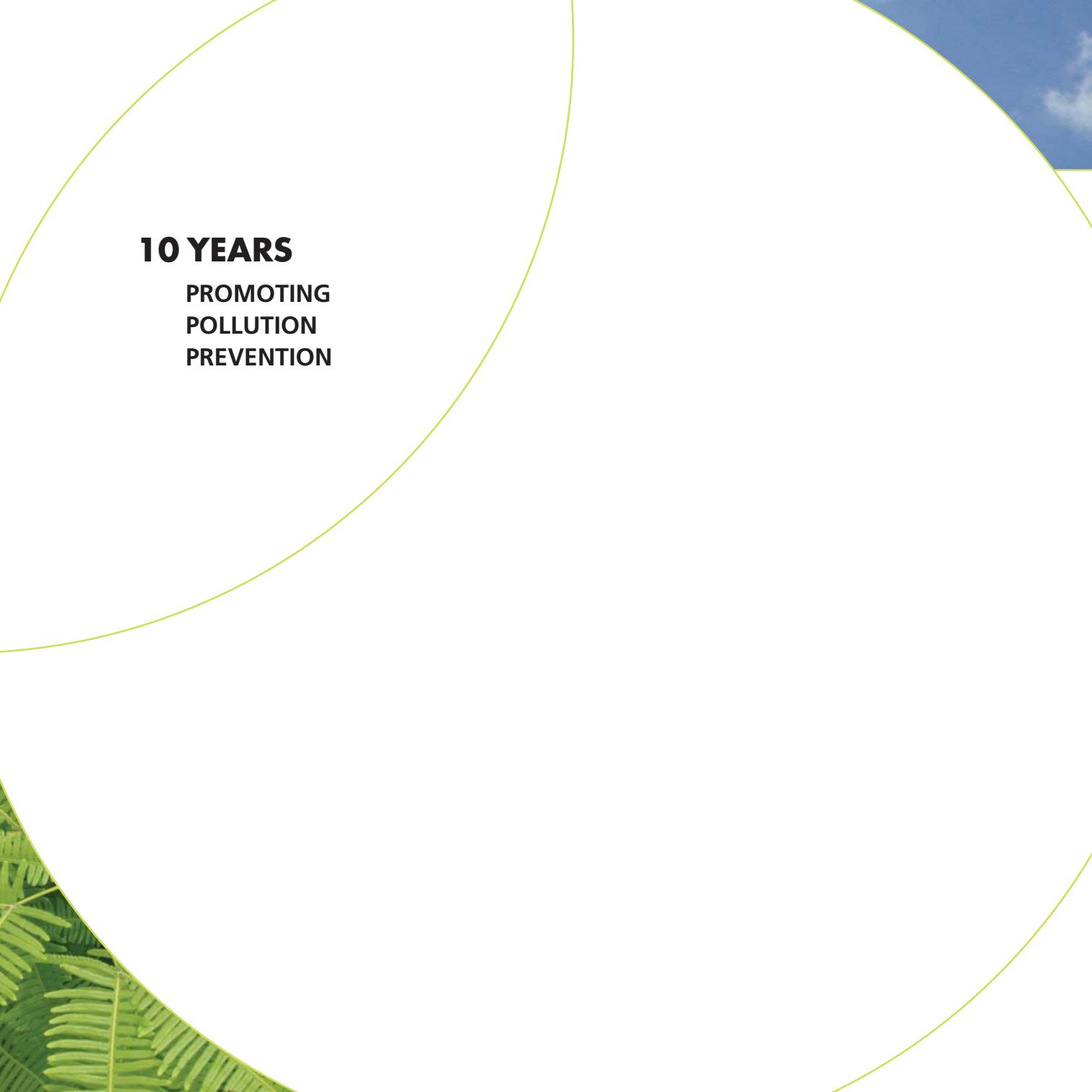


**10 YEARS**

**PROMOTING  
POLLUTION  
PREVENTION**



**Regional Activity Centre  
for Cleaner Production**



**10 YEARS**

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POLLUTION  
PREVENTION**



# Cleaner Production and Ecoefficiency

## Mechanisms for promoting the sustainable development of the economic and industrial sector in the Mediterranean

Traditionally, companies have mainly resorted to end-of-pipe treatments as a measure for reducing the environmental impact generated by their activity.

However, these solutions are insufficient and require investment with no other benefit than simply fulfilment of environmental regulations.

To **compete in an international market** with increasingly more demanding environmental and quality requirements, the Mediterranean economic sector must integrate criteria of ecoefficiency into its decision-making processes that affect the production process as well as its products and services.

Adopting alternatives for pollution prevention that create **business efficiency opportunities** with regard to the use of resources and maintaining control over the environmental impact of the product, from its design until the end of its useful life, will contribute to the success of this effort, improving not only the efficiency but also the **image of the enterprise** against that of its competitors and among the consumers themselves.

**The existence of a body** that promotes dissemination and exchange, both of knowledge as well as of the initiatives carried out in the various economic sectors of the Mediterranean countries **is key for promoting** the adaptation to the new requirements of competitiveness which include criteria of ecoefficiency **in enterprises of the region**.

The **Regional Activity Centre for Cleaner Production (RAC/CP)** with its headquarters in Barcelona acts, within the Mediterranean Action Plan (MAP), as an operative unit to promote pollution prevention:

- disseminating ecoefficient options and techniques
- offering technical support and assessment to regional states and institutions
- based on cleaner production as one of the basic tools

**Cleaner production and ecoefficiency** both consist of management strategies that integrate company excellence and environmental excellence, linking economic growth with environmental improvement, through maximising the productivity of the resources and minimising polluting emissions at source. The introduction of alternatives for reducing and continually controlling environmental impacts created in productive activities, generates positive effects in the socio-labour area of the companies, so that this leads to a reduction in the health and safety risks of workers, associated to the environmental impacts (generation of hazardous waste, pollutant leaks, handling hazardous substances, etc.)

**The Regional Activity Centre for Cleaner Production (RAC/CP)** takes on the function of a MAP unit for the dissemination, promotion, assessment, training and exchange of experiences and knowledge between Mediterranean countries in matters of cleaner production and ecoefficiency, such as tools through which the economic and industrial sector of the region advances towards sustainable development.

### **Mediterranean Action Plan**

A work setting backed by the United Nations Environment Programme (UNEP), in which the countries of the Mediterranean Basin agree to work together in the fight against the environmental degradation of the region. The legal structure of the MAP was formalised with the setting up and ratification by the countries of the Barcelona Convention for the protection of the marine environment and the coastal region of the Mediterranean.

This task is carried out through the following lines of action:

1. Training projects and activities.
2. Studies into pollution prevention alternatives in sectors of interest to the Mediterranean region.
3. Publication and dissemination of news and business experiences.
4. Technology transfer and exchange of experts.
5. Participation in the activities of the MAP, the Mediterranean Commission on Sustainable Development (MCSD), the application of the Land-Based Sources Protocol and European initiatives.
6. Coordination of a network of National Focal Points (NFP) for the sustainable development of the Mediterranean industry.



## **The Regional Activity Centre for Cleaner Production (RAC/CP)**

Created in 1994 by the Department of the Environment of the Government of Catalonia, the Centre for Cleaner Production Initiatives (CCPI) was created as a specific unit within the Industrial Hazardous Waste Management Plan with the aim of promoting the principles of advantages of pollution reduction at source among companies.

In 1995, the Catalan and Spanish governments signed a collaboration agreement for boosting and promoting cleaner technologies in Spanish industry through the CCPI. That same year, and coinciding with the 9th Meeting of the Contracting Parties to the Barcelona Convention, the Spanish government presented the candidature of the CCPI to the Mediterranean Action Plan (MAP) for it to act as the Regional Activity Centre for Cleaner Production (RAC/CP).

This offer was accepted at the Extraordinary Meeting of the Contracting Parties held in Montpellier in 1996 and the Regional Activity Centre for Cleaner Production was created.

In 1998, and to be able to carry out its functions better, the CCPI was given its own legal identity on being declared a public limited company with public capital. Two years later, in 2000, a name change was agreed on, and it became the Centre for the Enterprise and the Environment.

The RAC/CP's work plans were set in the Bilateral Follow-Up Committee, made up of representatives of the Spanish and Catalan governments, taking into account the recommendations of the Contracting Parties to the Barcelona Convention.

The ordinary activities of the RAC/CP are funded by the Spanish government. The participation of the RAC/CP in other actions of the MAP and in extraordinary activities is carried out through a mixed system of funding, with a different contribution being agreed on for each case.





We are commemorating ten years since the Centre for the Enterprise and the Environment (CEMA) was designated as one of the six Regional Activity Centres, in 1996, within the framework of the Mediterranean Action Plan of the United Nations Environment Programme (UNEP).

Each of these centres takes care of a particular thematic area: the main objective of the Regional Activity Centre for Cleaner Production (RAC/CP) is the promotion and dissemination in the Mediterranean area of pollution prevention and reduction at source in productive sectors, as well as offering technical support to the institutional organisations and, through them, the companies that wish to promote less polluting and more ecoefficient techniques and practices in their activity.

In accordance with the UNEP, we understand by “cleaner production” the continued application of an integrated strategy of environmental prevention to processes, products and services, with the aim of reducing hazards for human beings and for the environment, to increase the competitiveness of companies and to guarantee their economic viability. This means saving on raw materials, water and energy; elimination, reduction and/or replacement of hazardous materials and the reduction of the quantity and hazardousness of waste and polluting emissions.

The Mediterranean Basin is a heterogeneous region with a very diverse socio-cultural mosaic, which is the result of its condition as the crossroads of three continents. A diversity which is also evident in the different levels of economic, technological and industrial development and in the different degrees of impact of the economic activities on the environment.

It is the basin of a unique, half-enclosed sea, which occupies 2.5 million km<sup>2</sup>. The territories occupy 8.8 million km<sup>2</sup> (5.7% of the area of the world) and its population, which is growing and is mainly concentrated in large cities on the coast, is approximately 7% of the world population (between 1970 and 2000 it grew from 285 to 470 million inhabitants, and it is estimated that in 2025, it will reach 523.5 million). The industrial sectors revolve around oil and natural gas, phosphates, steel manufacture, the chemical and petrochemical industries, paper, paints, plastics, leather tanning, textiles and graphic arts, not forgetting the importance of agriculture and tourism.

All this diversity, without a doubt, marks the Centre's work and at the same time gives it a broad range of fields in which to act.



With the emphasis on dissemination and the exchange of initiatives carried out by the various economic sectors of the Mediterranean countries, the Centre is key to helping companies adapt to current competitiveness criteria, which include ecoefficiency criteria. These are criteria that are increasingly more demanding, and that need to be integrated into decision making.

Catalonia is Mediterranean. Most of our population and industrial activities are either on the coast or spill into Mediterranean river basins that have been intensely exploited throughout history. This is why the reduction of pollution in the Catalan part of the common basin is an objective in which we must become involved, both from the various areas of government –Catalan Government and Town Councils– as well as from society in general, and most specifically from companies.

One of the most recent expressions of this interest was the celebration of the high level meeting in Barcelona to launch the *Horizon 2020* initiative, which has as its objective to reduce pollution levels in the Mediterranean region and to identify and act on the main sources of pollution, on either side of the basin. This will mean new challenges, new commitments and new human and economic resources to continue and extend the programmes to a whole series of activities in forthcoming years, with the very special support of the European Union.

These first ten years of the Centre's intense work would not have been possible without the constant interest, help and collaboration of the Spanish Ministry of the Environment, shown in successive agreements and most particularly, without the dedication of the management and employees of the CEMA during its different stages. Work that has meant considerable effort from the Spanish Ministry of the Environment and the Catalan Department of the Environment and Housing in terms of resources and staff, first through the CEMA, and which we hope to increase even more from now on through its integration into the Department's services. In this task, the RAC/CP has had, and will continue to have during the new phase, all the support of the Department as well as my own personal support.



**Francesc Baltasar i Albesa**

*Minister for the Environment and Housing*

4 May 2006

A large, stylized number '10' is the central focus of the graphic. The '1' is a solid light green vertical bar. The '0' is a light green circle with a white center. The number is overlaid on a grid of thin light green lines and two larger, overlapping light green circles. The background of the entire slide is a solid light green color.

## **10 “Ecoefficient” Activities**

Since 1996, the date of its nomination, the Regional Activity Centre for Cleaner Production (RAC/CP) has carried out its activities with the various member countries of the Barcelona Convention, to facilitate the integration into business management of economically viable pollution prevention measures adapted to the Mediterranean context. The RAC/CP has also collaborated with the Contracting states of the Barcelona Convention in creating new cleaner production centres and in activities that promote more ecoefficient production.

# Studies on pollution prevention alternatives

Publications analysing the trends and initiatives of the industries and of the Mediterranean countries towards an economically and environmentally sustainable development as well as feasible pollution prevention alternatives.

## General studies

They present and analyse matters concerning CP concepts and sustainable development, in a global way and at a regional scale.

## Sectoral studies

They analyse a certain industrial sector, presenting its situation and trends in each country of the region, describing its production processes and the environmental impacts created and they identify options to minimise these impacts and prevent the health hazards associated to the pollution.

## Methodological studies

They present tools to facilitate ecoefficient management in companies, through the analysis of their production processes, the introduction of the best available techniques and good housekeeping practices, to identify solutions for environmental impacts created by their production activity.





## Creation of the Cleaner Production Centre in Bosnia and Herzegovina

A project for capacity building in pollution prevention in Bosnia and Herzegovina. The project, which lasted 3 years (2002-2005) and was headed by the CESD (Centre for Environmentally Sustainable Development) in collaboration with the RAC/CP and the Croatian Cleaner Production Centre is set in the framework of an initiative of the European LIFE-Third Countries Programme.

The main objective was the creation of a cleaner production centre in the country and training through the transfer of knowledge, information and training in methodologies and techniques to enable the country's industry to provide a solution to the environmental impacts created by their activity.

Among the activities carried out, we should mention the interchange of experts and the missions of the institutions of the respective countries, training in the methodology of the Minimisation Opportunities Environmental Diagnosis, the creation of a library and of adapted material for dissemination.



## State of Cleaner Production in the Mediterranean

The first Mediterranean study that constitutes a source of information on the trends and activities adopted by the Mediterranean countries on pollution prevention.

The study centres its attention on the level of development of cleaner production, taking into account the contributions of the Focal Points of the RAC/CP, of other qualified experts and of references from relevant institutions in the matter.

It is a relevant document that reviews the situation of the cleaner production centres in Mediterranean countries and informs about the advances carried out in regulations, agents, plans, programmes and tools the countries use for their introduction.

## Minimisation Opportunities Environmental Diagnosis (MOED)

The evaluation of industrial activity requires a preliminary stage to detect opportunities for improving and optimising processes. Through the Minimisation Opportunities Environmental Diagnosis (MOED), companies look more deeply into the knowledge of their activities to detect opportunities for pollution prevention which are, in each case, technically and economically feasible.

The MOED is a tested methodology applied in more than 600 Mediterranean companies and which enables raw materials and resources to be saved with short payback periods.

Over these ten years, the RAC/CP has created support material to disseminate this methodology (manuals and CDs in Spanish, English, French and Arabic) and has trained more than 450 technicians in this methodology in workshops and courses carried out in different countries in the region.



## Regional Plan for the reduction of industrial hazardous waste in the Mediterranean

A document written to help Mediterranean countries to develop their National Action Plans in the framework of the Strategic Action Programme (SAP). This programme represents the adaptation of the principles of the Global Action Programme of the United Nations Environment Programme and identifies the main environmental problems of the region to fight against pollution of a land-based source.

The Plan carries out a classification of the main hazardous waste and proposes a series of actions to be carried out at a regional as well as a national level for their effective reduction.

The Regional Plan for the reduction of hazardous waste was approved by the Contracting Parties at the 13th Meeting of the Parties (Catania, November 2003).

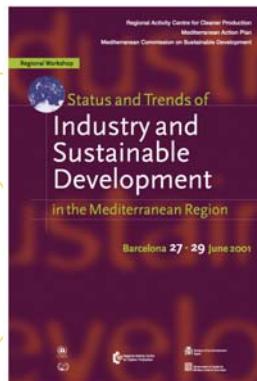


## Regional Workshop “Status and trends of industry and sustainable development”

Regional Workshop of the Industry and Sustainable Development Workgroup of the Mediterranean Commission on Sustainable Development (MCSD) organised by the RAC/CP in Barcelona from 27 to 29 June 2001.

The meeting brought together more than 60 experts and technicians in the region to analyse the current situation, the trends of the industry in the Mediterranean with regard to sustainable development and to discuss the need to integrate industrial activities and the principles of sustainable development in the regional context.

As a result of this workshop a series of recommendations and strategic and action proposals were suggested which were presented to the MCSD to be elaborated in the Mediterranean Sustainable Development Strategy.



## Databases

In these 10 years of activity, the Regional Activity Centre for Cleaner Production has prepared a database of technologies by sector that compiles the various feasible alternatives of pollution prevention. This database is structured by processes, waste flows and type of technology.

At present, the technologies database has more than 250 entrances with information about the textile, paper, metallurgy, tanning and surface treatment sectors and every year new sectors are added.

The RAC/CP has drawn up a database of Mediterranean experts with a list of more than 150 experts and professionals in the region who specialise in pollution prevention, listing their areas of experience and knowledge as well as their contact information.



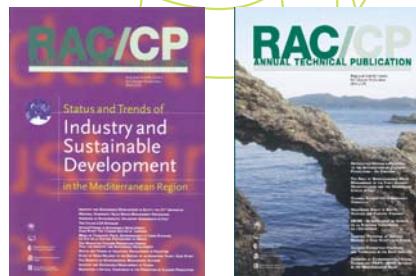


## “Pollution prevention in the University Curricula” Module

The universities educate technicians who in the future, as professionals in industries and institutions, will have a definitive influence on company and social behaviour. The universities have, therefore, the responsibility to create awareness in their students, providing them with the necessary knowledge and training them in the practice of management tools, which after all, can make sustainable development possible.

The RAC/CP has developed a specific product for the university world; the “Pollution Prevention in the University Curricula” module. This module offers students the principles and methodology of pollution prevention and cleaner production.

The module can be used for self-information or with a teacher as a tutor to direct the students’ learning. Each chapter contains a theoretical part with the corresponding table of contents and a practical part which includes a series of exercises destined to make students stop and think. Most of the chapters are completed with a proposal of activities to help the student pass on to the action.



## RAC/CP Annual Technical Publication

A magazine that brings together scientific and technical contributions related to pollution prevention and ecoefficiency, paying special attention to the “Mediterranean” characteristic of its content. This is perhaps what differentiates it from other magazines on the international circuit.

The magazine has been designed as a vehicle for transmitting knowledge among the Mediterranean scientific community, technicians and staff in the public administrations who work on a daily basis with the company sectors and the effective reduction of pollution.

It is a work that aims to offer the Mediterranean countries tools and knowledge adapted to the idiosyncrasy, the geography, the climate, the customs and the needs of the technicians in the region, enabling them to advance on the way to sustainability.

# Advanced Workshops – Azahar Programme

The RAC/CP, within the framework of a collaboration programme between the Spanish and Catalan Cooperation Agencies, carried out training workshops for professional and institutions in the Mediterranean region.

Its objective is to generate a real impact on the human development of all the Mediterranean countries, compatible with the protection of the environment and the preservation of its natural resources.

In these specialised workshops, highly practical and applied to the context in which the countries in the south and the east of the Mediterranean are found, the active participation of those present is promoted, combining theoretical components with case studies and the exchange of experiences through the organisation of round tables, debates and presentations of lessons learned. The objective is to achieve a pool of shared interests and the drawing up of joint final conclusions.

The workshops organized to date have covered diverse themes (tanning, the dairy sector, waste management, etc.).



## Who is the RAC/CP?

From left to right and from top to bottom:  
Enrique Villamore, Esther Monfà,  
Mar Santacana and the Director, Virginia Alzina



## The next steps

Recently the Mediterranean Strategy for Sustainable Development (MSSD) was approved by the Contracting Parties, same signatory countries of the Barcelona Convention. The Regional Activity Centre for Cleaner Production (RAC/CP) as one of the regional centres of the United Nations Environment Program (UNEP) Mediterranean Action Plan (MAP) will be actively involved in the implementation of the MSSD.

Indeed our mandate – to promote mechanisms of sustainable patterns of production and consumption in the economic sector of the Region- calls for a substantive contribution with regards to the objectives of the MSSD, as well as in achieving progress in at least four of its seven priority fields of action which are ensuring sustainable management of energy, improving water demand management, promoting sustainable tourism, and promoting sustainable agricultural development.

Over these past ten years the industrial manufacturing sector has received the most attention from us because it has been considered one that causes the greatest environmental impacts, in terms of resources consumed and wastes produced. However RAC/CP must keep moving and developing to find new and better ways to serve its purpose and achieve its objectives. In line with the state of the Mediterranean environment, the change of government policies, the evolvement of societies, and the new priority sectors of the MSSD, RAC/CP will be broadening its scope, objectives and strategy to plan activities in other relevant sectors as the agriculture and service sectors and to consolidate existing partnerships and create new ones with relevant stakeholders.

Since the agricultural sector involves intensive use of natural resources, generates a significant amount of wastes, agricultural activities use a variety of agro-chemicals, such as fertilizers and pesticides, which pose risks to the environment in their life cycle there is a broad area where we can develop and refine a broad set of technical assistance and capacity building tools.

Also we will promote cleaner production in service sectors such as tourism, and hospitality. The emphasis that RAC/CP will put on the service sector will be on issues such as minimization of consumption, especially that of natural resources, redesign of products, rethinking delivery of services, as well as minimization of wastes, and promoting sustainable consumption within communities.

Effective partnerships between government organizations, civil society and private sector businesses will be the only way to achieve this wide range of goals and activities. For that reason we plan to consolidate existing partnerships with other Regional Activity Centres of UNEP-MAP, several international development agencies, and government organizations and to create new ones with relevant stakeholders, specifically Non Governmental Organizations, universities and private sector businesses adding value to our work at the local, national and regional levels.

**Virginia Alzina**  
*Director RAC/CP*

## LIST OF PUBLICATIONS

### 1) Studies

#### General studies

- State of cleaner production in the Mediterranean countries –1st, 2nd and 3rd edition (*en, es, fr*)
- Status and trends of industry and sustainable development in the Mediterranean region (*en, fr*)
- Biotechnology applications in industry (*en, es, fr*)
- Guidelines for the application of best available techniques (BATs) and best environmental practices (BEPs) in industrial sources of BOD, nutrients and suspended solids for the Mediterranean region (*en, fr*)
- Guidelines for the application of best environmental practices (BEPs) for the rational use of fertilisers and the reduction of nutrient loss from agriculture in the Mediterranean region (*en, fr*)
- Guidelines for the application of best available techniques (BATs), best environmental practices (BEPs) and cleaner technologies (CTs) in industries of the Mediterranean region (*en, fr*)
- Plan for the reduction of the generation of hazardous wastes from industrial installations for the Mediterranean region (*en, fr*)

#### Methodological manuals

- Minimisation Opportunities Environmental Diagnosis – MOED (*ar, ca, en, es, fr*)
- Good housekeeping practices programme design and application in industry (*ca, en, es, fr*)
- Methodology for carrying out working groups (*en, es, fr*)

#### Sector studies

- Pollution prevention opportunities in the paper industry (*en, es, fr*)
- Pollution prevention opportunities in metal machining sector (*en, es, fr*)
- Pollution prevention opportunities in olive oil production (*en, es, fr*)

- Pollution prevention opportunities in the tanning sector industry (*en, es, fr*)
- Pollution prevention opportunities in the tanning sector industry – KIT (*en, es, fr*)
- Pollution prevention opportunities in food canning processes (*en, es, fr*)
- Recycling possibilities and potential uses of used oils (*en, es, fr*)
- Pollution prevention opportunities in the dairy industry (*en, es, fr*)
- Pollution prevention opportunities in the textile industry (*en, es, fr*)
- Pollution prevention opportunities in the printing and allied industries (*en, es, fr*)
- Good housekeeping practices in the logistic services (*ca, en, es, fr*)
- Pollution prevention opportunities in surface treatment industry (*en, es, fr*)
- Good housekeeping practices in the tanning sector (*ar, es, fr*)

### 2) CP News

Bulletins from 1 to 20 (issues 1-12, paper: *en, fr* - issues starting with number 13, electronic version: *en, es, fr*)

### 3) Med Clean

Success stories from 1 to 80 (issues from 1 to 69, paper: *en, es, fr* - from 70, electronic version (*en, es, fr*))

### 4) RAC/CP Annual Technical Publication – Mediterranean Enterprises and Sustainability

Issues from 1 to 5 (*en, fr* and abstract in *es*)

## 5) Leaflets

### Sector leaflets<sup>1</sup>

- Pollution prevention opportunities in surface treatment industry (*en, es, fr*)
- Pollution prevention opportunities in olive oil production (*en, es, fr*)
- Pollution prevention opportunities in the tanning industry (*en, es, fr*)
- Possibilities for recycling and re-use of used oils (*en, es, fr*)
- Pollution prevention opportunities in food canning processes (*en, es, fr*)
- Prevention of pollution opportunities in the dairy industry (*en, es, fr*)
- Prevention of pollution opportunities in the textile sector (*en, es, fr*)
- Pollution prevention opportunities in the printing sector and allied industries (*en, es, fr*)
- Good housekeeping practices in the logistic sector (*en, es, fr*)
- Pollution prevention opportunities in the paper sector (*en, es, fr*)
- Pollution prevention opportunities in the metal machining sector (*en, es, fr*)

### Methodology leaflets<sup>2</sup>

- MOED – Minimisation Opportunities Environmental Diagnosis (*ca, en, es, fr*)
- Good housekeeping practices programme design and application in industry (*ca, en, es, fr*)
- Methodology for carrying out working groups (*en, es, fr*)
- How mediterranean industries can introduce best available techniques (BATs), best environmental practices (BEPs) and cleaner technologies (CTs) (*ar, en, es, fr*)

## General

- Promoting cleaner production in the industrial sector – towards sustainable development in the Mediterranean (*ca, en, es, fr*)
- The Regional Activity Centre for Cleaner Production (*en, es, fr*)
- A bet for the pollution prevention: the Centre for the Enterprises and the Environment (*es*)

## 6) Multimedia

### Videos

- Pollution prevention in the metal plating sector (*en, fr, es*)
- Pollution prevention in the olive oil production (*en, fr, es*)
- Pollution prevention in the dairy industry (*en, fr, es*)
- Pollution prevention in the tanning sector (*en, fr, es*)

## 7) Training Courses

- Interactive course on pollution prevention (*ca, en, fr, es*)
- MOED training course (*ca, en, fr, es*)

**Languages: ar (Arabic), ca (Catalan), en (English), es (Spanish), fr (French)**

<sup>1, 2</sup> Accompanying a CD with the study, sometimes the video as well



printed in ecological paper

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and Housing