

United Nations Environment Programme Regional Activity Centre for Cleaner Production Mediterranean Action Plan

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CENTRE FOR CLEANER PRODUCTION INITIATIVES (CCPI) PRESENTATION



Autonomous Government of Catalonia
Ministry of the Environment
Centre for Cleaner Production Initiatives



UNEP



Ministry of the Environment
Spain

**CENTRE FOR CLEANER PRODUCTION
INITIATIVES (CCPI) INTRODUCTION**

THE CENTRE FOR CLEAN PRODUCTION INITIATIVES (Barcelona)

1. BACKGROUND

In February 1995 the Government of Spain approved a National Plan for Hazardous Waste, covering the 1995-2000 period encompassing, and in certain cases supplementing, the hazardous waste management plans and programmes established by the Autonomous Communities of Spain. The Generalitat de Catalunya (the Autonomous Government of Catalonia), in turn, approved its own Programme for the Management of Hazardous Waste.

The Ministry of Public Works, Transport and the Environment (MOPTMA) and the Department of the Environment of the Generalitat de Catalunya, signed an agreement to establish the basic conditions which were to govern their joint financing of action aimed at achieving the goals set in the Plan.

One of the priorities established by the Plan is the prevention and reduction at the source of all waste generated and the fostering of cleaner, more environmentally friendly techniques. To achieve this both parties decided to collaborate in promoting the best available techniques through the **Centre for Clean Production Initiatives (CCPI)** and to such end signed a Cooperation Agreement. Under the terms of the Agreement CCPI is also to engage in activities of national and international scope.

In July 1994 CCPI started to operate as a result of the Programme for the Management of Hazardous Waste established by the Department of the Environment of the Generalitat de Catalunya. The Programme recommended a joining of forces with a view to minimizing the generation of such hazardous waste. Such forces were to include all the different levels of the administration, the industrial sectors, NGO's and the world of science and technology.

Thus CCPI is a tool designed to be used to foster and encourage companies to adopt the technology and codes of practice leading to the effective reduction of industrial waste in general, and most particularly of hazardous waste.

The Ministry of Public Works, Transport and the Environment considers the CCPI to be an ideal institution to promote, advise on and develop the best environmental practices and the use of the best environmental techniques to reach cleaner production in the Countries of the Mediterranean Basin. To such ends, called on the 9th Meeting of the Contracting Parties to the Barcelona Convention to adopt CCPI as the Regional Activity Centre for Clean Production (RAC/CP) for the Mediterranean Region, within the framework of the Mediterranean Action Programme (MAP).

The Contracting Parties approved the motion put forward by Spain.

2. WHY A CP/RAC ?

As it stands today, the concept of sustainable development includes, and gives priority to, a series of industrial practices aimed at reducing the consumption of resources, energy, water and raw materials, while reducing the generation of polluting waste and emissions, both in terms of the quantity and potential hazardousness and toxicity thereof.

With the globalization of the economy and trade relations, there is a need to promote and adopt production systems that are not only more environmentally friendly but also offer greater competitiveness, especially in those regions and countries with a greater potential for development.

In order to achieve such ends a need is seen to establish an information system for such practices and systems, and to promote the implementation thereof, in order to avoid repeating the mistakes already made by other countries with "end of the pipe" (EOP) treatment systems, which have been shown to be unable to completely solve the problems caused by industrialization and have indeed, very often, led to a loss in competitiveness for those that have employed them indiscriminately.

Cleaner technology and clean production techniques have proven themselves to be the most effective way of guaranteeing the planet sustainability while ensuring the level of development of those societies that adopt such methods.

Systems based on the treatment of pollution which has already been generated represent a series of increasing, on-going costs to industry. Those costs may only be eased by the employment of practices which involve the use of cleaner technology, replacing or preceding treatment systems.

Such production practices are not incompatible with the treatment of any pollution that may still be generated. Moreover, many pollution treatment systems would not be effective if it were not for the prior minimization of pollution and the use of cleaner technology.

Furthermore, the growing demand for products that are more environmentally friendly, including the manufacturing stages even if the production facilities are not located in the consuming market, makes it advisable for companies to avoid the use of environmentally aggressive production practices. In that sense, incorporating the concept of environmental management not as an added cost but as part of a company's global corporate management system means the adoption of more competitive production systems.

While bearing in mind the economic and social differences there are between the countries of the Mediterranean Region, one finds that they also possess a series of common features that would make the use of a networking system attractive, a system that in the shortest space of time possible would ensure that the different players would be able to receive leading edge knowhow and information on production systems which reduce the flows of specific waste and contaminating emissions.

The existence of the Mediterranean Action Plan (MAP) both favours and encourages action on a regional level, aimed at achieving the goals and the spirit of that stated above.

The Contracting Parties to the Barcelona Convention undertake, in Article 4 thereof, to employ the best available techniques, including clean production, bearing in mind their individual social, economic and technological conditions. In Article 5 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, the same undertaking is also made.

Many of the countries of the region have already expressed their concern for the subject and have, within their own territories, set up institutions and agencies aimed at fostering the use of clean production systems amongst their companies.

Thus it would seem wise to use the existing centres, and favour the opening of new ones, bringing them all together into a network structure. The network would be aimed at rationally avoiding the same work being done in two different places and facilitating the exchange of experience, the solution of specific problems, the making of proposals, the setting up of demo-projects, joint training projects and refresher courses for those whose work consists of advising companies on the use of cleaner techniques and practices and, in general. The network would seek to achieve as great a level of synergy as possible in all areas of its joint action.

3. WHAT DOES CLEAN PRODUCTION MEAN?

The concepts of clean production, of pollution prevention, of reduction at source, of minimization of waste and polluting emissions, have all been given different definitions by different regions and countries and this has led to a certain degree of distortion when it comes to promoting such practices.

Thus a consensus must be achieved on what such practices consist of if we wish the different markets to act coherently.

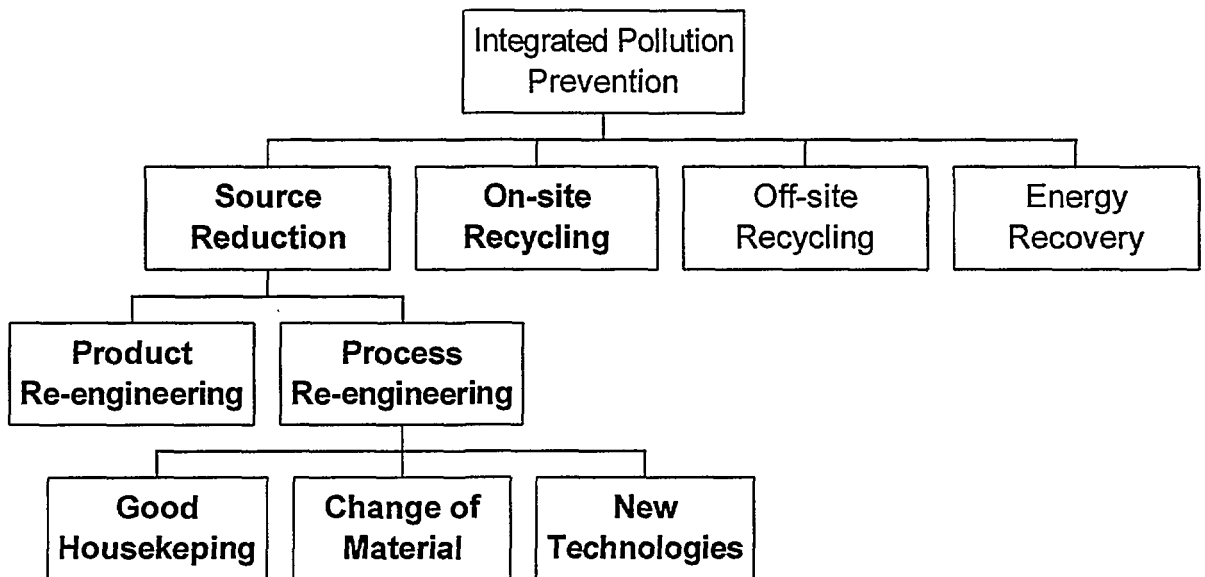
Even when speaking of waste treatment systems for waste which has been produced, despite whatever preventive practice may have been employed, some management models are seen as being "cleaner" than others. For each individual situation, accurate identification will lead to the recommendation of the best and most environmentally correct management system.

Another important aspect to be borne in mind is the maintenance or improvement of the competitiveness of the industries.

In a world evolving towards the consideration of environmental variables as priorities, the return to the manufacturing sectors of the externalities generated by their activity, makes it necessary for the manufacturing sectors to act consequently in order to maintain their share in the creation of wealth and national product of their country.

An accurate definition of the cost functions, incorporating such externalities, will, in the majority of cases, demonstrate that interventions aimed at reducing levels of environmental aggression will also provide firms with greater competitive advantages.

To many institutions, *integrated pollution prevention* includes the following areas of action:



However, there are others with more restrictive criteria which do not accept the practice of off-site recycling nor on-or off-site energy recovery.

According to the United Nations Environment Programme (UNEP), Cleaner Production is understood to mean:

"the continuous application of an integrated preventive environmental strategy to processes and products to reduce risks to humans and the environment.

For processes cleaner production includes conserving raw materials and water energy, eliminating toxic raw materials, and reducing the quantity and toxicity of all emissions and wastes before they leave a process.

For products the strategy focuses on reducing impacts along the entire life cycle of the product, from raw material extraction to the ultimate disposal of the product. Cleaner Production requires applying know-how, improving technology, and changing attitudes."

Likewise, cleaner systems and techniques should be employed in the treatment and management of any waste and polluting emissions material finally generated.

4. CLEAN PRODUCTION IN A REGIONAL CONTEXT

As clean production practices should be implemented by the industrial sectors it becomes necessary setting up a permanent channel of communication between the agencies whose task is to promote the employment thereof and these industrial sectors. Such channel should be kept open throughout the course of the process of presentation and promotion and during any diagnosis, search for solutions, feasibility studies, project, implementation, training or follow-up work that may take place later.

Thus, in a case such as this, it would not make any sense to consider that the dissemination and implementation work carried out successfully by a specific RAC located in any one of the countries of the region could satisfy the needs of the countries as a whole. The peculiarities of the different countries, the different customs, languages and social structures, the different features of industrial structure, are in themselves sufficient justification for making the above statement.

At the same time, and apparently in contradiction to the above, companies, mostly small and medium sized enterprises, need to be provided with the most objective, up-to-date information available, concerning the opportunities they have to implement an environmental management system that gives priority to preventive rather than corrective practices, and the advantages it would represent both on a local and an international level.

The scarcity of existing resources and the existence of a virtually never-ending array of goals, makes it essential for the agencies working in the region to join forces to optimize the use of the limited resources available.

Within the context of MAP, a RAC/CP should look at all of the aforementioned realities and should be able to organize itself in such a way so as to be able to reconcile them.

Thus the promotion of cleaner techniques and pollution prevention under MAP framework and the offering of guidance to enterprises and sectors should be structured around the following premises:

1. It should follow MAP priorities.
2. It should be carried out by local agencies or centres.
3. It should consider the sociological, cultural, technological, economic and juridical-administrative characteristics of each individual country.
4. It should avoid the transfer of obsolete technology and/or of technology not suited to regional characteristics.
5. It should consider the foreseeable development of regulations, both in the local and external (export) markets, and the constraints such may impose on corporate performance.

6. It should direct its efforts to those industrial sectors or wastes spread throughout the Region, so that the results could be useful to most countries in the Region.

We only save those goods to which a certain "value" may be attached. Such value may either be based on the price or the scarcity of the commodity (and, more often than not, scarcity means price).

Thus cleaner technology, clean production practices, will always prove acceptable if incorporating a financial (internal or external) or regulatory element to facilitate the integration of the aforementioned externalities into cost functions and thus allowing the comparison of alternative environmental management systems.

Awareness and the adopting of cleaner alternative production systems could, and should, lead to regulatory changes being made to facilitate and promote such systems being adopted by the companies.

Thus when introducing or promoting such production methods and systems all aspects relating to the economic feasibility thereof must be thoroughly examined. In the same way, any recommendations that could be made with regard to the implementation or revision of regulatory measures or instruments of any kind aimed at encouraging the introduction of such production methods and systems, should be carefully reasoned.

Thus we are able to make a proposal concerning the situation which indicates that cleaner technology and clean production methods:

Should be disseminated, promoted and applied by local agents that, on the other hand, should also be provided with the best training and information available thereon, on their application in other similar scenarios, on any action or improvement related thereto, and on the socio-economic framework within which they are to be applied.

5. CCPI AS A CLEAN PRODUCTION RAC (RAC/CP)

5.1 Staff

At present CCPI has a director, five highly-qualified technicians (three chemical engineers and two industrial engineers) two administrative clerks and a computer specialist.

CCPI has access to technical data banks. It also has its own library and access to others within the Department of the Environment of the Generalitat de Catalunya. It is also connected to Internet where it has a web page (<http://junres.gencat.es/cipn/jr-a0000.htm>).

To facilitate its work as a RAC/CP, links with other information systems have also been foreseen.

5.2 The experience offered by CCPI

CCPI has been working in cleaner production and waste minimization for the last three years.

Over these three years the work of CCPI has been based around: the dissemination and promotion of the concept of cleaner production throughout the industrial structure and of the advantages offered by the implementation thereof to industrial sectors, the compiling and supply of information on cleaner technology, the fostering of and participation in projects addressing the minimization of environmental pollution, especially in the area of industrial waste, collaborating in the area of training, serving as a meeting point for the different organizations, companies and institutions, publishing manuals and information sheets to disseminate information on specific action and participating in the production of other publications, etc.

Over the period CCPI has developed experience in several different areas which could prove of interest to the countries of the Mediterranean Region as a whole.

- *The importance of performing environmental diagnoses of companies.*

In order to reveal the opportunities for minimization available to a company, an environmental diagnosis should be made to highlight the most important pollution sources and to point out alternatives for reducing them, as a previous step to any project aimed at reduction at source.

In this respect CCPI has promoted or made 66 environmental diagnoses and studies, both on an individual and working group level, aimed at preventing pollution in the tanning, agri-food, surface treatment, metal plating, textile, paper, paint manufacturing, paint coating and chemical industries.

- *The advantages of disseminating real case studies of pollution reduction at the source, especially for the small and medium-sized enterprises (SME's).*

The industrial network of our Region is basically made up of a sparse group of small and medium-sized enterprises, either needing information or with misconceptions with regard to just what clean production or pollution prevention means or what advantages may be obtained from the implementation thereof.

It is far easier to motivate such companies by telling them about what has happened in other firms similar to theirs (success stories), which illustrate the technical and economic feasibility of such projects, than only through the arguments of the public institutions.

To such ends CCPI has started a series of information sheets called "Production + Clean", illustrating case studies of minimization applied by companies in different sectors.

The collection is divided into information sheets of two different types:

- *Information sheets that, in general terms, explain the concepts of waste and emission minimization and pollution prevention and provide information on cleaner technologies.*
- *Information sheets providing case studies of minimization projects carried out by Catalan enterprises. These information sheets are sub-divided according to the kind of minimization action: good housekeeping, process re-engineering, new technologies, change of raw materials, in-site recycling or product re-engineering.*

The information sheets show the industrial sector and company at which the work was carried out, provide the background and environmental issues considered by the company when implementing the change, describe the action taken and show the financial feasibility assessment of the action and the savings achieved.

Up to now, there has been published 12 fact sheets in sectors as surface treatment, synthetic fibre manufacturing, chemical industries, food industry, ink and varnish manufacturing and tanning industry.

CCPI also collaborated with four case studies in the UNEP/Ecomed booklet "Cleaner Production in the Mediterranean Region".

- *The importance of fostering applied research work at the companies themselves.*

It is impossible to adapt some of the practices of clean production, including source reduction and the minimization of the pollution generated, without first carrying out applied research to analyse the viability of the proposal.

Wherever possible, such research work should be carried out on the company premises, with the contribution of a specialized institution. Such a level of collaboration is essential if we wish to optimize the benefits of any research work.

In this area CCPI is involved in projects in the textile (wool dyes and bleaching) and tanning sectors.

- *Demo- projects*

With regard to the above, cleaner production systems, however feasible they may appear, give sometimes rise to doubts with respect to their suitability to the characteristics of a specific region, making companies, mainly the SME's, feel somewhat reticent about adopting them.

Joint agency-company demo- projects, which will stand as a practical example, often prove to be the best way to quell any doubts others in the sector may have.

CCPI has six demo-projects under way at companies in the laundering, surface treatment and car wash sectors, with trials designed to ascertain the technical and financial feasibility thereof and it is collaborating in a LIFE project in order to demonstrated the feasibility of cleaner technologies in the leather sector.

6. CCPI AS A RAC FOR THE PROMOTION OF CLEANER PRODUCTION

6.1 Functions

The main functions of CCPI as a RAC/CP for the Mediterranean Region, within the framework of the Mediterranean Action Plan (MAP) shall include the following:

- A) To participate in MAP activities as a Regional Clean Production Activity Centre, under the supervision of the Coordination Unit following Focal Points priorities.
- B) To coordinate the setting up of a national focal point (NFP) network throughout the countries around the Mediterranean coastline, aimed at fostering cleaner technology and promoting the adoption of clean production systems in the different countries.
- C) To establish a "forum for the exchange of information and experience", to identify any possible lacunae there may be in the information and resources available and thus allow to plan and establish the needed actions.
- D) To seek out, compile and systematize information on tested technologies to favour clean production and to analyse the technical and financial feasibility thereof within the context of the Mediterranean countries.
- E) To inform and offer guidance on issues related to clean production.
- F) To facilitate the transfer of cleaner technology amongst the different countries of the Mediterranean Basin, through the organization of specific workshops and seminars.
- G) To promote and participate in expert exchange programmes amongst the different countries and in training activities focused on clean production with sectorial courses, workshops and seminars organized in the different countries of the Mediterranean Basin.
- H) To promote and participate in the publication of case studies with examples of pollution reduction at source achieved by different companies of the region, most especially the small and medium-sized enterprises, and of training material on subjects related to clean production.

- I) The publication of a regular newsletter to provide the latest information on subjects related to clean production and on the achievements made.
- J) To participate with the information exchange centres already set up by different organizations (particularly: the World Bank, UNDP, UNEP, FAO and WHO) and at any meetings that could benefit the implementation of cleaner production practices and methods in the region.
- K) To collaborate with the MAP Coordination Unit in its efforts to seek external funds for any action requiring financing.
- L) To collaborate on the design and start up of demo-projects.

6.2 Activities

CCPI's activities, as a MAP Regional Activity Centre must be approved by the meeting of the Contracting Parties to the Barcelona Convention, to which the former will present such activities through the MAP Coordination Unit.

On the basis of the mandate and recommendations already established by said Contracting Parties, the RAC/CP proposes starting work in the following ways:

1. Helping to define the best available techniques, with a view to phasing out, to as great an extent as possible, the discharge of substances that are toxic, persistent and liable to bioaccumulate.
2. Collaborating on the identification of the best ecologically rational techniques and environmental practices available, giving priority to such aspects as availability, accessibility, cost and effectiveness.
3. Disseminating information on the existence of the RAC/CP, its objectives and methods of work.
4. Learning about the level of information available in the different countries of the region with regard to the generation of emissions into the atmosphere and waters and waste generation, within the framework of MAP action.

7. CRITERIA FOR THE DEFINITION OF PRIORITY ACTIONS

The RAC/CP shall define its priorities for action in accordance with those established to further the goals of the Barcelona Convention for the Protection of the Mediterranean and the protocols thereof, and those of the MAP.

The action proposed shall be presented through the MAP Coordination Unit and shall be approved according to the procedures mentioned above.

While awaiting the first RAC/CP-NFP's meeting, at which the priorities for action are to be established, the RAC/CP suggests that the sectors in which intervention is to take place should be chosen from amongst the following:

- surface treatment and coating
- oil mills (oil-foot)
- energy production and use
- pulp and paper
- tannery and other associated sectors
- cement production
- metal industry
- agri-food industries
- organic and inorganic chemical industry
- textile industry

The above is merely an indicative listing. The proposals shall be presented through the Coordination Unit, explicitly stating the content, budget, deadlines and funding thereof.

Appendix I

CATALONIA IN NUMBERS

Territory and population



Surface area (km ²) (1993)	32.000
Coast (km) (1994)	699,3
Road network (km) (1994)	11.560,7
Population (inhab.) (1993)	6.097.000
Density (inhab./km ²) (1993)	191
Average age (1993)	38,6
Working population (1994)	2.605.000
Main cities (inhab.)(1991) :	

A. Barcelona (1,643,542); B. Hospitalet de Llobregat (272,578);
 C. Badalona (218,725); D. Sabadell (189,404); E. Tarrasa (158,063);
 F. Santa Coloma Gramanet (133,138); G. Lérida (112,093);
 H. Tarragona (110,153); I. Mataró (101,510); J. Reus (87,670);
 K. Cornellá de Llobregat (84,927); L. Gerona (68,656)

Macromagnitudes

Total G.D.P (millions PTA) (1993)	11.441.000
G.P.D per capita (1993)	1.866.000
Gross Value Added (millions PTA) (1993)	10.788.359
	agriculture (%) 1,5
	industry (%) 37,7
	services (%) 60,7
Industrial G.V.A. (millions PTA) (1991)	3.042.823
	energy and water 419.188
	mining and 1st processing industry 24.779
	chemical industry 382.919
	metal processing industry 808.766
	food industry 427.472
	textile and leather industry 373.579
	paper industry 207.321
	wood, cork and furniture industry 89.930
	rubber and plastics industry 121.320
	another manufacturing industries 187.549

Consumption indicators

Energy's consumption (Equivalent tons of oil) (1993)	18.000.000
Water's consumption (hm ³) (1992)	3.050
Electricity's consumption (kWh/inhab.) (1993)	4.637

Education

Number of Universities (1994)	8
Registered students (1994)	185.459

Tourism

Visitors (1994)	16237000
Hotel beds (1994)	229.950

Industry

Industrial establishments (1991)	43.048
energy and water	1.341
mining and 1st processing industry	91
chemical industry	996
metal processing industry	12.870
food industry	6.237
textile and leather industry	8.020
paper industry	2.903
wood, cork and furniture industry	6.907
rubber and plastics industry	1.131
another manufacturing industries	2.552
Industrial output (millions PTA) (1991)	8.427.814
energy and water	663.023
mining and 1st processing industry	100.440
chemical industry	1.135.502
metal processing industry	2.379.661
food industry	1.687.941
textile and leather industry	954.132
paper industry	540.922
wood, cork and furniture industry	224.692
rubber and plastics industry	308.355
another manufacturing industries	433.146
Imports (millions PTA) (1993)	3.050.000
Exports (millions PTA) (1993)	1.909.000

Environment

Urban solid wastes (Tn) (1993)	2.833.061
Industrial wastes (Tn) (1993)	2.555.000
specials	762.000
inert	960.000
non specials	833.000
Waste production sheet form (Tn) (1993)	2.555.000
food and drink industry (%)	13,03
textile, clothing and fur industry (%)	2,80
leather industry (%)	1,81
wood and cork industry (%)	2,22
paper industry (%)	5,82
publishing and printing industry (%)	1,14
oil refineries and nuclear fuel treatment (%)	0,28
chemical industry (%)	11,84
rubber and plastics industry (%)	1,91
non metal mineral industry (%)	5,75
metallurgy (%)	19,04
metal industry (%)	1,71
engineering and electric material industry (%)	0,27
electronic material; radio, TV and communications (%)	0,20
electric power, gas, steam and hot water production (%)	6,54
another industries (%)	18,32
by-product recovery (%)	7,32
Public-owned sewage treatment plants (1994)	128
Treatment capacity (m3/day) (1994)	1.453.200
Protected surface area (km2) (1994)	6.481

Information taken out from:

Catalonia Statistic Directory 1994-1995 (Statistic Institute of Catalonia), Catalonia Figures 1995 (Statistic Institute of Catalonia), Environment Data in Catalonia 1995 (Autonomous Government of Catalonia, Ministry of the Environment)