



Mediterranean Action Plan
Mediterranean Commission on Sustainable Development
Industry and Sustainable Development Working Group
Regional Activity Centre for Cleaner Production

Status and Trends of Industry and Sustainable Development in the Mediterranean Region



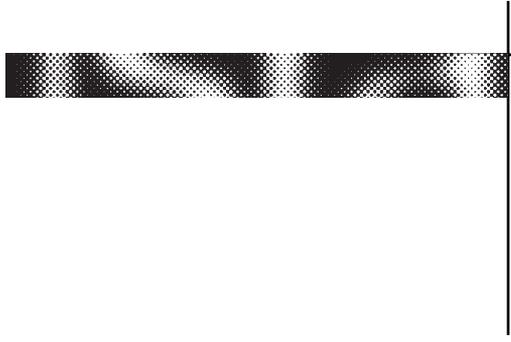
Regional Activity Centre
for Cleaner Production



Ministry of the Environment
Spain



Government of Catalonia
Ministry of the Environment



**Status and Trends of
Industry and
Sustainable
Development
in the Mediterranean Region**



Regional Activity Centre
for Cleaner Production



Ministry of the Environment
Spain



Government of Catalonia
Ministry of the Environment

Note: This publication may be reproduced in whole or in part and in any form of educational and non-profit purposes without special permission from the Regional Activity Centre for Cleaner Production (RAC/CP), provided acknowledgement of the source is made. RAC/CP would appreciate receiving a copy of any publication that uses this material as a source.

No use of this publication may be made for resale or for any other commercial purposes whatsoever without prior permission in writing from RAC/CP.

The contents of this publication do not necessarily reflect the views or policies of RAC/CP, nor are they an official record.

If you consider that some part of this study could be improved or there is any lack of precision, we would appreciate if you could notify it to us.

Original version: English
Study finished on october 2001
Additional copies or information could be requested to:

Regional Activity Centre for Cleaner Production (RAC/CP)

C/ París, 184-3a planta
08036 Barcelona (Spain)
Tel.: +34 93 415 11 12 - Fax. +34 93 237 02 86
E-mail: cleanpro@cema-sa.org
<http://www.cema-sa.org>



Printed on chlorine-free paper

0	Preface	5
1	Status and Trends of Industry and Sustainable Development in the Mediterranean Region	9
2	European Union Perspective on Industry and Sustainable Development	43
3	Annexes	
	Regional Workshop of the MCS Industry and Sustainable Development Working Group, Barcelona 27-29 June 2001	63
	Proposals for action	65
	Report	71
	List of participants	81

PREFACE

A Regional Workshop on the status and trends of industry and sustainable development in the Mediterranean region was organized in Barcelona from 27 to 29 June 2001 by the Regional Activity Centre for Cleaner Production (RAC/CP) of the Mediterranean Action Plan¹. More than 60 specialists designated by the member countries and institutions of MCSD and members of the Industry and Sustainable Development working group attended the workshop. Experts directly involved with the subject were also invited.

The main objectives of this regional workshop were to:

- Mark the end of activities carried out by the working group since its creation in 1997;
- Bring together a group of regional experts to review current trends and discuss the need to integrate industrial activities and principles of sustainable development in the regional context;
- Propose recommendations to the plenary meeting of MCSD for fulfilling sustainable development objectives in the industrial sector.

In order to facilitate discussion, RAC/CP requested an expert in this field, Mr. Nordine Sini, to prepare a report that would serve as a basis for discussions during the workshop. The report was structured around four aspects:

- The status of industrial development in the region;
- Especially sensitive areas (hot spots);
- Legislative aspects;
- Actors and instruments.

The document did not pretend to be an exhaustive study of the subject or the official position of RAC/CP but, a working tool to orient discussion of the interaction between industry and sustainable development in the Mediterranean, thus making the workshop more productive and effective. With this in mind, chapters on conclusions and recommendations were included as background for discussion of the workshop's proposed final recommendations. The complexity of the industrial sector plus the geographical variety of social and economic characteristics present in the region and the variety of aspects covered by sustainable development confirm the necessarily limited range of the report.

During the workshop, several participants suggested that CP/RAC could conveniently publish this background document as a supplement to the proposed recommendations in order to make them available to a broader audience.

At the same time and because the report emphasizes the non-European Union countries of the region, it was recommended that an additional document of similar characteristics and orientation be included that would bring together the approach, strategies, programmes and action policies of the European Union on sustainable industrial development, because the experience of the European Union could serve as an example for the Mediterranean region.

A series of factors confirm the advantages of this recommendation:

- The fact that the European Union itself and four of its Member States are Contracting Parties to the Barcelona Convention and that other Contracting Parties of the Mediterranean Action Plan are candidates for admission;

¹ The invitation stemmed from the activities of the working group on industry and sustainable development of the Mediterranean Commission on Sustainable Development (MCSD).

- The growing importance of exchanges among the members of MAP;
- The entry into force in 2010 of the Mediterranean free-trade area, which will have affect industry in all the Mediterranean;
- The very purpose of MCSD and the need to establish converging policies regarding sustainability and plans and projects that integrate the overall regional reality (the strategic action plan);
- Implementation of multilateral environmental agreement of more than regional application that necessarily will affect industries in the region.

It was intended to bring together in a single document several aspects, studies and proposals to promote sustainability in the industrial sector in the region; an interpretation of different realities that, included in this concept of sustainability, cover economic and social variables in addition to environmental criteria. The document includes a dimension of time that takes into account problems that can affect sustainable development in the region in the future and take into account aspects such as biodiversity, demography, education and training and finances.

At the same time, this document should serve as a useful tool for those that must define and implement increasingly interrelated policies and action programmes in a common framework, making elements available for comparison that support the viability of activities.

Taking into account these considerations, RAC/CP published the background document, following the request of the participants in the workshop.

Using a similar process to that of the first report, Mr. Ioannides A. Economides, a recognized expert, was commissioned to prepare an additional study focused on prospects in the European Union, and Mr. Nordine Sini was requested to incorporate the comments of the workshop into the original document.

It should be pointed out that the study presented by Mr. Economides was carried out after the regional workshop was held. For this reason, the report does not include recommendations but conclusions and comments of the author that support the recommendations made during the workshop.

We are therefore presenting a document divided into two parts that concerns the status and trends of industry and sustainable development in the Mediterranean region. This document has been prepared by Mediterranean experts and reflects their views and opinions and not necessary those of RAC/CP.

This document expands information contained in the study on the "State of Cleaner Production in the MAP Countries", published by RAC/CP in June 2001, which was used as a reference document.²

The function of RAC/CP throughout this process has been primarily that of channelling, coordinating and participating with experts, providing data and putting together the document, while closely respecting the contributions and opinions of the authors.

In order to offer a more complete view of the work carried out by the Regional Workshop on the status and trends of industry and sustainable development in the Mediterranean region the report of the workshop, the list of participants and the proposals for action to be submitted to the next meeting of MCSD are presented as annexes. The latter are included as information because they are subject to approval by MCSD and the MAP Contracting Parties.

The concept of sustainable development as defined in the Brundtland report is very broad, can be interpreted as covering any economic, social or environmental aspect and clearly focuses on the future. The Mediterranean

² At the third meeting of RAC/CP National Focal Points in Barcelona from 22 to 23 March 2001, it was recommended that there be periodical review and updating of the study on the "State of Cleaner Production in the MAP Countries".

region and its industrial activity present quite varied characteristics. But its Mediterranean character gives industrial activity an identity and creates determining factors that require the use of own criteria that determine trends and future strategies that will have to guide the environmental performance of our industries.

With this document, we seek to contribute to the creation of such an innovative industrial and Mediterranean strategy with proposals based on sustainability and at the same time to stimulate competitiveness of Mediterranean firms.

Appreciation should be expressed to the following persons. The complete list would be very long but we would like to thank specifically, together with the experts who prepared the reports, Mr. Arab Hoballah, deputy coordinator of MAP and coordinator of MCSD, and Mr. Francesco Saverio Civili, coordinator of MED POL, whose participation and support in organizing the workshop have been of utmost importance.

In addition, RAC/CP hopes that the information contained in this publication can be useful to firms, administrations and institutions to promote real sustainable development not only in the Mediterranean region but also in those parts of the world in which similar activities with the same objectives are being carried out.

Víctor Macià (Director of RAC/CP)
Esther Monfà (Coordinator for international activities)
Beatriz Parrilla (Assistant for international activities)

Barcelona, October 2001



1

**Status and Trends of
Industry and Sustainable
Development
in the Mediterranean Region**

Contents

1. INTRODUCTION	13
1.1 Industrial development in the Mediterranean region	13
1.2 Prospects	16
1.3 Free trade in the Euro-Mediterranean context	18
1.4 Development of the Mediterranean islands	19
1.5 The impact of industrial development	20
2. PRIORITY POLLUTION HOT SPOTS AND SENSITIVE AREAS IN THE MEDITERRANEAN REGION	21
3. LEGISLATIVE ASPECTS	22
3.1 Legislative aspects at the regional level	22
3.2 Legislative aspects at the national level	26
4. ACTORS AND AGENTS IN RELATION TO INDUSTRY AND SUSTAINABLE DEVELOPMENT	27
4.1 Regional actors and tools	27
4.2 National actors and tools	31
CONCLUSIONS	33
RECOMMENDATIONS	36
BIBLIOGRAPHY	39

1. INTRODUCTION

In the report of the sixth meeting of MCSD, especially annex II¹, strategic balance 2000: recommendations and proposals for action, the main recommendations are based on:

- Definition of a common vision and a Mediterranean strategy for sustainable development;
- Expansion of regional cooperation by fully integrating sustainable development, promoting rationalization of means and the strengthening of synergies through better coordination;
- Implementation of action proposals under the Barcelona Convention;
- Promotion and transfer of cleaner technologies.

At the national level, national take-off strategies and implementation of sustainable development must be designed within the setting of national Agenda 21s. The strategies should define ambitious objectives for separating production from consumption of resources. International agreements promoting cleaner production and objectives set at the international level to limit pollution should be incorporated into national strategies. National strategies should take into consideration the objective of sustainable consumption and provide for the management of the impact of structural changes on consumption patterns. These impacts will probably be aggravated by the creation of the free-trade area in the framework of Euro-Mediterranean Partnership.

The Euro-Mediterranean Free Trade Area that was approved in 1995 by 15 Mediterranean countries and 12 countries in the South and Eastern Mediterranean under the framework of the Euro-Mediterranean Partnership and its possible impact on industry and sustainable development are briefly discussed in the document.²

1.1 INDUSTRIAL DEVELOPMENT IN THE MEDITERRANEAN REGION

Between 1950 and 1980, industrial development took place on the northern coast of the Mediterranean, especially in France and Italy, with the development of primary industries (mining, steel, machinery and

¹ Annex II, Report of the Sixth Meeting of MCSD, UNEP(DEC)/MED WG.170/5. Tunis, 14–17 November 2000.

² The subject of the free-trade area and sustainable development is dealt with in MCSD by a working group of several experts.

building materials) and manufacturing industries (textiles, agro-foodstuffs and leather); then other countries joined in this process³. The southern Mediterranean countries began to industrialize in the 1970s.

Pays	Industrial growth						
	CountryGrowth (percentage)				Industrial added value de l'industrie		
	1979	1989	1998	1999	1995	1998	1999
Albania	2,4	-5	12,2	10,8	22	24,526	26
Algeria	2,7	0,8	3,9	4,8	51,1	47,3	50,7
Bosnia and Herzegovina					27	27,5	26,7
Cyprus		3		2,1			
Croatia		-3,5	1,5	-0,8	34,3	32,4	32
Egypt	5,6	4,6	8	6,7	32,3	32,3	31,5
Spain		0,3				27,9	27,6
France	0,7	0,5			24,4	23,3	
Greece	0,8	-0,6			20,7	20,4	
Israel							
Italy	1,6	0,9			28,3	26,7	26,2
Lebanon	0,4	3	-9,8		26,5	26,5	
Libya	-11,1						
Malta							
Monaco							
Morocco	2,4	3,2	1,8	2,8	33	31,9	32,7
Slovenia		2	4,7		38,5	38,4	38,4
Syria	5,3	0,1	2,4	1			
Tunisia	3,3	4,4	4,9	5,1	29	28,2	28,1
Turkey	7,3	4,5	1,8	-6,7	30,5	25	24,3
Average for Med. countries.	1,78	1,13	3,04	2,96	30,5	29,45	31,2
European average					27,8	26,8	27,3

Source: World Development Indicators, World Bank. April 2001

During this period industrial areas were created (in the North and in the South), the location and installations of which did not always meet the needs for security and protection of the environment and resources.

During this period of development, several countries did not have enough competencies in environmental matters, and the major concern of new companies was solely production. In certain cases, cleanup facilities were shut down due to lack of maintenance, incorrect use and specific regulations on environmental matters. In addition, the technologies proposed during this period were high consumers of water, energy, raw materials and they are now obsolete, even if they are still being used. Older premises on the outskirts of port cities are caught up in urban growth and often present serious risks for the population. Many countries have an important public industrial fabric made up of diverse activities. Depending on the country and its specific situation, the industrial public sector is generally made up of energy production, oil refining, petrochemicals, mining, steel manufacturing, fertiliser production, aluminium metallurgy, paper and cellulose and cement production.

Concentration of industrial activities on the northern and the southern coasts were the answer to three major concerns:

³ Giri, Jacques. Industry and Environment in the Mediterranean. Fascicule no. 4, Plan Bleu, 1991.

- Proximity to ports and port activities, making it easier to import and export goods;
- Availability of large amounts of sea water for cooling (energy production, petrochemicals, oil refining);
- Availability of labour.

This situation has brought great pressure on water, energy and raw materials resources. The quality of water resources is vital for human consumption, agriculture, industry, leisure activities and local businesses. This has created a large-scale exodus to the big industrial cities, which has increased urban and demographic pressures. Demographic pressures on resources (water, food, energy, capital goods, housing) require full commitment to sustainable development. Approximately 40 per cent of the Mediterranean population is concentrated on the coast, and this population will double by 2025.

Country	Demographics and urban pressure					
	Population (million inhabitants)		Growth (%)		Urban population (% of total population)	
	1995	1999	1995	1999	1995	1999
Albania	3,2	3,4	1,2	1,1	38,7	41
Algeria	28,1	30	2	1,5	56,6	59,6
Bosnia and Herzegovina	3,4	3,9	-6,2	3	40,9	42,6
Cyprus	0,733	0,76	1	0,9	54,1	56,3
Croatia	4,7	4,5	0,4	-0,8	55,8	57,3
Egypt	58,1	62,7	1,9	1,8	44,4	45
Spain	39,2	39,4	0,2	0,1	79,5	77,4
France	57,8	58,4	0,3	0,4	74,7	75,4
Greece	10,5	10,5	0,3	0,2	59,2	59,9
Israel	5,5	6,1	2,7	2,4	90,7	91,1
Italy	57,2	57,6	0,1	0,1	66,6	66,9
Lebanon	4	4,2	1,9	1,4	87,5	89,3
Libya	5	5,4	2,2	2,2	85,3	87,1
Malta	0,371	0,379	0,8	0,5	89,3	90,3
Monaco	0,371	0,378	1	1	89	90
Morocco	26,4	28,2	1,8	1,7	52,1	55,3
Slovenia	2	2	0,1	0,1	50,1	50,3
Syria	14,1	15,7	2,9	2,6	52,2	54
Tunisia	9	9,5	1,5	1,6	61,9	64,8
Turkey	60,5	64,4	1,3	1,6	69,2	74,1

Source: World Development Indicators, World Bank, April 2001

1.2 PROSPECTS

In its press release no. 2001/126 of 5 December 2000, the World Bank, referring to the report "Global Economic Prospects and the Developing Countries 2001" declared: "The developing countries could reach a more rapid growth rate since the past ten years, but they are thwarted by trade barriers in the wealthy countries; technical trade obstacles (norms and standards) and environmental considerations". Economic growth in the developing countries should reach 5.3 per cent in 2000, 5 per cent in 2001 and drop to 4.8 per cent in 2002.

However, the developing countries will continue to confront significant risks during the next several years, including sudden variations in the price of petroleum and a halt in economic growth in the United States. According to World Bank estimates, growth of the GDP in Europe and Central Asia should be more than 5.2 per cent in 2000.⁴ In the Middle East and North Africa, growth has been positive for petroleum-exporting countries as well as for the other countries. Growth of the GDP reached 2.2 per cent in 1999 and should be more than 3.1 per cent in 2000. This region has benefited from the strong growth in Europe plus revenues from petroleum. Economic activity should show a slight recovery, reaching 3.8 per cent in 2001 and 3.6 per cent in 2002.

In the Mediterranean context, the average growth rate of the Mediterranean economies dropped 3 per cent in 1980–1990 to 2.5 per cent in 1990–1998. This rate is close to the average of the other regions in the world.

Country	Average annual growth in the Mediterranean countries												
	Average growth (% GDP)					Average growth (% GNP)				Exports			
	89-99	1995	1998	1999	1999-03	89-99	1998	1999	1999-03	89-99	1998	1999	1999-03
Albania	1,3	13	8	7,3	7,7	3,2	7,4	6		11,9	-3,5	47	
Algeria	1,2	4	5,1	3,3	3,9	-0,9	5,2	1,5	1,9	2,6	1,6	6,2	5,3
B-H		23	12,8	10	11		12,8	10	11,1		33,7	11	12
Cyprus	6	6,1	4,2	4,5	4,5	4,9	2,8	3,5		8,4	4,1		
Croatia	0,2	6,8	2,5	-0,3		0,4	3,5	-1,5			6,9	0,2	
Egypt	4,3	4,7	5,6	6	5,5	4,3	2,6	3,9	3,8	3,5	-7,7	9,2	10,8
Spain	2,1	2,7	3,9	3,7		1,9	3,8	3,6		8	10,1		
France	1,6	1,7	3,3	2,4		1,2	2,9	2		3,1	4,8		
Greece	1,8	2	3,8	3,3		1,3	3,2	3,1		2,9			
Israel	5,3	7	2,2	2		2,5	0,6			8,5	6,3	7	
Italy	1,2	2,9	1,3	1		1	1,2	0,9		6,9			
Lebanon	8,3	6,5	2	-1	1,8	5	-0,8	-3,1	0,5	10,5	5,9	8,2	11,2
Libya													
Malta	5,2	6,2	4,1			3,5	3,5	2,9		2,3			
Monaco													
Morocco	2,3	-6,6	6,8	-0,7	3,7	0,6	5,8	-2,2	2	3,5	2,2	4,8	5,9
Slovenia	2,3	4,1	3,9	3,8		4,3	4,1	3,5		0,6	7,8	3,6	
Syria	6,3	6,7	7,8	-1,5	2	2,9	4,4	-4,4	-1,4	10,8	10,9	-1,2	1,9
Tunisia	4,7	2,3	5	6,2	5,8	2,9	4,1	5	4,6	4,9	3,9	4,2	5,2
Turkey	4	7,3	3,1	-5,1	5,5	2,5	2,3	-7,8	5,9	11	12	-7	5,9
Average	3,42	5,58	4,7	2,6	5,14	2,44	3,17	1,58	3,55	6,21	6,6	7,77	7,275
Europe		2,2	2,7	2,4									

Source: World Development Indicators, World Bank, April 2001

⁴ World Bank. Global Economic Prospects and the Developing Countries 2001.

Demographic pressure (550 million inhabitants in 2025) has led to an ever-increasing demand for energy, industrial products, water, etc. and increased occupation of space and concentration of inhabitants in the most favourable economic and industrial areas.⁵ For example, consumption of energy in the Mediterranean countries of the European Union is three to four times greater than that in the southern and eastern Mediterranean countries, but this relationship should reach 1.5 towards 2025 with an increase of consumption in the southern countries, which shows the need to implement energy-saving programmes and promote renewable energies.⁶ Consumption of electricity was 4800 KWH per inhabitant in the northern countries compared to only 850 KWH in the southern countries during the 1990s.

The structure of the economy in the Mediterranean countries, expressed as a percentage of GDP, is composed of 18 to 33 per cent for industry, 11 to 17 per cent for agriculture and sometimes more than 50 per cent for services. Direct foreign investment (DFI) comes predominantly from Europe with more than 83 per cent of the total of direct investments in the Mediterranean countries.

Despite this growth, the dissymmetry between the countries of the North and the South continues. France and Italy represent alone 70 per cent⁷ of the industry in the coastal countries. However, all industry in the North and South is not concentrated on the Mediterranean coast. The share of industry in the Mediterranean parts of the coastal countries represents 5 per cent of industry in the world (1989).⁸

Country	Structure of the economies of the Mediterranean countries											
	Agriculture (% GDP)				Industry (% GDP)				Services (% GDP)			
	1979	1989	1998	1999	1979	1989	1998	1999	1979	1989	1998	1999
Albania		32,3	54,4	52,6		44,8	24,5	26		22,9	21	21,4
Algeria	10,9	14,9	12,1	11,4	50,5	41,6	47,3	50,7	38,9	43,5	40,6	37,9
Bosnia and Herzegovina			15,8	15,8			27,8	27,8			56,4	56,4
Cyprus	10,2	6,9			33,2	26,6			56,5	66,5		
Croatia			8,9	8,6			32,4	32			58,7	59,4
Egypt	20,9	19,7	17,5	17,4	35,8	32,8	31,5		43,3	52,3	50,2	51a
Spain		4,8				35,3				59,8		
France	4,8	3,5			34,7	29,3			60,6	67,2		
Greece	12,7	12,8			25,7	21,9			61,6	65,3		
Israel												
Italy	6,3	3,5			39,8	34			54	62,5		
Lebanon			12,8	13			27,4	25			59,7	62
Libya	1,8				72,9				25,3			
Malta	3,9	3,7			42,6	40,2			53,5	56		
Monaco												
Morocco	17,9	17,2	17	14,8	32,7	32	31,9	32,7	49,4	49,6	51,1	52,6
Slovenia			4				38,6				57,4	
Syria		23,7	32,4	30,4		23,7	16,9	17,3		52,6	50,7	52,3
Tunisia	13,5	12,9	12,4	12,9	28,9	31,1	28,4	28,2	57,6	55,9	59,1	59
Turkey	27,9	17,4	18,5	15,8	23,8	32,8	25	24,3	48,3	49,8	56,5	60
Average for Med. countries	11,8	13,33	18,73	19,27	38,23	32,77	30,15	29,33	49,90	54,14	51,03	51,2

Source. *World development indicators, World Bank, April 2001*

⁵ Giri, Jacques. Industry and Environment in the Mediterranean. Fascicule no. 4, Plan Bleu, 1991.

⁶ UNEP(DEC)/MED WG 170/3 Strategic Review for the Year 2000. UNEP, Athens, 1999.

⁷ Giri, Jacques. Industry and Environment in the Mediterranean. Fascicule no. 4, Plan Bleu, 1991.

⁸ Ibid.

The concentration of industry on the coast could increase with the creation of the Euro-Mediterranean free-trade area in the framework of DFI and relocation of some activities from the North to the South. This would concern above all the production sectors oriented towards domestic demand, such as cement, petroleum products, cardboard, metal products and steel, which are all activities that consume water and are sources of pollution.

Country	Environmental indicators											
	Water resources (m ³ /inhabitant)			Emission CO ₂ (T/inhabitant)			Energy (equivalent of kg of oil/inhabitant)			Electricity (KWH/inhabitant)		
	1995	1998	1999	1995	1998	1999	1995	1998	1999	1995	1998	1999
Albania			621,4	0,7			337,9	283,6		627,9	678	
Algeria			477,5	3?4			912,5	898,3		516,9	563	
Bosnia and Herzegovina			9662,4	1,2			522	517		543,8	538,7	
Cyprus			1052	7,7			2696	2942,5		3032,7	3468,2	
Croatia			15994,6	4			1525	1807		2121,2	2462,6	
Egypt			930,5	1,7			608,1	679,4		762	861,1	
Spain			2844,4	6,3			2630,1	2864,6		3593,8	4195,3	
France			3258,3	6,1			4173	4378		5922	6287	
Greece			6547,7	7,9			2262,9	2565,5		3259,4	3738,7	
Israel			180,2	10,4			2944,4	3165		5011,9	5475,1	
Italy			2905,7	7,4			2823,1	2916,1		4165,3	4430,8	
Lebanon				1123,8	3,8			1134,6	1256		1168,8	1819,6
Libya			147,6	8,2			2964,5	2342,6		3623,9	3677,2	
Malta			263,9	4,7			2260,6	2517,3		3393,5	3718,8	
Monaco												
Morocco			1062,4	1,3			315,3	336,4		403,7	443	
Slovenia			9317,6	7,2			2954,8	3353,7		4715,6	5095,8	
Syria			2845,1	3,4			1001	1132,9		698,5	837,9	
Tunisia			433,6	2			722,7	812,3		734,4	824	
Turkey			3162,6	3,2			1028,2	1144,2		1076,6	1353,3	
Average for Med. countries			3306,91	4,84			1780	1890,12		2388	2656,21	
European average			3769,2	8,1			3678,4	3834,1		5146	5504,4	

Source: World Development Indicators, World Bank, April 2001

The availability of water is unequally spread over the countries of the North and South of the Mediterranean. For the countries of the South, this varies between 148 to 1124 cubic metres/inhabitant. The northern countries have an average of 3000 cubic metres/inhabitant. Consumption of energy varies between, the equivalent of 300 to more than 4000 kilos of petroleum per inhabitant. It is the same situation for electrical energy that is from 400 to more than 6000 KWH per inhabitant.

1.3 FREE TRADE IN THE EURO-MEDITERRANEAN CONTEXT

To stress economic growth in the Mediterranean countries without a clear and stated Mediterranean strategy of sustainable industrial development is still greatly insufficient at the present time. The economic changes and restructuring, changes in the consumption patterns and progress towards the creation of the free-trade area are strong arguments in favour of this Mediterranean industrial and sustainable development strategy.

The Barcelona Declaration on the Euro-Mediterranean partnership emphasizes the fact that modernization and competitiveness of industries are the keys to the future in order to ensure the success of the Euro-Mediterranean partnership and provides for concentration of cooperation on the use of national and European standards and the improvement of conformity, certification, accreditation and quality standards. It also advocates the principle of "reconciling economic development with protection of the environment, integration of environmental concerns into the pertinent aspects of economic policy and to attenuate the negative consequences that could result from development on the environment". This principle is not sufficiently taken into account because in the various agreements on association, sustainable development is mentioned only briefly, especially in relation to bringing industries into conformity with European norms and standards.

More attention should be given to industry and sustainable development in order to predict the impact on procedures and trade agreements in the region. Often, there is mention of the transfer of technology and conformity under the framework of the Euro-Mediterranean partnership without any reference to the best available techniques, best practices or the cleaner production technologies.

Under the framework of the Euro-Mediterranean partnership, the third ministerial conference on industry held in Limassol (Cyprus) on 22 June 2000 stressed the promotion of investments, support for SMEs and mobilization of national federations of industries, but did not make reference to sustainable development, saving in resources and protection of the environment.

The Euro-Mediterranean partnership is taking form and there are Custom's agreements but mention of agreements on association are rather vague. The part on industry and sustainable development is included in the chapter on cooperation, which calls for cooperation in the fields of soil and water quality, the consequences of industrial development (especially security and waste) and control and prevention of marine pollution. As for industrial cooperation, in the framework of promotion of cooperation between economic actors and support for modernization and restructuring of industry, there is no reference to the transfer of cleaner production technologies or general integration of sustainable development in the industrial sector.

Given the current status of knowledge and experiences in the area of free trade, it is difficult to carry out impact studies of the Euro-Mediterranean free-trade area on sustainable development.⁹ The methodologies are still not completely defined. However, the various authors insist on the risks of changes in the local patterns of consumption with a preference for imported goods. This will have as a consequence an imbalance in the trade balance, the suffocating of local production, an increase in the production of waste, an increase in the number of private vehicles, etc.

In terms of industry, the greatest risk is to see hot spots multiplied on the coastal, an increase in the pressure on energies and water, the disappearance of SMEs that are incapable of internalising the costs of reaching conformity and relocation of high-polluting activities. In the field of transportation, especially maritime traffic, there will be a large increase, and this will led to greater pressure on the marine environment with the risk of accidental pollution, air emissions, emptying of bilges, etc.

1.4 DEVELOPMENT OF THE MEDITERRANEAN ISLANDS

The Mediterranean islands are a fragile balance between the environment, the economy and society varying in function of the size, accessibility, population density and the political situation. They have many aspects in common, such as a strong local identity, a rich cultural heritage, but with limited natural resources and strong pressure from tourism on their fragile and threatened ecosystems. Many islands are less favoured in the countries to which they belong because of their position on the periphery and their geographical isolation. This situation is due in part to a limited market, expensive transportation and access to information, inadequate infrastructures, etc.

⁹ Several studies and reports on the Euro-Mediterranean free-trade area have been carried out by the Plan Bleu.

The future and the development of these islands depends heavily on the centres of economic decisions, their local resources, the capacity of their society to mobilize these resources and the quality of the environment and services. Sustainable development of these islands requires a specific strategy adapted to their particular characteristics, taking into account the socio-economic development and the socio-cultural need of protecting the environment.

1.5 THE IMPACT OF INDUSTRIAL DEVELOPMENT

Industrial development has created and will continue to increase a large number of major problems of air, water and soil pollution, degradation of the environment and the quality of life, if concrete measures are not taken to establish a strategy that corrects and improves the existing situations and that progressively integrates the notion of sustainable development into industries and the process of free trade.

Current industrial activities produce liquid effluents that are often discharged untreated directly into the sea or into the hydrographical basin or into urban sanitation systems from which they are released without being purified. Industrial waste and, more particularly special waste, is often poorly managed; especially in countries where there are not yet any regulations on the subject or suitable facilities for collection, transportation or elimination or in countries where recommendations are not applied. Industrial and urban pressures have created a number of hot spots and sensitive areas in the Mediterranean, which are mentioned below.

Irregular rainfall with summer periods going from April–May to September–October means that surface water and groundwater are very vulnerable to pollution. Pollutants filter into the ground or are concentrated in expanses of water and watercourses that have a reduced flow or dry more rapidly in the dry season. Heavy rainfall, especially at the end of a dry period, washes away waste and pollutants and conveys high pollution loads that can have a very serious impact on the quality of the water in reservoirs, water supply points, estuaries and coastal lagoons. Cases of pollution and high fish mortality in estuaries have occurred in the past usually following a considerable contribution of pollution loads after heavy rainfall at the end of the dry season. Cyclical drought is a widespread phenomenon enough to remind us that this natural phenomenon must be countered by good housekeeping practices of water resource management, protection of quantity and quality and economies in the use of water. The water shortage and the overuse of resources, the reduced surfaces of the hydrographical basins and the increasing water requirements of the population must lead to rationalisation of industrial consumption.

In the Mediterranean region there are areas of seismic activity where the installation of highly hazardous industries can cause damage that in the event of an earthquake would be added to that caused by the earthquake itself. Ground permeability and the risk of groundwater pollution were insufficiently taken into consideration when setting up industries. With studies of the impact having been put into place by all countries, this parameter has certainly been considered since contaminated groundwater is groundwater that is lost for many years to come. Regarding land erosion on the coast, it must be noted that mining has made a significant contribution in this area, more particularly the quarries and sand pits that are a highly developed phenomenon on the coast, for example the dredging of sand from estuaries, watercourses and often beaches and dune areas. The uncontrolled elimination of waste and the contamination of the soil will certainly have an impact.

Atmospheric emissions are produced mainly by metallurgical and petrochemical activities, energy production and transport. The growth in the consumption of energy (fossil fuels) associated with industrial development creates a large amount of atmospheric emissions that are well known for their effects on the health of populations, on plantations and on climatic changes (greenhouse effect) that have been witnessed in recent years. The gases that cause the greenhouse effect are methane, carbon dioxide and nitrous dioxide resulting from urban and industrial activities. Depletion of the ozone layer is another phenomenon that is currently seriously taken into account by international programmes for the replacement of ozone-depleting substances by less-harmful substances, by applying the Montreal protocol on ozone-depleting substances used by industry and agriculture. These industrial and urban pressures on the fragile and endangered natural Mediterranean environment have led to the creation of pollution hot spots and sensitive areas. These pressures could increase with the development of the Euro-Mediterranean free-trade area.

2. PRIORITY POLLUTION HOT SPOTS AND SENSITIVE AREAS IN THE MEDITERRANEAN REGION

In order to allow the setting-up of the Strategic Action Plan (SAP) to address pollution from land-based activities, a study to identify priority pollution hot spots and sensitive areas was carried out by UNEP and WHO.¹⁰ This study identified 101 hot spots and 51 sensitive areas in 20 countries. The hot spots are divided into domestic sources of pollution (22 hot spots), mixed sources of pollution (58 hot spots) and industrial sources of pollution (21 hot spots). Discarding of industrial effluents into urban sanitation systems constitutes a mixed source of pollution. Unfortunately, the part corresponding to industrial pollution in these effluents is unknown, which complicates any assessment of industrial pollution in terms of quality, flow and discharge. Industrial pollution is not well controlled and needs better handling. Identification of the type of industrial waste in a sanitation system is of primary importance for setting up an urban water-treatment plant, since it is known that certain industrial pollutants disturb biological process, thus reducing the output of the equipment, and may increase the cost of plant investment and operation. Total pollution loads are calculated from the data available for each country, taking into account, all sources, and they are as follows:¹¹

- The global pollution load expressed in biological oxygen demand (BOD) is estimated at 804,248 tonnes per year, of which 46 per cent is estimated to be generated by three hot spots;
- The global chemical oxygen demand (COD) load is estimated to be 1,729,852 tonnes per year, of which 50 per cent is produced by the same three hot spots;
- The total nitrogen load is estimated to be 252,129 tonnes per year;
- The total phosphorus load is estimated to be 41,296 tonnes per year;
- Toxic substances susceptible to bioaccumulation (TPBs): only eight hot spots have been taken into account, and there are gaps in the data collected. The TPBs taken into account were heavy metals (Hg, Cd, Pb, Cr, Cu, Zn, Ni) of which the total annual load would be 609 tonnes and hydrocarbons totalling 3650 tonnes per year. Other persistent organic pollutants such as lindane, DDT and other herbicides, were mentioned but little data is available.

Distribution of pollution by country (mixed and industrial sources of pollution)			Distribution of hot spots and sensitive areas by country		
Country	Mixed sources (industrial+ domestic)	Industrial sources	Country	Number of hot spots	Number of sensitive areas
Albania		2	Albania	8	3
Algeria	8		Algeria	8	6
Bosnia and Herzegovina			Bosnia and Herzegovinae	1	5
Croatia	6	1	Croatia	8	5
Cyprus	1	3	Cyprus	4	1
Egypt	3		Egypt	4	1
France		1	France	5	4
Greece	5	4	Greece	9	2
Israel	2	1	Israel	5	
Italy	10	4	Italy	15	7
Lebanon	5		Lebanon	5	2
Libya	1		Libya	5	
Malta	3		Malta	3	3
Morocco	5		Morocco	3	1
Slovenia	2	1	Slovenia	4	2
Spain	3		Spain	5	3
Syria	4		Syria	4	5
Tunisia	1	3	Tunisia	4	1
Turkey	2		Turkey	5	7

¹⁰ UNEP/WHO. Identification of priority pollution hot spots and sensitive areas in the Mediterranean. MAP Technical Reports Series No. 124. UNEP, Athens, 1999.

¹¹ UNEP/WHO. Identification of priority pollution hot spots and sensitive areas in the Mediterranean. MAP Technical Reports Series No. 124. UNEP, Athens, 1999.

This study for identification of hot spots and sensitive areas has brought to light the difficulties in obtaining complete and reliable information, especially data on industrial activities and the quality of effluents and the marine environment. The following gaps have been identified:

- Lack of data on the quality of receiving waters;
- Difficulties in obtaining sufficient reliable data on industrial effluents;
- The majority of corrective actions proposed consist of sanitation and treatment of the water used, which is incompatible with the modern concepts of reduction of pollution at the source;.
- These wide gaps show the need for taking urgent measures for controlling the industrial environment by putting into place a programme for promoting sustainable development in industry and improving knowledge of the status of industrial pollution in the Mediterranean;
- The Strategic Action Programme in the section on investment and mobilisation of financial resources notes the absence of proposals for preventive measures and actions for reducing pollution aimed at the setting up of a cleaner production approach, best available techniques and best environmental policy.

3. LEGISLATIVE ASPECTS

3.1 LEGISLATIVE ASPECTS AT THE REGIONAL LEVEL

Legislative aspects were looked at in order to reflect the use of the concept of industry and sustainable development. Aware of the risks of degradation of the Mediterranean marine environment, the coastal countries met 1975 and launched the Barcelona Convention and the action plan for the protection of the Mediterranean Sea from pollution. Since then, six protocols for application of the Barcelona Convention have been signed or ratified and support structures (regional activity centres) and technical and financial tools have been set up ¹². The level of implementation of these legislative texts differs from one country to another according to specific social, economic and political circumstances.

The Convention for the Protection of the Mediterranean Marine and Coastal Environment

The Contracting Parties take individually or jointly all appropriate measures provided for in the convention for preventing, reducing, combating and eliminating pollution in the Mediterranean region and for protecting and improving the marine environment with a view to contributing to its sustainable development. For this purpose, they apply the principle of precaution, the "polluter pays" principle and undertake studies of the impact of projects on the environment that may cause extensive damage to the marine environment and cooperate and exchange information for studies on the impact of projects that may have an impact on the marine environment in other countries in the region. In application of the Barcelona Convention and its protocols, the Contracting Parties use the best available techniques and the best environmental practices and must promote access and transfer of safe environmental technologies, including cleaner production technologies, taking into account social, economic and technological conditions.

¹² The ratification process of new legal or amended texts is still in process.

Land-based Sources Protocol¹³

As a general obligation, the Contracting Parties commit themselves to eliminate pollution created by land-based sources and activities. For this purpose, they write and apply the appropriate national plans and programmes containing the measures and schedules to be put into practice, taking into account the best available techniques, the best environmental practices and cleaner production technologies. They will also take measures for reducing the risks of accidental pollution. The Contracting Parties will progressively formulate and adopt, in cooperation with international organizations, the directives and criteria related to the progressive control and replacement of products, facilities and industrial processes causing widespread pollution of the marine environment. The standards and criteria take into account local ecological, geographical and physical characteristics, the economic capacity of the parties, their need for development, existing pollution and the marine environment's capacity for absorption.

The Parties will cooperate in the scientific and technological sphere, particularly in research into the effects of pollutants, and the development of new method for treatment, reduction or elimination as well as the development of cleaner production procedures. For this purpose, the Parties emphasis the exchange of scientific and technical information, coordination of research programmes and guarantee access and transfer of technologies including cleaner production technologies.

The Parties will develop bilateral or multilateral technical assistance for developing countries with a view to reducing and preventing pollutants including the training of scientists and technicians in the area of cleaner production.

Hazardous Wastes Protocol¹⁴

This text is very important because until recently the problem of management of hazardous wastes has not yet been incorporated in a specific way into the national strategies and policies of many Mediterranean countries. However, the production of hazardous wastes is a reality in all countries and to a great extent concerns industrial activity. A considerable part of the production of hazardous wastes can be avoided by adequate management within manufacturing plants. The problem of the management of hazardous waste must be considered as a whole, from regulations to the setting-up of operators throughout the sector: collection, transport, sorting, elimination and recycling.

As a general obligation, the Parties will take appropriate measures for preventing, combating and eliminating pollution that may be caused by cross-border movements and the elimination of hazardous waste and for reducing its production to a minimum. The Parties will cooperate in the scientific and technological sphere, particularly in the application and development of new methods of reduction and elimination of hazardous waste through cleaner production methods.

The Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastline and the Area of the Mediterranean (MAP Phase II)

In the framework of a strategy on sustainable development in the Mediterranean focusing on industry, MAP Phase II stated that actions should be taken to encourage and facilitate the use of appropriate industrial procedures and cleaner technologies, to facilitate its transfer adaptation and control among Mediterranean countries, to consolidate and accelerate the introduction of programmes for the control and reduction of industrial pollution and to strengthen and expand programmes for the reduction and management of industrial waste.

Regarding energy, MAP Phase II states that there is a need to improve management of energy and to introduce policies compatible with sustainable development. It states that its objectives are to encourage and facilitate the use of new and renewable sources of energy in industries and techniques for controlling and saving energy should be developed, taking into account that new power stations on the Mediterranean coast

¹³ Adopted in 1980 and amended in 1996

¹⁴ Adopted in 1996 it has not yet come into force

should be environmentally friendly and existing power plants should be modernised. With regard to water resources, it states that tools for the management of water demand should be used. Moreover, the preparation of water resource master plans for whole basins should be promoted, making use of an integrated approach, especially in coastal and island areas. As regards integrated coastal area management, coastal planning should be established to eliminate competition between town planning, industrialization, tourism, transportation and agriculture. The preservation of ecosystems and the prevention and elimination of pollution from all sources, including industrial sources, should be promoted.

As regards assessment, prevention, and elimination of marine pollution, on the issue of pollution prevention at the national level, it recommends formulating and implementing national action programmes or plans based on the precautionary approach, to prevent and eliminate pollution from land-based activities. Such programmes or plans should include, as appropriate:

- Setting-up or strengthening of a public administration specialized in the prevention of and fight against pollution and the provision of adequate funds;
- Development of adequate national legal instruments and measures for prevention and elimination of pollution;
- Creation or strengthening of bodies of environmental inspectors having specific training and administrative authority;
- Use of appropriate economic instruments based on the "polluter pays" principle and the precautionary approach;
- Encouragement of voluntary agreements (covenants) for the reduction and elimination of pollution, where appropriate;
- Establishment of a calendar for full implementation of the common measures against pollution adopted by the Contracting Parties, as well as the relevant points of the Genoa Declaration;
- Development and implementation of national compliance monitoring programmes, carried out by participating national collaborating institutions;
- Provision for mandatory country reporting on implementation of national action plans, including the monitoring of compliance.

Strategic Action Programme to address pollution from land-based activities (SAP)

In the context of the land-based protocol revised in 1996, the Contracting Parties undertook to take all appropriated measures for preventing, reducing and combating pollution due to land-based activities. For this purpose, they agreed to write and implement action plans and national and regional programmes. The regional plans and programmes were drawn up by the MAP Secretariat. The programme is based on the cross-border diagnostic balance that was established at the regional level and aims to improve the quality of the marine environment by better-integrated management of land-based pollution. It also aims to facilitate application of the LBS Protocol by the Contracting Parties. The programme gives basic guidelines for implementing, among others, a policy for fighting against industrial pollution by promoting the concept of cleaner production, the best available techniques and the best housekeeping practices.

The specific objectives of the Strategic Action Programme are:

- Formulation of principles, approaches, measures, calendars and priorities for action;
- Preparation of a list of priority interventions and investments (investment portfolio);
- Analysis of basic and complementary measures necessary for solving individual priority cross-border problems;
- Drafting of guidelines for national action plans for protection of the marine environment from the impact of land-based activities;
- Identification of the role that can be played by non-governmental organizations in implementation of the Strategic Action Programme.

The Strategic Action Programme has an important part to play in sustainable industrial development and fixes priorities for action based on the results from MED POL and the reports on hot spots and sensitive areas that have already been referred to. It defines the industrial sectors involved, priority pollutants and specific action to be taken at regional and national levels.

Priority industrial sectors covered in the SAP

In the area of industrial development, 21 sectors of the 30 listed in annex 1 of the LBS Protocol are industrial sectors. This shows the scale and diversity of industrial activities in the Mediterranean region and the importance given by regional and national institutions to industry and sustainable development. The industrial sectors are distributed as follows:

- Energy production
- Fertiliser production
- Production and formulation of biocides
- Pharmaceutical industry
- Oil refining
- Cellulose and paper industry
- Cement production
- Tanning
- Metal industry
- Mining
- Shipbuilding and repair
- Port operations
- Textile industry
- Electronics industry
- Recycling industry
- Organic chemical industry
- Inorganic industry
- Agro-food industry
- Treatment of hazardous waste
- Waste incineration
- Transport activities

Priority pollutants

In terms of pollutants, priority is given to substances that are toxic, persistent and susceptible to bio-accumulation (TPBs) due to their effects on the health of humans, on biodiversity and on ecosystems. These substances are composed of organic matter or persistent organic pollutants (POPs) and inorganic matter such as certain heavy metals and organo-metallic compounds. Other heavy metals, organo-halogen compounds, radioactive substances, nutrients and suspended solids and hazardous wastes are also considered target industrial pollutants. These priority substances are important parameters in the choice of the strategic approach for drawing up priority action programmes for sustainable industrial development. From production to use of these products, the gap can be enormous since many of certain substances, especially persistent organic pollutants are not produced in situ but are imported. Pollution sources are often diffuse (use in agriculture, for example) and difficult to assess in terms of impact.

The SAP proposes schedules for reducing priority pollutants and recommends, wherever possible, the use of best available techniques, best environmental practices and cleaner production technology approaches.

3.2 LEGISLATIVE ASPECTS AT THE NATIONAL LEVEL

In terms of legislation and regulations, the development priorities with which developing countries were faced during the 1970s and 1980s did not allow taking into consideration criteria of sustainability in an efficient and effective way, especially in the area of industrial development. The primary preoccupations were urban management and later national and land-based planning.

The industrialized countries began to be concerned about the industrial environment and its impact in the mid-1970s, following the energy crisis and the start of pressure from society. This was the beginning of reflection about the saving of energy by appropriate management of waste and encouragement of recovery and recycling. This reflection soon spread to the saving of other resources (water, raw materials) and later the concept of cleaner technology was developed as an effective way to combat industrial pollution.

The development of regional and global environmental policies will contribute to the acceleration of the establishment of written legislation and regulations. This general awareness is a determining factor for the future of the Mediterranean basin. It is true that in each country there are many legal provisions and regulations that do not directly involve the environmental sector but include sections or articles related to the environment. Examples are framework laws on public health, transportation, mining and forests.

- The laws and implementing provisions regarding protection of the environment that are currently in force in Mediterranean countries are concerned with environmental management, water management, household refuse management, air pollution and limitation of dumping. The laws concerned with environmental protection (designations differ according to the country) are established in the majority of the Mediterranean countries. Most of them were promulgated between 1990 and 2000.
- The laws on water follow the same trend as the laws on the environment. They are generally concerned with the management, use and protection of water resources. These laws are complementary to the laws on the environment.
- The regulations that define the limitations on dumping and the quality of continental water are in force in the majority of the countries.
- The provisions concerning waste management are in progress and must tend towards generalisation.
- The studies of impact on the environment are applied throughout the Mediterranean countries.
- Atmospheric emissions and noise pollution are regulated to different degrees but not to the same extent or breadth as liquid waste. There is a slight development in basic provisions that allow rational management of industry and sustainable development. These ideas would certainly be considered or reference made to them in future provisions.
- An incipient tendency has been observed in some countries towards an integrated approach as regards legislation to prevent pollution, such as the European Union IPPC Directive.

The regulatory provisions that contribute to the improvement of the management of sustainable development in industry concern:

- Classification of facilities and their listing;
- Authorization devices and mechanisms;
- Taxes on activities that cause pollution;
- Control mechanisms and bodies;
- Hazardous waste management and regulation of corresponding activities (collection, transportation, sorting, treatment);
- Ozone-depleting substances.

These regulations will allow complementary tools to be set up for prevention and control of technological risks.

The concept of cleaner production as a method for the integration of sustainable development into companies has been adopted in principle by all the Mediterranean countries but the procedures and tools necessary for their implementation are still to be developed in certain countries, like the voluntary adhesion formulas already practised by certain countries, partnerships and financial incentives.

Voluntary agreements for the integration of sustainable development into companies are a method for helping companies to commit themselves. This method is based on partnership and dialogue between firms and the administration, between several companies in the same sector or between several companies, the administration and professional associations. This approach facilitates support for companies and the sharing of experiences in a concerted and organized setting. Legislation itself is not enough and companies cannot themselves integrate sustainable development into their policies. Sustainable development requires a global and integrated approach.

4. ACTORS AND TOOLS IN RELATION TO INDUSTRY AND SUSTAINABLE DEVELOPMENT

4.1 REGIONAL ACTORS AND TOOLS

The actors and agents that operate in the Mediterranean are very diverse. Some of them carry out their activities within the framework of MAP, others operate in the Mediterranean although their scope of activity is wider, others promote financial measures and others have a close relationship with industries and industry associations. The list of operators and agents presented here is not exhaustive. It is for the purpose of illustration that some are mentioned here. These actors develop management tools for industry and sustainable development that can be technical, financial, for promoting awareness, etc. The list of tools that we describe is not exhaustive. For example, there are certification systems that do not fully integrate the principle of sustainability, but that ensure the promotion of better environmental behaviour or the Strategic Environmental Impact Strategy of policies, plans and programmes that is a procedure for the systematic evaluation of impacts on the environment of policies, plans or proposed programme initiatives.

Implementation of various regional and international programmes and protocols requires the preparation, dissemination and popularisation of various techniques and methodological tools for monitoring and evaluation, research, diagnosis, drafting of nation evaluation programmes of impacts on the environment, etc. Concerning financial tools, apart from activities carried out within the framework of MAP and financial activities within the framework of bilateral cooperation, other financial tools are available at the regional level.

- The MAP Coordinating Unit (MEDU) and other centres within the framework of MAP

Created in 1982 and based in Athens, the MAP Coordinating Unit fulfils the functions of secretariat under the auspices of the UNEP. It starts up the different MAP programmes and works with the regional activity centres (RACs), supervising and coordinating their work. Other centres linked to MAP carry out activities in collaboration with MEDU.

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

Regarding the promotion of practices and technologies leading to pollution prevention and waste minimization in Mediterranean industries, the Barcelona Regional Activity Centre for Cleaner Production (RAC/CP) that is in charge of this area.

The main objectives of the CP/RAC are the following:

- Technical support for the National Focal Points of RAC/CP;
- Exchange of experiences, experts and information on cleaner production technologies;
- Cooperation on the definition of best available techniques and best environmental practises for the Mediterranean region;
- Promotion of the transfer of technologies and demonstration projects;
- Organization and promotion of training activities;
- Publication of information and case studies of successful activities carried out by industries in the region;
- Carry out and publish studies on subjects and sectors of interest in the Mediterranean region that are related to pollution prevention;
- Cooperation with the MCSD and MAP.

The activities of RAC/CP are mostly financed by the Ministry of the Environment of the Government of Spain once they have been submitted and approved by the Contracting Parties to the Barcelona Convention and by the Bilateral Monitoring Commission (Comisión Bilateral de Seguimiento), made up of representatives of the Spanish and Catalan governments.

The Barcelona RAC/CP has developed methodological tools for application of the cleaner production approach, for example the Minimisation Opportunities Environmental Diagnosis (MOED) and the working groups. In addition, it has carried out several activities for training and the exchange of experiences and know-how among experts working in cleaner production in industries. The publication of sectoral studies on opportunities for preventing pollution is also a regular activity of RAC/CP, in addition to the publication of a study concerning the State of cleaner production in the MAP countries and publication of MedClean case studies, the CPNews bulletin and the new technical journal "Mediterranean Enterprises and Sustainability".

• Programme for the Assessment and Control of Pollution in the Mediterranean Region (MED POL)

The MED POL programme is now in phase III, which runs from 1996 to 2005. Its mission is the elimination of pollution from land-based activities. It emphasises the aspects of pollution control management in relation to the application of the land-based and dumping protocols. The specific objectives of phase III can be summarised as follows:

- Study and assessment of all isolated or diffuse sources of pollution and the effects of pollutants;
- Assistance from countries for the setting up of action plans for combating marine pollution, in particular land-based sources of pollution;
- Assessment of the status and follow-up on the development of the quality of coastal waters;
- Formulation and setting-up of action plans, programmes and measures for prevention and control of pollution;
- Follow-up of the start-up of action plans, programmes and measures for control of pollution.

• Plan Bleu Regional Activity Centre (RAC/BP)

Plan Bleu has prepared a list of environmental and development indicators for monitoring and evaluating the status, pressures and performances or responses. The MED STAT environmental programme, now being implemented, is an information and statistical data tool regarding the industrial environment in the Mediterranean region.

• European Union

The European Union has developed cooperation and partnership with the countries in the South and Eastern Mediterranean. Within the framework of the Euro-Mediterranean partnership, technical and financial tools were created, such as LIFE-Third Countries, MEDA, and SMAP. Within the framework of the creation of the Euro-Mediterranean free-trade area, EU will play an important role in the process of sustainable development. The question of the impact of the Euro-Mediterranean free-trade area on the sustainability of development is being widely discussed. Many initiatives are being coordinated by MCSD, the non-governmental organizations, partner countries, etc.

The MEDA programme is the main financial tool of the European Union for implementation of the Euro-Mediterranean partnership. MEDA ensures follow-up of the partner countries for economic and social reforms. The programme of short and medium-term priority activities for the environment (SMAP) was adopted by the Euro-Mediterranean partnership at the inter-ministerial conference held at Helsinki on 28 November 1997. SMAP is based on the orientations of the Barcelona Convention and its programmes. Among the five fields of priority activities of SMAP, three components concern industry and sustainable development:

- Integrated water management;
- Management of urban, industrial and hazardous wastes;
- The critical sites or hot spots. For this part, it is recommended to use the best available techniques to reduce pollution emissions in industrial areas.

The LIFE-Third Countries programme is a programme to finance activities of environmental protection, including air pollution, the management of wastes and the reduction of pollutants.

• World Bank

The World Bank has developed programmes in the Mediterranean countries to reinforce the control of pollution and protection of the urban environment, the management of natural resources, protection of the rural environment and reinforcement of capacities. Within the scope of industry and sustainable development, programmes are underway in certain Mediterranean countries, such as the industrial pollution control project (Algeria), Mediterranean pollution control (Algeria, Morocco and Tunisia) and pollution reduction (Egypt).

The technical assistance programme for protection of the Mediterranean environment (METAP) seeks to identify, through feasibility studies, activities that can be financed by the World Bank, the European Investment Bank (EIB) and the European Union. Eligible activities must concern the control of the degradation of the environment in the Mediterranean region. METAP began a new phase in 1996. The definition of sustainable development indicators is a priority in addition to the reinforcement of the capacities, integrated water management, monitoring and prevention of pollution of the hot sites.

The Global Environment Fund (GEF), created in 1991 by the World Bank with UNEP and UNDP, covers questions of global environmental importance, such as climate change, protection of the ozone layer.

• UNEP and the Division Technology, Industry and Economy (UNEP/DTIE)

The mission of the division is to encourage governmental and industrial decision-makers to prepare and adopt cleaner policies, strategies and practises that are more secure and less consumers of natural resources, limiting the risks for man and the environment and permitting implementation of the conventions.

DTIE plays the role of a catalyst, encouraging partnerships as voluntary initiatives. It facilitates effective and integrated implementation of the conventions and multilateral environmental programmes, encourages the private sector and industry to adopt technologies management methods that respect the environment and facilitate their transfer.

- United Nations Organization for Industrial Development (UNIDO)

The UNEP/UNIDO programme of national cleaner production centres is integrated into ecologically sustainable industrial development. Begun in 1994, this programme is now in its second phase. The programme has the objective of building capacities in the field of cleaner production through four activities: evaluations, training, the spread of information and the provision of strategic advice.

During the first phase, which lasted from 1994 to 1999, 16 national clean production centres have been created in Africa, Asia, Latin America and Eastern Europe. During the second phase, now under way, more than ten centres are planned. In the Mediterranean region, there are those of Croatia, Morocco, Tunisia, etc., which have benefited from this programme.

The ozone programme implemented by UNIDO seeks to aid developing countries to substitute ozone-depleting substances in industrial processes with substances that do not affect the ozone layer. The activities carried out under this programme consist of assistance with surveys, information on new technologies, training, substitution activities and reinforcement of national capacities.

- International Centre for Science and High Technology (UNIDO-ICS)

UNIDO-ICS encourages the promotion and transfer of sustainable technologies to the developing countries. ICS carries out projects in these countries and provides support for strengthening the capacities of these countries. It provides services such as geographical information systems. For example, UNIDO-ICS has prepared a training manual for introducing geographical information systems for industrial development, in which GIS is combined with remote sensing for gathering environmental information and decision-making tools.

- Professional associations and chambers of commerce and industry working with industries carrying out activities on the regional level. For example, the Association of Chambers of Commerce and Industry of the Mediterranean (ASCAME) is based in Spain and brings together 123 chambers of commerce and industry and affiliated bodies in 20 countries in the North and South of the Mediterranean region. Its main activities concern transportation, tourism, the environment and training plus issues that can improve balanced and adequate development in the Mediterranean countries.

The professional organizations and chambers of commerce are very important partners in the framework of sustainable development and cooperation, transfer of cleaner technologies and, above all, in the framework of creation of the free-trade area.

- There are non-governmental organizations that work in the region or that carry out activities in a few Mediterranean countries (RAED, ENDA, MEDFORUM, etc.).
- Many university-level institutions and research centres in the North as well as in the South and in the East carry out research programmes in the Mediterranean region on various subjects, but their activities are spread out and the results are not systematically reinforced in the field.
- Many consultants and experts carry out activities in the field of industry and sustainable development, within a framework of bilateral cooperation, international programmes and sometimes within the framework of international or national calls for tenders.

There are many actors and activities in the field of industry and sustainable development. The interaction of these programmes and various actors is certain. All of the activities are aimed at the same objective: reduction of industrial pollution, implementation of the concept of cleaner production and improvement of competitiveness of businesses on the international level.

The exchange on information and the coordination of all the activities carried out by many actors within various programmes at the regional level make it possible to envisage coherent programmes at the Mediterranean regional level and to identify additional complementary activities. These exchanges should be carried out at the national and regional levels. Evaluation of impacts and the results of all these activities should be carried out at a high level and structured to be able to apply some corrections.

4.2 NATIONAL ACTORS AND TOOLS

During the 1970s and 1980s and even before, general environmental management was watered down or spread among several government departments, such as health, industry or water in most of the Mediterranean countries. At best, the environmental sector was administered centrally by a ministry. In certain cases, environmental agencies were created during the 1980s. After the Rio summit, during the 1990s, we witnessed a marked development in institutional and legislative plans in Mediterranean countries with the creation of government departments and support structures, such as environmental agencies and technical centres.

This marked development has meant:

- Improved coordination between governments of environmental action at the national level;
- Federation of development operators at the local and national levels for integrated development that takes broad environmental protection into account;
- Facilitation of exchanges and international and regional cooperation programmes and contribution to them;

At the regional level, the existence of a single spokesperson for each country facilitates implementation of regional programmes and international decisions;

As mentioned above, during the past decade, the majority of countries in the Mediterranean basin raised national environmental management to the rank of government department (ministry, ministry responsible, state secretariat). This is proof of the political willingness of all countries and their awareness of national, regional and international environmental issues;

In some countries, national and regional land-use planning and the environment are united in the same ministry. This type of organization allows a global view of development and the establishment of an integrated management policy for sustainable development.

Other ministerial departments are more and more involved in sustainable development through the formulation of international and regional sustainable development and economic policies. The ministries concerned with industry and sustainable development are those whose responsibilities are, for example, industrial development, public works, energy and mining, water resources, economics, finances, trade and health;

Creation of environment agencies, or performance agencies in some countries, makes for a stronger presence in the area and better follow-up of environmental actions and programmes. These agencies, under the supervision of the ministry responsible for the environment, are institutions responsible for implementation of the national environmental strategy. They also provide access to information.

Local governments are essential partners, because they have an important role to play in the field of land management and the environment, wastes, industrial sites and the health conditions of their citizens.

In some countries, environmental committees or councils, often made up of members of the government, of personalities and non-governmental organizations, have been created and are important forums for agreement and consultation on national environmental policies and strategies. These institutions give their opinion on action plans, defining national environmental priorities. This approach aims to democratise decisions related to the environment and development. Control is still quite diversified in institutional terms. Several institutions often share it. It is true that different institutions and organisms in each country exercise a form of control, more particularly control of the water quality and surface and groundwater resources (public health service, service responsible for water resources, water supplier), but control of industrial premises is specific and requires a specific body and qualified personnel.

Control is necessary that is not limited to quality control of waste. In order to establish a sustainable industrial development policy over and above information, awareness raising and demonstration programmes and control within the facilities themselves is required. This control allows action to be taken to be identified before installing equipment for cleaning up pollution and limiting production of waste, effluents and atmospheric emissions.

National actors in industry and the environment differ from one country to another according to their status, their mission and their organization. Among those who act are environment agencies that may have administrative status, cleaner production centres that may be commercial or mixed, research centres, consultancies and non-governmental organizations. All of these operators work to varying degrees in the area of industry and sustainable development. Some have acquired wide experience, for example the cleaner production centres. This situation encourages the reinforcement of sharing of experiences and cooperation between these different operators.

In the Mediterranean basin, there are several centres such as the Croatian Cleaner Production Centre, the Maltese Centre Technology Centre, the Barcelona *Centre per a l'Empresa i el Medi Ambient*, the Moroccan Centre for Cleaner Production, the Tunis International Centre for Environmental Technologies, TUBITAK of Turkey. All of these centres work for the development of cleaner production by offering technical assistance to companies, training, and awareness raising campaigns and distribution of information. It will be noted that several cleaner production centres are at the planning stage.

Environment agencies are also involved and develop cleaner production programmes, such as the Agenzia Nazionale per la Protezione dell'Ambiente (ANPA), the Tunisian National Agency for the Protection of the Environment (ANPE), the Egyptian Environmental Affairs Agency (EEAA) and the Albanian National Environment Agency. Several chambers of commerce, chambers of industry and other professional associations carry out activities in the sphere of industry and sustainable development are involved in them. Widespread participation of research centres and universities can be noted. On the other hand, non-governmental organizations, with the exception of professional associations, participate less in matters regarding industry and sustainable development.

As for national tools, it can be affirmed that national instruments are in place in several Mediterranean countries. These instruments can be, for example, strategies, techniques, financial resources, awareness promotion and information. Some national instruments are based on instruments produced at the regional level. Their degree of application and the results obtained are little known.

The diagnostic tools and environmental audits carried out in Spain, Tunisia, Croatia and Lebanon, for example, have proven their operational usefulness. For example, in Spain the Minimisation Opportunities Environmental Diagnosis (MOED) of the *Centre per a l'Empresa i el Medi Ambient* has been carried out in more than 300 Catalan companies.

Dissemination of the concept of cleaner production in Lebanese businesses in the form of a guide on good housekeeping practices or even dissemination of an inspection manual in Egypt within an Egyptian project for reduction of pollution are practises to be encouraged and developed.

The existence of other technical instruments such as the LCA database, which was developed by the Italian ANPA should be mentioned. Among national environmental management tools we can mention national environmental action plans and specific plans (waste management, cleaner production, prevention of industrial pollution, surveillance networks). These tools, required for the management of integrated management of the environment and development, are beginning to be used in the region.

Reports on the status of the environment, which are information and decision-making tools are being introduced, for example in Tunisia. The reports of the status of the environment, or even reports on the status of sustainable development are real tools for decision-making and orientation in the choice of development options and planning.

Financial instruments can be government subventions, classic incentive measures (exemption from taxation of antipollution equipment, etc.) or specially created funds for protection of the environment. Several clean-up funds have been created in the region and participate in the integration of the concept of sustainable development in industry. The funds are created with taxes on industrial pollution. This is the case, for example, of FODEP (Morocco and Tunisia), the national environment fund (Algeria), the fund for the protection of the environment (Egypt), the Turkish foundation for the technological development, the Slovenian environment fund, etc. Development of these decontamination funds is linked to adoption by the country of the principle of "polluter-pays" and the existence of regulations of taxes on polluting activities and their application.

CONCLUSIONS

Industry being an economic and social development factor, its integration into the process of sustainable development is a necessity; all the more so because the Mediterranean environment is fragile and vulnerable. Three basic vectors in industrial development are to be taken into consideration: environment, employment and economy. To encompass these three dimensions—environmental, social and economic—and be sustainable, industrial development must respect man, the environment and save resources. The Mediterranean industrial sector will have to adapt to international requirements of competitiveness, and integration of sustainable development in industrial development is a factor of competitiveness. The awareness of consumers of products that take into account environmental protection continues to increase and is becoming a factor to be taken seriously into account. Industries have a strong interest to prepare for this cultural evolution. To this is added the impact of the free-trade area. The greatest risk is to see businesses in the South and East of the Mediterranean suddenly subjected to European environmental and quality requirements without a transition period. This could mean the pure and simple disappearance of SMEs that do not have the technical and financial capacities needed to meet the demands of competition.

Technical and financial advice for SMEs for reinforcement of capacities and advisory services and the provision of equipment will be needed and should be a priority for the preservation of activities and jobs and prepare them for implementation of the free-trade area. The opportunities and technical possibilities exist as well for taking corrective measures and preventive measures, such as the approach of cleaner production, best available techniques, best environmental practises or environmental certification.

Legislation and regulations alone are insufficient to create sustainable industrial development, and the industrial enterprise (especially SMEs) also cannot alone integrate the notion of sustainable development.

It is an overall step and integration that should be implemented on the institutional, legal, technical and financial levels as well as on the level of cooperation and awareness. That is why innovative and participatory approaches should be created, such as voluntary compliance, agreements, the creation of areas of cooperation with greater participation of businesses, non-governmental organizations, chambers of commerce and industry, local governments and government services.

In this context, a business needs information, awareness and support. The business needs to know in order to act better and evolve towards sustainable development. The creation of instruments of specific awareness, either by subject (economy of energy, economy of water) or global and in cooperation with other local actors, is unavoidable. The approach of focused promotion of awareness can be carried out by actors gradually adopting prevention of pollution and eco-efficiency.

Information for businesses on international trends in the development of competitiveness based on quality and the environment is practised very little or not at all. In addition, information on the procedures for access to national, international and regional financial and technical support is seldom available to SMEs. Focused, specific training of the staff of SMEs is an absolute necessity in order to promote real changes in businesses toward sustainable development.

The study of hot spots has proven to be insufficient for providing data on industrial pollution and the absence of taking into account of the prevention and reduction of pollution at the source as one of the solutions that can contribute to the improvement of the situation. The current proposals of corrective measures for hot spots by treatment of waste water as the only means is proof and reinforces the idea that a preventive and integrated vision of industrial activity is indispensable.

If the legislation and regulations concerning the environment, water, domestic waste, air pollution, are already well developed, those concerning industry as the classification of industries for protection of the environment, management of hazardous waste are still being developed. National management plans for pollution should be drafted. The control activity has not been identified, especially control of industrial installations, which is a specific activity requiring training of specific personnel.

On the regional level, the Barcelona Convention and its land-based sources and hazardous wastes protocols constitute the legal basis needed to establish a strategy of sustainable industrial development and national sectoral programmes. This relationship of industry and sustainable development is supported and strengthened by MAP (Phase II) and the Strategic Action Plan (SAP), which insist on integration of sustainable development in the industrial activities and propose as one of the means of reaching this objective, the use of the concept of cleaner production, best available techniques and best environmental practises. This approach is beginning to be practised in several countries.

In this context, we should recall that the principles are not found in the association agreements of the Euro-Mediterranean partnership and that it will be necessary to integrate them, to define a transitional period and reasonable deadlines for reaching conformity.

The actors of sustainable development especially in the field of industry are many and diversified and differ from one country to another. The environmental sector has been raised in most countries to the level of ministerial department, which facilitates lateral cooperation for integration of sustainable development into activities and development projects. Implementation of policies and strategies is assured by structures under the guidance of the ministry responsible for the environment, while public or private structures (cleaner production centres, research centres, consultants) are the operational actors in the field of industry and sustainable development. To these actors should be added non-governmental organizations and professional associations whose role is essential for implementation of cooperation procedures, awareness and information. Other ministerial departments are now involved in the process of sustainable development, and it is a question of reinforcing at the national level consultation and circulation of information among structures.

Research centres and universities are active in the field of industry and sustainable development but their activities are disparate and the results are not always accepted and applied in the field. The creation of coherent research programmes, training and the exchange of experience at the regional level will contribute to a greater dissemination of scientific and technical knowledge and to improve competitiveness of business and their environmental performance.

The Barcelona RAC/CP ensures promotion at the regional level of the concept of industry and sustainable development in the Mediterranean region. Technical and methodological instruments for the integration of cleaner production as well as information tools have been developed and deserve greater dissemination at the regional level. Nonetheless, there is a lack of a regional institution to advise the members of MAP on adoption of sustainable industrial development in their national programmes and plans.

Methodological instruments of surveys, characterization of hazardous industrial wastes and drafting of national management plans for hazardous materials are not fully developed. Other instruments used in the Mediterranean countries already exist and their diffusion in the framework of exchanges and cooperation that would reinforce and facilitate evolution towards sustainable development. Incentive financial instruments exist in some countries, such as clean-up funds. They are replenished by taxes on polluting activities and are used to help businesses in attempts to reduce pollution.

Many actors in the field of industry and sustainable development carry out activities at the regional level aimed at managing and reducing industrial pollution or promotion of cleaner production. These activities could be made more coherent with other activities carried out by MAP if a mechanism for the exchange of information was set up at the regional level.

As for the monitoring and evaluation of performances and the evolution of industry and sustainable development, specific indicators can have a beneficial effect. Some indicators concerning sustainable development have been the object of proposals by the Plan Bleu.

Instruments for periodical evaluation of the status of industry and sustainable development at the regional level will make it possible to ensure better monitoring of the strategy of sustainable industrial development and provide corrective measures and improvement to activities. It is in the same case for evaluation of projects and programmes implemented in this context. In the Mediterranean region, the development of the islands and economic activities specific to those islands should be the object of a global and integrated approach taking into account the fragility of their ecosystem and limited resources at their disposal.

RECOMMENDATIONS

The draft recommendations will serve as a basis for discussion and be added to by the participants in the regional workshop on industry and sustainable development. The recommendations with additions will then be made into an action programme. The drawing-up of the draft recommendations refers to the strategic action plan to address pollution from land-based activities. The final draft recommendations of the workshop will be presented to MCSD and the Contracting Parties for revision and adoption. Priority should be given to specific actions that can be carried out within a short period and that allow the basis to be established for an approach to a strategy on sustainable industrial development that respects human beings and the environment and saves natural resources.

The recommendations proposed below are not given in order of priority but are organized as a logical follow-on since they are interdependent in order to establish a consistent approach aimed at the gradual introduction of the idea of sustainable development in the industrial sector of the Mediterranean. Sustainable industrial development is a permanent and gradual process that cannot be set up or developed without the participation of all socio-economic interests in the area and society in general.

The final recommendations adopted by MCSD and the Contracting Parties will be reviewed and updated periodically after assessment and pooling of experience of land-based activities. It is hoped that these recommendations can constitute a platform for formulation of a Mediterranean strategy for sustainable industrial development.

The recommendations proposed concern three global objectives:

- Awareness raising, information and capacity-building;
- Promotion of the idea of industry and sustainable development;
- Follow-up and assessment of the situation and evolution and actions undertaken.

GLOBAL AIM

Awareness raising, information and capacity-building

Since sustainable development in relation to industry is an idea that is vast and complex and concerns all citizens (as operators, consumers and targets for industrial effects), decision makers, industrial companies, socio-economic operators, non-governmental organizations, it is therefore vital to insist on training, information and awareness raising of the idea "know in order to act in a better way".

1. Building of technical capacities and awareness raising campaigns for companies and operators in the area of industry and sustainable development:

Capacity-building allows help for companies (SMEs) and other operators to integrate into their approach the idea of knowing in order to act in a better way for sustainable development. Capacity-building can be technical, institutional or legislative. Awareness-raising campaigns, narrowly linked to capacity-building, must be carried out on several levels: internally within companies (staff awareness-raising is a primordial action for making them to participate in the move towards sustainable development of the company) and externally (awareness raising of citizens and others involved such as consumers and targets of industrial effects).

2. Setting up at the national and regional levels of tools for information and awareness raising for decision-makers:

Making decision-makers aware is an important and specific action due to its content and the means of information. Specific and targeted awareness raising in decision-makers aims to promote sustainable development in the choices and trends in industrial development. Tools that aid decision-making offer one of the possible means.

3. Setting-up of mechanisms for information and exchanges on industry and sustainable development:

The mechanisms to be set up will allow better access to information, more efficient and targeted distribution of information and a better exchange of information and experiences between the different operators. These mechanisms will be put into place at the regional and national levels horizontally and vertically. Certain methods of distribution of information exist, and will be mobilized, developed and reinforced.

GLOBAL AIM

Promotion of the idea of industrial sustainable development

The promotion of the idea of industry and sustainable development requires the setting-up or mobilization and reinforcement of existing structures (service, think tanks, centres), development of procedures, methodological tools, indicators, etc.

4. Setting up or reinforcement of the promotion and coordination of actions within the area of industry and sustainable development:

The bodies to be set up or reinforced where they already exist will have as their main task support and guidance for companies in the integration of sustainable development into their approach. Their status and organization will differ from one country to another.

5. Setting-up and promotion of procedures and mechanisms for voluntary involvement in the industry and sustainable development initiative and encouragement of the setting-up of forums for agreement and exchanges:

In addition to national regulations and legislation, the setting-up of procedures or mechanisms for free consent or voluntary support from companies for sustainable development must be encouraged. This formula allows a bigger and more specific commitment from companies in a concerted and organized framework.

6. Setting-up and developing specific environmental performance indicators and reference indicators within companies.

In addition to the sustainable development indicators proposed in the Plan Bleu, it would be useful to make some performance indicators available to companies and agents that would allow them to follow up on a daily basis the different parameters regarding production activity and use of resources.

Reference indicators would allow companies to identify overuse or savings. These values encourage companies to look into the saving of resources and the reduction of input.

7. Setting up, adapting, reinforcement, diffusion and popularisation of the methodological tools necessary for the integration of sustainable development in companies.

The tools to be made available to companies, national experts and other operators contribute to capacity-building in companies.

Certain tools exist and are used in different countries and under the Barcelona RAC/CP. Wider popularisation of them is necessary. Other tools must be thought of such as for the management of hazardous waste or practices for saving water and energy.

8. Promoting and setting-up of the concept of sustainable industrial zones.

Concentration of industrial activities in industrial zones requires integrated management for minimizing risks and improving the environment in which companies develop. Talking about cleaner production and integration of sustainable development in companies situated in an industrial zone will only make sense if the industrial zone takes on the idea of sustainable development.

9. Promotion and encouragement of scientific research in the sphere of industry and sustainable development.

Regional research programmes involving one or more organizations on themes aimed at the improvement of methods and techniques contribute to the reinforcement of actions for sustainable development in industry. Cooperation and exchanges between countries and between structures must be the foundation for these programmes.

GLOBAL AIM

Follow-up and assessment of the situation and evolution and actions undertaken

10. Setting up of a device for following up and assessing programmes, projects and the industry and sustainable development situation.

In order to be more efficient, the action undertaken at the regional level requires regular assessment so as to be able to take corrective measures and share experiences. Regular assessment of the global situation in industry and sustainable development contributes to measuring the efficiency of the industry and sustainable development strategy that has been implemented and to redirect it if necessary. This device based on the indicators to be determined must be simple and easy to implement.

BIBLIOGRAPHY

Corbier-Barthaux, Constance. Libre échange et environnement: quel cadre multilatéral pour la région méditerranéenne. February 2000.

Grasa, Rafael and Ulied, Andreu. (eds.) Medi Ambient i Governabilitat a la Mediterrània. Generalitat de Catalunya. Institut Català de la Mediterrània d'Estudis i Cooperació. Barcelona, 1997.

Kuik, O.J. and Oosterhuis, F.H. Free trade and the environment in the Euro-Mediterranean context: Lessons learned from Spain, Portugal, Greece and Poland. March 2000.

Ministère de l'environnement et de l'aménagement du territoire. Les questions d'environnement dans la future zone de libre échange méditerranéenne: qu'a-t-on appris de l'ALENA ? July 2000.

Nadjib Akasbi. Libre échange et environnement dans le contexte euro-méditerranéen Aspects environnementaux des accords d'association signés entre l'Union Européenne et les pays méditerranéens non membre – le cas du Maroc. July 2000.

Hafedh Zaafane. Libre échange et environnement dans le contexte euro-méditerranéen. Etude sectoriel Tunisie . Industrie textile agro alimentaire. July 2000.

Michel Chatelus. Libre échange et environnement dans le contexte euro-méditerranéen : Volet industrie – industrialisation et environnement. June 2000.

World Bank: World Development Indicators Database, April 2001.

MAP Brochure. The Mediterranean Action Plan (MAP). Athens, 2000.

Plan Bleu. Vision méditerranéenne sur l'eau, la population et l'environnement au XXIe siècle. Plan Bleu, January 2000.

Plan Bleu. Libre échange et environnement dans le contexte euro-méditerranéen : Premier rapport de synthèse pour la commission méditerranéenne pour le développement durable (CMDD) Version Provisoire. March 2000.

UNEP. Mesures communes adoptées par les Parties Contractantes à la convention pour la protection de la mer Méditerranée contre la pollution. MAP Technical Reports Series No. 38. UNEP, Athens, 1990.

UNEP. Rapport de la 11e réunion ordinaire des Parties Contractantes à la convention pour la protection de la mer Méditerranée contre la pollution et à ses protocoles. Malta, 27–30 October 1999. UNEP, Athens, 1999.

UNEP. Report of the meeting of the informal network on compliance and enforcement, Sorrento, Italy, 15–17 March 2001. UNEP, Athens, 2001.

UNEP. La Commission Méditerranéenne du Développement Durable, un relais régional pour l'Agenda 21.

UNEP. La convention de Barcelone pour la protection de la mer Méditerranée contre la pollution et le développement durable. MAP Technical Reports Series No. 117. UNEP, Athens, 1997.

UNEP. Mesures communes de lutte contre la pollution adoptées par les Parties Contractantes à la convention pour la protection de la mer Méditerranée contre la pollution. MAP Technical Reports Series No. 95. UNEP, Athens, 1995.

UNEP. Implications of Climate Change for the Albanian Coast. MAP Technical Reports Series No. 98. UNEP, Athens, 1996.

UNEP. Implication des changements climatiques sur la zone côtière de Sfax. MAP Technical Reports Series No. 99. UNEP, Athens, 1996.

UNEP. State of marine and coastal environment in the Mediterranean region. MAP Technical Reports Series No. 100. UNEP, Athens, 1996.

UNEP. Programme d'Actions Stratégiques visant à combattre la pollution due à des activités menées à terre. MAP Technical Reports Series No. 119. UNEP, Athens, 1998.

UNEP. Rapport de la 6e réunion de la Commission Méditerranéenne du Développement Durable, Tunis, 14–17 November 2000.

UNEP. Sixth meeting of Mediterranean Commission on Sustainable Development, strategic review for the year 2000, UNEP, Athens, 1999.

UNEP. Rapport préliminaire des gestionnaires des tâches sur le thème : Industrie et développement durable, 2e réunion de la commission méditerranéenne du développement durable, Palma de Majorca, Spain, 6–8 May 1997. UNEP, Athens, 1997.

UNEP. Coopération du PAM avec ses partenaires de la société civile, UNEP, Athens, February 2001.

UNEP. State of the Marine and Coastal Environment in the Mediterranean Region. MAP Technical Report Series No. 100. UNEP, Athens, 1996.

UNEP. Strategic Action Programme to Address Pollution from Land-based Activities. UNEP, Athens, 1999.

UNEP. Réduction des risques sismiques dans la région méditerranéenne. Documents et études sélectionnés (1985–1987). MAP Technical Reports Series No. 17. UNEP, Priority Action Programme, Regional Activity Centre, Split, 1987.

UNEP. Costs and benefits of measures for the reduction of degradation of the environment from land-based sources of pollution in coastal areas. (a) Case study of the Bay of Izmir; (b) Case study of the island of Rhodes. MAP Technical Reports Series No. 72. UNEP, Athens, 1993.

UNEP. Cleaner Production, Industry and Environment, Volume 17 No. 4 October–December 1994.

UNEP. Division of Technology, Industry and Economics. 2000 Activity Report.

UNEP. Promoting cleaner production investments in developing countries: issues and possible strategies. April 2000.

UNEP/ANPA/ECOMED. Cleaner Production in the Mediterranean Region. Second Regional Report.

UNEP/MAP. Directory of Non-Governmental Organizations: MAP Partners. Athens, 2000.

UNEP/MAP. Report of Meeting of MED POL National Coordinators. Delphi, Greece, 20–23 May 1997.

UNEP/COI. Évaluation de l'état de la pollution de la mer Méditerranée par les hydrocarbures de pétrole. MAP Technical Reports Series No. 19. UNEP, Athens, 1988.

UNEP/WMO. Pollution par voie atmosphérique de la mer Méditerranée. Rapport et actes des journées d'études OMM/PNUJ. MAP Technical Reports Series No. 31. UNEP, Athens, 1989.

UNEP/FAO/WHO. Évaluation de l'état de la pollution de la mer Méditerranée par le cadmium et les composés de cadmium. MAP Technical Reports Series No. 34., UNEP, Athens, 1989.

UNEP/FAO/WHO. Évaluation de l'état de la pollution de la mer Méditerranée par le mercure et les composés mercuriels. MAP Technical Reports Series No. 18. UNEP, Athens, 1987.

UNEP/FAO/WHO. Évaluation de l'état de la pollution de la mer Méditerranée par le zinc. MAP Technical Reports Series No. 105. UNEP, Athens, 1996.

UNEP/COI/FAO. Évaluation de la pollution de la mer Méditerranée par les matières synthétiques persistantes qui peuvent flotter, couler, ou rester en suspension. MAP Technical Reports Series No. 56. UNEP, Athens, 1991.

UNEP/FAO/WHO/IAEA. Évaluation de l'état de la pollution de la mer Méditerranée par les composés organophosphorés. MAP Technical Reports Series No. 58. UNEP, Athens, 1991.

UNEP/IAEA. Évaluation de l'état de la pollution de la mer Méditerranée par les substances radioactives. MAP Technical Reports Series No. 62. UNEP, Athens, 1992.

UNEP/FAO/IAEA. Évaluation de l'état de la pollution par les composés organochlorés. MAP Technical Reports Series No. 39. UNEP, Athens, 1990.

UNEP/CRU. Regional changes in climate in Mediterranean basin due to global greenhouse gas warming. MAP Technical Reports Series No. 66. UNEP, Athens, 1992.

UNEP/WHO. Lignes directrices concernant les autorisations de rejet de déchets liquides en mer Méditerranée. MAP Technical Reports Series No. 107. UNEP, Athens, 1996.

UNEP/WHO. Évaluation de l'enquête sur les polluants d'origine tellurique en Méditerranée (MED X BIS). MAP Technical Reports Series No. 109. UNEP, Athens, 1996

UNEP/WHO. Évaluation de l'état de la pollution de la mer Méditerranée par les détergents anioniques. MAP Technical Reports Series. UNEP, Athens, 1996.

UNEP/WHO. Guidelines for treatment of effluents prior to discharge into the Mediterranean sea. MAP Technical Reports Series No. 111. UNEP, Athens, 1996.

UNEP/WHO. MED POL Phase III: Programme d'évaluation et de maîtrise de la pollution dans la région méditerranéenne. (1996–2005). MAP Technical Reports Series No. 121. UNEP, Athens, 1998.

UNEP/WHO. Identification des "Points Chauds" et "zones sensibles" de pollution prioritaire en Méditerranée. MAP Technical Reports Series No. 124. UNEP, Athens, 1999.

UNEP/Plan Bleu. Industrie et environnement en Méditerranée. Évolution et perspectives. Les fascicules du Plan Bleu No. 4.

European Environmental Agency. State and pressures of the marine and coastal Mediterranean environment. Environmental assessment series No. 5. European Environment Agency, 1999.

MedWet. L'enjeu de l'eau. Conservation des zones humides méditerranéennes. No. 5, 1996.

UNDP. Rapport mondial sur le développement humain 1998.

CP/RAC. State of Cleaner Production in MAP Countries. Barcelona, June 2001.

CP/RAC. CP News. Bulletins du CAR/PP et ses points focaux. Nos. 1 to 8.

CP/RAC. Étude sur les possibilités de prévention de la pollution dans le secteur du tannage dans la région méditerranéenne. CP/RAC, Barcelona, October 2000.

UNIDO. UNIDO and its role in implementation of the Montreal Protocol on ozone-depleting substances. November 1995.

UNIDO. National Cleaner Production Centres. Activity Report. 1999.

European Commission. Le programme MEDA, partenariat euro-méditerranéen, Direction Générale 1B, July 1999.

MED Forum. MED Forum 2000 Agenda, Programme of the Mediterranean NGOs for sustainable development.

2

European Union Perspective on Industry and Sustainable Development

Contents

PREFACE	45
1. INTRODUCTION	47
2. THE EUROPEAN UNION ENVIRONMENT AND SUSTAINABLE DEVELOPMENT POLICY AND ACTION PROGRAMMES	48
2.1 EU policies enshrined in the Treaties	48
2.2 EU actions and the Fifth Environmental Action Programme (1992-2000): "Towards Sustainability"	49
2.3 The Sixth Environment Action Programme (2001-2010): "Environment 2010: Our future, our choice"	49
2.3.1 The programme identifies five priority areas for action	49
2.3.2 Five key strategic approaches are proposed	51
2.3.3 Other provisions with relative importance for industry	52
2.3.4 Financial Implications	53
3. EUROPEAN UNION SUSTAINABLE DEVELOPMENT STRATEGY	54
4. EUROPEAN UNION INDUSTRIAL POLICY	56
4.1 EU policies enshrined in the Treaties	56
4.2 Enterprise policy	56
4.3 Integration of environmental protection requirements into Industrial Policy	57
4.3.1 Measures so far	57
4.3.2 Further developments	58
4.3.3 Other issues on sustainable industrial development	58
5. CONCLUSIONS AND COMMENTS OF THE AUTHOR	59

PREFACE

The European Union (EU) is the world's largest trading entity accounting for 20% of global merchandise exports and 18% of imports. For most of the Mediterranean countries, including EU member and applicant countries, the EU constitutes the largest, single trading partner, export market, foreign investor, donor and financier. Developments in European markets are driven by the European integration, (de)regulation or consumer choice, technological advances and globalisation. They affect both the products and services produced and offered internationally by other competitor European industries and, the products and services demanded by the large European markets. It is in the best interest of Mediterranean industry to follow these developments and trends and adjust their strategic positioning accordingly. Changing to a new strategy is risky, but continuing today's could be riskier.

The EU is a success story of international co-operation. The European integration has given Europe half a century of unprecedented peace and prosperity, offering a unique historical experience: "The experience of liberating people from poverty, war, oppression and intolerance...based on the principles of democracy, freedom and solidarity...A model of consequential pooling of sovereignty in which everyone ... accepts to belong to a minority"¹. **The Contracting Parties to the Barcelona Convention its Protocols, and the Mediterranean Action Programme (MAP), which include the European Commission, could greatly benefit in their pursuit of the objectives of the MAP by: (1) Adopting common objectives, principles, approaches, priorities or management practices with the relevant EU action programmes and policies, on issues where synergism can be enhanced, and/ or (2) focusing on those issues of specific interest to the Mediterranean region but not adequately addressed by EU policy.**

The debate on sustainable development at the international forums, often criticises the policies of the developed countries that consume more than their "fair" share of global non-renewable-resources, causing the lion's share of global environmental problems, without being willing to assume the corresponding share of responsibility and leadership. Unlike other globally significant economic regions, the **EU appears to give prominence to the environmental debate.**

¹ Romano Prodi, Speech/00/41 (before the European Parliament), 2000-2005: Shaping the New Europe, Strasbourg, 15 February 2000.

1 INTRODUCTION

Since the Amsterdam Treaty came into force in 1999, **balanced and sustainable development is one of the principal objectives of the EU**, along with the promotion of economic and social progress and a high level of employment. **Protection of the environment is widely recognised as being one of the major challenges facing Europe.**

Two generic tools have traditionally tackled environmental problems (like most other problems): Better management and, advanced technology (and innovation). The application of existing management and technology tools could still make significant contributions towards the improvement of the current state of the European and global environment. However, there is accumulating evidence that the potential contribution of these existing tools will not be adequate to reverse the deterioration of the condition of the environment. Nobody can predict what breakthrough technology will achieve in the future. But if we cannot confidently rely on technology to save us, a radical restructuring of economic activity and change in society's current patterns of production and consumption might be necessary.

Industry², the producer of goods and services, is part of the problem of the deterioration of the condition of the environment: It discharges into the environment the waste of the production process, produces our means of transport, heating, cooling, entertainment and other machines we consume energy with, produces the goods that by the end of their usefulness are disposed off as waste and, consumes energy and other resources in providing us with the various services we demand (transport, entertainment, etc.). **More importantly though, industry is part of the solution:** It is expected to prevent, minimise and treat its waste, to (invent, design and) produce the processes, machines and services that will consume less resources and energy and, to produce recyclable products that will not end up as waste.

The industrial policy of the EU is focused on ensuring that the conditions necessary for the competitiveness of the Community's industry exist³. Although many argue that high environmental standards gives business a competitive edge, sustainable development policies should be consistent with the realities of doing business. **Industry is primarily concerned with meeting needs (human and social) profitably. International co-operation is crucial to the internationalisation of external (environmental and other) costs, which could directly affect industrial competitiveness and international trade.**

² The definition of "Industry" can be very confusing. To the government statistician the broad Industrial Sector includes the economic activities of Mining, Quarrying, Manufacturing, Electricity, Gas and Water. To the economist and market analyst the term "Industry" refers to a "group of producers of similar products" or the "aggregate of enterprises in a given market". In EU documents the term is used mostly with the meaning of "the aggregate of enterprises", depending on the context; this is the approach adopted in this document as well. Since, however, in the context of sustainable development other specialised action is taken for the sectors of energy, transport, agriculture, and tourism, industry tends to refer to the rest of the polluting sectors, notably Mining and Manufacturing.

³ Consolidated version of the Treaty Establishing the European Community. Article 157

2. THE EUROPEAN UNION ENVIRONMENT AND SUSTAINABLE DEVELOPMENT POLICY AND ACTION PROGRAMMES

2.1 EU POLICIES ENSHRINED IN THE TREATIES

The European Community actions on environmental issues developed over the years since 1972⁴. They were initially based on the commitment of the European Community to improve the living and working conditions of its citizens. In 1987 the Single European Act amended the Treaty Establishing the European Community, explicitly providing for the development and implementation of a Community policy on environment⁵. The Treaty on European Union (also known as Maastricht Treaty) that came into force in 1993 set the EU objective of promoting sustainable growth while respecting the environment. The Amsterdam Treaty that reviewed the Treaties and came into force in 1999, (1) made the achievement of balanced and sustainable development one of the explicit objectives of the Union, (2) defined the tasks of the European Community in such a way as to include balanced and sustainable development of economic activities as well as a high level of protection of the environment and improvement of its quality, (3) highlighted and adopted the need to integrate environmental protection requirements into the definition and implementation of all Community policies and activities, in particular with a view to promoting sustainable development and (4) strengthened, clarified and tightened up the internal market provisions as they relate to the environment without in any way undermining the principles of the internal market⁶. Furthermore, the Commission undertook the commitment to **prepare environmental impact assessment studies when making proposals**, which may have significant environmental implications⁷.

It should be emphasised that after the Amsterdam Treaty⁸, the achievement of **balanced and sustainable development** is more than a policy⁹. It is a principal objective along with the promotion of economic and social progress and a high level of employment¹⁰. **The integration of environmental protection requirements into all Community policies and activities is regarded as a key factor in promoting sustainable development.**

The Community policy on environment is entrusted to contribute to the pursuit of **four objectives**¹¹:

- 1. Preserving, protecting and improving the quality of the environment;**
- 2. Protecting human health;**
- 3. Prudent and rational utilisation of natural resources, and**
- 4. Promoting measures at international level to deal with regional or worldwide environmental problems.**

The policy is aimed at a high level of protection and based on **four principles**¹²:

- 1. The precautionary principle;**
- 2. That preventive action should be taken;**
- 3. That environmental damage should as a priority be rectified at source, and**
- 4. That the polluter should pay.**

In preparing its policy for the environment **the Community should take account of**¹³:

- Available scientific and technical data;**
- Environmental conditions in the various regions of the Community;**
- The potential benefits and costs of action or lack of action;**
- The economic and social development of the Community as a whole and the balanced development of its regions.**

⁴ Year of implementation of the First Environmental Action Programme, <http://europa.eu.int/scadplus/leg/en/lvb/l28066.htm>

⁵ The consolidated version of the Treaty Establishing the European Community confers the status of policy on 20 titles.

⁶ http://www.irigov.ie/iveagh/eu/state/treaty_rev/chapter6.html

⁷ Consolidated version of the Treaty Establishing the European Community, Declaration (No12)

⁸ Consolidated version of the Treaty on European Union, Article 2

⁹ Please see section on the EU Strategy for Sustainable Development

¹⁰ Other objectives are: The assertion of the Union's identity in the international scene, the strengthening of the protection of rights and interests of EU citizens, the maintenance and development of the Union as an Area of freedom, security and justice, and the maintenance in full of the *acquis communautaire*

¹¹ Consolidated version of the Treaty Establishing the European Community, Article 174-1

¹² Consolidated version of the Treaty Establishing the European Community, Article 174-2

¹³ Consolidated version of the Treaty Establishing the European Community, Article 174-3

2.2 EU ACTIONS AND THE FIFTH ENVIRONMENTAL ACTION PROGRAMME (1992-2000): "TOWARDS SUSTAINABILITY"

EU actions to implementing and developing environmental policy have traditionally taken the form of environmental action programmes. In the last 30 years the Community adopted (and improved) some 200 pieces of legislation such as the EIA Directive that ensures that environmental consequences of projects are identified and assessed before authorisation is given. A significant number of pieces of information are primarily aimed to limiting pollution by introducing **minimum standards, notably for waste management, water pollution and air pollution**. Perhaps the most important single piece of Community legislation regarding industry is the **Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC**¹⁴, laying down the procedure for applying for, issuing and amending operating permits that must be based on the concept of Best Available Techniques (BAT) for industrial installations, together with the minimum requirements to be included in such a permit (compliance with the basic obligations, emission limit values for pollutants, monitoring discharges, minimisation of long-distance or transboundary pollution)¹⁵. The directive also provides for the setting up of a European Pollutant Emission Register (EPER), which is publicly accessible and intended to provide comparable emission data from individual polluting industrial sources and activities,

"Community policies have brought about a reduction of trans-boundary air pollution, a better water quality and the phase-out of ozone-depleting substances, and will lead to further improvements over the next few years". However, the European Environment Agency makes it clear that the requisite environmental objectives will not be achieved by this legislation alone¹⁶.

The Fifth Environmental Action Programme (EAP), entitled "Towards Sustainability" was "prepared in parallel to the 1992 Rio Conference and the launch of Agenda 21. It constituted the Community's first commitment to sustainable development"¹⁷ and formed the environmental agenda for the last decade (1992-2000). The programme was based on two basic approaches: **Integration of environmental protection** in major policy areas and, **replacing the command-and-control approach with shared responsibility**. Emphasis was given to the employment of a **broader mix of instruments** (including market-based instruments). Five major sectors were targeted (industry, energy, transport, agriculture and tourism) in seven environmental priority areas (climate change, acidification, biodiversity, water, urban environment, coastal zones and, waste). Special attention was paid to **Risk Management** (industry related risks, nuclear safety and radiation protection and, civil protection and environmental emergencies). The 5th EAP is generally regarded to have been "ambitious and far reaching for its time", and not to have achieved some of its primary objectives. Progress towards sustainability has been limited and, the quality's of Europe's environment has decreased in many ways¹⁸.

2.3 THE SIXTH ENVIRONMENT ACTION PROGRAMME (2001-2010): "ENVIRONMENT 2010: OUR FUTURE, OUR CHOICE"¹⁹

On 24 January 2001, the Commission put forward a proposal for a Decision of the European Parliament and of the Council laying down the Community Environmental Action Programme 2001-2010. The proposal will move through a co-decision procedure and could be amended before the final Decision is taken. First reading in the European Parliament (EP) was on 31 May 2001. The EP approved the Commission proposal subject to some amendments. The Commission accepted some of these amendments.

2.3.1 The programme identifies five priority areas for action:

1. Tackling climate change;
2. Restoration of natural systems and biodiversity;

¹⁴ The IPPC directive covers highly polluting industrial activities (energy industries, production and processing of metals, mineral industry, chemical industry, waste management)

¹⁵ <http://europa.eu.int/scadplus/leg/en/lvb/128044.htm>

¹⁶ European Commission, Global Assessment, Europe's environment: what directions for the future, 2000

¹⁷ European Commission, Global Assessment, Europe's environment: what directions for the future, 2000

¹⁸ COM (1999) 543 Final, Opinion of the Economic and Social Committee on the Communication from the Commission- Europe's Environment: What direction for the future?

¹⁹ COM(2001) 31 Final, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, On the sixth Environment Action Programme- 2001/0029 (COD) Proposal for a Decision of the European Parliament and the Council, Laying down the Community Environment Action Programme 2001-2010

3. Environment and health;
4. Sustainable use of natural resources and management of wastes and,
5. International issues.

Of particular interest with respect to industry, among other, are the following priority actions:

1. With a view to meeting the targets established by the Kyoto Protocol (Tackling climate change):

- Establishing a Community wide **emissions trading scheme for CO₂**;
- Undertaking an inventory and **review of energy subsidies** in Member States;
- Encouraging a **shift towards low carbon fuels** for power generation;
- Encouraging **renewable energy sources**, with a view to meeting a target of 12% of energy from renewable sources by 2010;
- Promoting the use of **fiscal measures**, including at the Community level, to encourage a switch to cleaner energy and transport and to encourage technological innovation, including the adoption of a framework for energy taxation;
- Encouraging **environmental agreement with industry** sectors on energy efficiency;
- Ensuring climate change as a major theme of Community policy for **research and technological development** and for national research programmes;
- Developing means to **assist SMEs** to adapt, innovate and improve performance;
- Introducing incentives to **increase Combined Heat and Power**;
- Promoting **eco-efficiency** practices and techniques in industry;
- Promoting **energy saving** on both the heating and cooling of buildings

2. To pursue the objectives on the protection and restoration of natural systems and bio-diversity:

- On accidents and disasters, developing measures to help prevent the major accident **hazards arising from pipelines and mining**, and measures on mining waste;
- On other subjects such as the Common Fisheries Policy, sustainable forest management and GMOs.

3. To pursue the objectives on environment and health:

- On **chemicals**:
 - Developing a new **single system for the testing, evaluation and risk management** of new and existing substances;
 - Developing a testing regime depending on properties, uses, exposure and volumes of chemicals produced or imported;
 - Establishing new specific and **accelerated risk management procedures** to which substances that give rise to very high concern have to be submitted before they are employed in particular uses;
 - Upgrading of **information from industries** on the properties of the chemicals they produce and use, to cover potential risks to the environment and health;
 - Upgrading of the **management of chemicals** at Community level and in Member States.
- On **pesticides**:
 - A thematic strategy on the **sustainable use of pesticides**;
 - Ratification of the Rotterdam Convention on **the Prior Informed Consent Procedure** for Certain Hazardous Chemicals and Pesticides in International Trade;
 - Amending Community Regulation (2455/92) concerning **the import and export** of dangerous chemicals with the aim of bringing it into line with the Rotterdam Convention, improving its procedural mechanisms and improving information to developing countries;
 - Improving the management of chemicals and **pesticides in developing and candidate countries**, including the elimination of stocks of obsolete pesticides.

- On the sustainable use and high **quality of water**:
 - Phasing out of the **discharge of hazardous substances** to water;
 - Ensuring the integration of the approach of the **Water Framework Directive** and water quality objectives into the Common Agricultural Policy and Regional Development Policy.
- On **air pollution**:
 - Improving the **monitoring of air quality** and the provision of information to the public, including by indicators;
 - A thematic strategy on air pollution to cover **priorities for further actions**, the review and updating of air quality standards and national emission ceilings and the development of better systems for gathering information, modelling and forecasting;
 - Considering **indoor air quality** and the impacts on health, with recommendations for future measures where appropriate.

4. *To pursue the objectives on the sustainable use of **natural resources and management of wastes**:*

- A thematic strategy on the sustainable use of resources, including:
 - Consideration of a **best practice** programme for business;
 - Identifying **research needs**;
 - **Economic instruments**;
 - **Removal of subsidies** that encourage the over-use of resources;
 - Integration of resource efficiency considerations into an **Integrated Product Policy** approach.
- On waste prevention:
 - Integrating **waste prevention** objectives and priorities into an Integrated Product Policy approach.
- Revising the **legislation on sludges**, on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture;
- Recommendations on **construction and demolition waste**;
- Legislating on **bio-degradable wastes**;
- A thematic strategy on **waste recycling**, including measures aimed at ensuring the collection and recycling of priority waste streams.

5. *To pursue the objectives on **international issues**:*

- Promoting sound environmental practices in **foreign direct investment and export credits**;
- Intensify efforts at the international level to arrive at consensus on methods for **the evaluation of risks to health and the environment**, as well as approaches of risk management including where appropriate the precautionary principle;
- Ensuring that **sustainability impact assessments of trade agreements** are carried out.

2.3.2 Five key strategic approaches are proposed:

1. Encouraging more effective implementation of Community legislation;
2. Integration of environmental protection requirements into the definition of all Community policies and activities;
3. Working closer with the market;
4. Empowering people by ensuring better and more accessible information for citizens and,
5. Taking account of the environment in land-use planning and management decisions

Additional proposed strategic approaches of particular interest to industry include:

- **To promote the polluter pays principle, through the use of market based instruments**, including the use of emissions trading, environmental taxes, charges and subsidies, to internalise the negative as well as the positive impacts on the environment

- To promote co-operation and partnership with enterprises and their representative bodies on environment matters requires:
 - Encouraging wider uptake of the Community's **Eco-Management and Audit schemes** and developing initiatives to encourage companies to publish rigorous and independently verified environmental or sustainable development performance reports;
 - Establishing a compliance assistance programme, with **specific help for small and medium enterprises**;
 - Stimulating the introduction of company **environmental performance reward schemes**;
 - Promoting an integrated policy approach that will encourage the taking into account of environmental requirements throughout the **life-cycle of products**, and more widespread application of environmentally friendly processes and products;
 - Encouraging **voluntary commitments and agreements** to achieve clear environmental objectives.
- To help ensure that **consumers are better informed** about the processes and products in terms of their environmental impact:
 - Encouraging the uptake of **eco-labels** that allow consumers to compare environmental performance between products of the same type;
 - Encouraging the **use of reliable self-declared environmental claims and preventing misleading claims**;
 - **Promoting green procurement**, while respecting Community competition rules and the internal market, with guide-lines on best practice and starting with a review of green procurement in Community Institutions.
- To support environmental integration in the financial sector requires:
 - Considering a voluntary initiative with the financial sector, covering guide-lines for **the incorporation of data on environmental cost in company annual financial reports**, and the exchange of best policy practices between Member States;
 - Calling on the European Investment Bank to strengthen the integration of **environmental objectives and considerations into its lending activities**;
- To create a Community liability regime requires:
 - **Legislation on environmental liability**.

2.3.3 Other provisions with relative importance for industry:

- Overall Aim and objectives:
 - The Programme shall facilitate the full integration of environmental protection requirements into other Community policies while, at the same time, ensuring that **measures proposed and adopted in favour of the environment take account of the objectives of the economic and social dimensions of sustainable development, full consideration of all options and instruments, as well as being based on extensive dialogue and sound science**.
- The objectives on environment policy-making based on participation and sound knowledge shall be pursued by means of the following priority actions:
 - Mechanisms within which stakeholders, especially **those directly affected by proposals and other initiatives, are widely and extensively consulted at all stages** so as to facilitate the most effective choices and to ensure better a satisfactory result for the environment in regard to the measures to be proposed;
 - Ensuring that environment remains a major **priority for Community research programmes**. Ensuring better co-ordination of research related to the environment conducted in Member States;

- Ensuring regular information to the public on the environment and related issues by the **production of annual headline environmental indicator reports** and integration indicators, which show the value of environmental damage where possible;
 - Reinforcing the **development of geographical information systems** and the use of **space monitoring applications** in support of policy-making and implementation.
- Assumptions in justifying the programme:
 - A clean and healthy environment is essential for the continuing well being and prosperity of society, yet **continued growth at a global level will lead to unprecedented pressures on the environment.**
 - **Legislation remains central to meeting environmental challenges** and full and correct implementation of the existing legislation will be a priority²⁰.
 - The **implications of climate change for human society and for nature are severe and necessitate measures to reduce emissions of greenhouse gases.**
 - **The prevention of climate change can be achieved without a reduction in levels of growth and prosperity** through the de-coupling of economic growth from emissions.
 - **There is considerable pressure from human activity on nature and bio-diversity**, arising notably from pollution, the way in which land and sea is exploited.
 - **Soil is a finite resource that is under pressure.**
 - **Greater focus is required on prevention and precaution** in developing an approach to protect human health and the environment.
 - **The capacity of the planet to absorb the demand and waste resulting from the use of resources is under pressure**, with adverse effects arising from the use of metals, minerals and hydro-carbons.
 - Environmental policy-making, given the complexities of the issues, needs to be based on sound scientific and economic assessment, based on a knowledge of the state and trends of the environment, in line with Article 174 of the Treaty.
 - Information to policy makers and the general public has to be relevant, up to date and easily understandable.
 - Progress towards meeting environmental objectives needs to be measured and evaluated.
 - A review of the progress made and an assessment of the need to change orientation should be made at the mid term point of the programme.

2.3.4 Financial Implications

"The Action Programme outlines the priority objectives that need to be attained to ensure a clean and healthy environment. It sets out the key challenges for the future but does not prescribe the precise nature of the actions and measures that will be needed. These will be the subject of subsequent initiatives, which will address the financial implications of each measure."²¹

²⁰ The European Network for the Implementation and Enforcement of Environmental Law, IMPEL Network, follows this aim, since it is a Network of representatives of relevant national authorities and the Commission in the field of enforcement, primarily aimed at the exchange of information in the field of compliance and enforcement, and at the development of common approaches at a practical level.

²¹ Explanatory Memorandum, Proposal for a Decision of the European Parliament and the Council, Laying down the Community Environment Action Programme 2001-2010

3. EUROPEAN UNION SUSTAINABLE DEVELOPMENT STRATEGY

The European concept of sustainable development is quickly becoming more than just an environmental concept of integration of environmental concerns into other policies. It is developing into a concept of **true integration of economic and social and environmental concerns into all Community policies and actions**, recognising that too often, action to achieve objectives in one policy area hinders progress in another.

At the request of the Helsinki European Council (Heads of State and Government) in 1999 the Commission proposed to the European Council at Gothenburg in June 2001, a European Union Strategy for Sustainable Development²² :

"Just over one year ago at Lisbon, the European Council set a new strategic goal for the Union: *"to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"*. The Stockholm European Council then decided that the EU sustainable development strategy should complete and build on this political commitment by including an environmental dimension. This recognises that in the long term, **economic growth, social cohesion and environmental protection must go hand in hand.**"

The proposed strategy focuses on six problems that pose severe or irreversible threats:

- **Emissions of greenhouse gases**, global warming and climate change;
- **Severe threats to public health** posed by, among other, :
 - The potential longer-term effects of the many hazardous chemicals currently in everyday use, or the threats to food safety,
- **Poverty and social exclusion**;
- **The ageing of the population**;
- The accelerated **loss of biodiversity**, increase of waste volumes and soil loss (Sustainable use of natural resources and management of wastes), and
- **Transport congestion along with other urban problems**;

Five key strategic approaches are proposed in the form of cross-cutting proposals and recommendations:

- **Improve policy coherence**²³ , aimed at careful assessment of full effects, by taking, among other, the following actions:
 - All policies must have sustainable development as their core concern. Emphasis is placed on the forthcoming reviews of Common Policies;
 - The Commission will submit an action plan to improve regulation to the Laeken European Council in December 2001. This will include mechanisms to ensure that **all major legislative proposals include an assessment of the potential economic, environmental and social benefits and costs of action or lack of action, both inside and outside the EU.**
- **Getting prices right** to give signals to individuals and businesses:
 - The Commission will **give priority in its policy and legislative proposals to market-based approaches** that provide price incentives, whenever these are likely to achieve social and environmental objectives in a flexible and cost effective way.
- **Invest in science and technology** for the future, and ensuring that legislation does not hamper innovation, by taking the following actions:

²² COM(2001)264 final, Communication from the Commission, A Sustainable Europe for a better World: A European Union Strategy for Sustainable Development, Commission's proposal to the Gothenburg European Council), Brussels 15.5.2001.

²³ A new Directive, the Strategic Environmental Assessment for policies, plans and programmes (SEA) Directive 2001/42/EC has come into force. Its aims are to ensure that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption. The public and environmental authorities can give their opinion and all the results are integrated and taken into account in the course of the planning procedure. After the adoption of the plan or programme the public is informed about the decision and the way in which it is made.

- Exploit the potential of the Community Framework Programme for Research to support **research activities related to sustainable development**;
 - Drawing on the guidance document the Commission will issue shortly, Member States should consider how to make **better use of public procurement to favour environmentally-friendly products and services**;
 - The Commission will encourage **private sector initiatives to incorporate environmental factors in their purchasing specifications**;
 - The Commission **invites industry to identify what it considers the major obstacles to the development and wider use of new technologies** in sectors such as energy, transport and communications;
 - The Community should contribute to establishing by 2008 a European capacity for **global monitoring of environment and security** (GMES).
- **Improve communication and mobilise citizens and business**, encouraging earlier and more systematic dialogue, fostering a sense of individual and collective responsibility, enabling business to harness the new opportunities offered by sustainable development, by taking the following actions:
 - The Commission's forthcoming White Paper on Governance will include proposals on **wide-ranging consultation of stakeholders** from within and outside the Union, typically including a public hearing, before tabling any major policy proposal. Reviews of major policies will similarly seek to obtain the views of stakeholders;
 - All publicly quoted companies with at least 500 staff are invited to publish a **"triple bottom line" in their annual reports to shareholders** that measures their performance against economic, environmental and social criteria. EU businesses are urged to demonstrate and publicise their world-wide adherence to the OECD guidelines for multi-national enterprises, or other comparable guidelines.
 - Member States should consider how their **education systems** can help develop wider understanding of sustainable development.
 - **Take enlargement and the global dimension into account**, ensuring that EU policies – internal and external – actively support efforts by other countries:
 - The Commission will present a Communication in the first half of 2002 further setting out the views on how the Union should contribute to global sustainable development, in advance of the World Summit on Sustainable Development (Rio+10) in Johannesburg.

A number of headline objectives and measures are set for every one of the six problems that pose severe or irreversible threats. Most of these measures are directed at industry:

1. Limit climate change and increase the use of clean energy
2. Address threats to public health
3. Combat poverty and social exclusion
4. Deal with the economic and social implications of an ageing society
5. Manage natural resources more responsibly
6. Improve the transport system and land-use management

4. EUROPEAN UNION INDUSTRIAL POLICY

4.1 EU POLICIES ENSHRINED IN THE TREATIES

The Community and the Member States are required to ensure that **the conditions necessary for the competitiveness of the Community's industry exist**.²⁴

For that purpose, in accordance with **a system of open and competitive markets**, their action shall be aimed at:

- Speeding up the adjustment of industry to structural changes;
- Encouraging an environment favourable to initiative and the development of undertakings throughout the Community, particularly small and medium-sized undertakings;
- Encouraging an environment favourable to cooperation between undertakings;
- Fostering better exploitation of the industrial potential of policies of innovation, research and technological development".

The Community is required to contribute to the achievement of the objectives of industrial policy through the policies and activities it pursues under other provisions of the EC Treaty ²⁵.

4.2 ENTERPRISE POLICY

The EU industrial policy has not been as integrated as the environment or sustainable development policies have. Governed by the principle of subsidiarity, whereby decision-making is made at the most appropriate level and as closely to the citizen as possible, Community industrial policy has traditionally been limited to issues relevant to the integration of the single market. Community actions appear to have been focused to safeguarding open markets through the abolition of technical barriers. The Commission's work has therefore been largely concentrated on the harmonisation of technical standards. Since 1985 Community legislation is restricted to establishing the essential requirements that products must meet (New Approach). These requirements fix thresholds or levels of protection for the whole of the Community in the area of health and safety.

As of 1 January 2000, industrial policy is the responsibility of DG-Enterprise, which was formed with the merger of Directorates-General (DGs) for small and medium-sized enterprises (SMEs), industry and the innovation directorate. DG Enterprise is responsible for a very significant part of Single Market legislation (about 200 of the some 300 internal market legislative instruments). DG Enterprise is the recipient of notifications by Member States of new intended national regulatory measures, and challenges those which could potentially constitute a barrier to trade in products.

"The mission of the Enterprise Directorate General is to address the entire business environment to **enable enterprises to strengthen their competitiveness, grow and develop in a way that is compatible with the overall EU goal of sustainable development**.

The Enterprise Directorate General should work to:

- a) promote entrepreneurship as a valuable and productive life skill;
 - b) **promote innovation** and the ability to manage change productively;
 - c) encourage a **regulatory and business environment in which innovation and entrepreneurship can flourish**;
- enhance the competitiveness of enterprises in the knowledge-based economy;
- d) improve the financial environment for enterprises;

²⁴ Consolidated version of the Treaty Establishing the European Community, Article 157

²⁵ In other words, there is an obligation on environmental (and every other) Community policy to contribute to the objectives of industrial policy, in a similar way that the environmental policy has to be integrated into all other Community policies.

- e) ensure that business support networks and services to enterprises are provided coherently and efficiently and facilitate co-operation between enterprises in accordance with EU and national competition rules;
- f) improve **access to markets** for both goods and services; and
- g) promote a better understanding and use of services, including business services.²⁶

The Community multiannual programme for enterprise and entrepreneurship, and in particular for small and medium-sized enterprises (SMEs)(2001-2005)²⁷ set the following objectives:

- To enhance the growth and competitiveness of business in a **knowledge-based** internationalised economy;
- To promote entrepreneurship;
- To **simplify and improve the administrative and regulatory framework for business so that research, innovation and business** creation in particular can flourish;
- To improve the financial environment for business, especially SMEs; and
- To give business easier access to Community support services, programmes and networks and to improve the co-ordination of these facilities.

Of particular importance to sustainable development policy, is the promotion of the idea that an effective **Business Impact Assessment** of all EU legislative proposals should be an essential part of the decision-making process.

4.3 INTEGRATION OF ENVIRONMENTAL PROTECTION REQUIREMENTS INTO INDUSTRIAL POLICY

"In response to the request of the Vienna European Council, the Industry Council adopted on 29 April 1999 *"Conclusions on the Integration of Environment and Sustainable Development in the Industrial Policy of the EU"*. In these Conclusions, the Council called for an integrated approach to sustainable development, taking into account the objectives of environmental protection, economic development and social development. It emphasised the **potential of environmentally sound policies to increase industrial competitiveness** and create employment opportunities. It pointed out the need for an appropriate mix of policy instruments, including a **wider use of market-based instruments and voluntary approaches, taking into account the cost effectiveness of the various measures**. It also recognised the environmental improvements made by industry while emphasising the **need to further develop a business pro-active approach towards the environment**. The role of the concepts of **eco-efficiency and responsible entrepreneurship** was underlined as well as the need to ensure a proper functioning of the internal market."²⁸

In its report to the Helsinki Council "Integrating sustainable development into the industry policy of the EU" (26/10/99), the Industry Council invited the Commission to submit to the Council, an action plan for promoting integration. On this basis, the Council will flesh out the operational parts of its **integration strategy until the end of the year 2004**.

Reflecting the subsequent Helsinki Council's invitation to the Commission to propose an overarching integration strategy to the Gothenburg Council in June 2001 DG Enterprise has delayed its work on an "action plan", until the work on the overarching integration strategy will have advanced. In the meantime, it continues exchanging information and views on the subject with its environmental correspondents in the Ministries of Industry or Economic Affairs in the Member States, environmental experts from the accession countries, and with representatives of business sectors, NGOs and other relevant stakeholders.²⁹

4.3.1 Measures so far

Activities that have been developed in the area of industrial policy relate to the use of internal market policy instruments, such as internal market directives and standardisation, and the creation of forums, networks, roundtables and other kind of direct or supporting measures for reinforcing industrial competitiveness.

²⁶ <http://europa.eu.int/comm/enterprise/>

²⁷ COUNCIL DECISION of 20 December 2000 on a multiannual programme for enterprise and entrepreneurship, and in particular for small and medium-sized enterprises (SMEs) (2001-2005) (2000/819/EC)

²⁸ SEC(1999) 1729, Commission Staff Working Paper on Sustainable Industrial Development", Brussels 25.10.1999

²⁹ http://europa.eu.int/comm/enterprise/environment/index_home/integration/integration_sust-develpm.htm

Comprehensive regulatory frameworks have been adopted in the field of **chemicals and motor vehicles**. Environmental considerations have been integrated into the **essential requirements of some New Approach Directives** such as the Directive on Construction Products and in other legislation. Standards bodies, such as CEN and CENELEC have been active in the field of environment, including the **development of European standards on specific environmental issues** and the incorporation of environmental considerations in the elaboration of product standards. Other activities that are worth mentioning include the establishment of the Recycling Forum and the creation of European initiatives and networks in the field of **eco-efficiency**, such as the European Eco-Efficiency Initiative, environmental best practices and management tools.

Environmental concerns have been partially addressed through activities related to specific industry branches, including in Commission Communications concerning the relation between **environmental protection and the competitiveness of specific industry sectors** (chemicals, motor vehicles, recycling, aerospace industry, textiles, construction and shipbuilding), several studies, conferences and workshops as well as other initiatives organised or supported by the Commission. The Commission has also sponsored the development of guides on **good environmental practices in industry branches**.³⁰

4.3.2 Further developments

The Commission's staff working paper proposed the following:

- Environmental requirements should be further incorporated into internal market directives, especially in the **New Approach Directives**.
- The inclusion of environmental requirements in the mandates from the Commission to standardisation organisations such as CEN, CENELEC, and ETSI.
- The inclusion of a chapter on environmental aspects and sustainable development in the Commission's annual **Competitiveness Report**.
- Commission Communications on the competitiveness of specific industry sectors should also address the contribution of these sectors to sustainable development.
- **Benchmarking techniques** should be used in the field of the environment, in order to identify and disseminate best industry practices and policy measures.
- Policy measures and activities aiming to support **eco-efficiency, environmental management tools and best practices**.
- **Particular consideration to be given to SMEs** through appropriate regulatory provisions, guidelines and the development of support services.
- **Industrial co-operation activities with business in third countries** and transfer of know-how to these countries.
- The development of an **integrated appraisal methodology for the assessment of impacts on environment, competitiveness and innovation** as regards the definition and implementation of proposals and activities in the policy areas related to industry.

4.3.3 Other issues on sustainable industrial development

The Commission's staff working paper acknowledges an important positive global trend towards sustainable development: The **emergence of a new global economy based on networks and intangible assets** (knowledge). This trend has by itself the potential to leading society into more sustainable production and consumption patterns and, the decoupling of economic growth from the consumption of non-renewable resources.

³⁰ <http://europa.eu.int/comm/enterprise/>

5. CONCLUSIONS AND COMMENTS OF THE AUTHOR

The European Union has so far achieved to legislate on minimum standards on all major issues pressing on the environment. Furthermore the EU has adopted balanced and sustainable development as a principal objective, along with the promotion of economic and social progress and a high level of employment. The Community is now in a process of firstly integrating environmental protection requirements into all Community policies and secondly, in formulating a Community sustainable development strategy.

Little progress has been achieved in shifting the legislative command-and-control approach towards shared responsibility and the use of market based instruments, although such calls have been adopted in the 5th EAP ever since 1992. This can be attributed to a large extent on the failure of the Community to integrate the protection of the environment into other policies. Another problem, appears to be the non-uniformity of implementation of Community legislation amongst member states, encouraging the view for tightening Community control³¹. In the proposals of the Commission for the 6th EAP legislation remains central to meeting environmental challenges and full and correct implementation of the existing legislation will be a priority. **The administrative burden on European industry in complying with Community legislation should therefore be expected to increase.**

The most important single piece of legislation for industry is the Integrated Pollution Prevention and Control Directive. Proposed pieces of legislation with particular importance for industry include:

1. **Environmental liability**
2. **Environmental Taxes and Charges**
3. **Green public procurement**
4. **Minimum criteria for environmental inspections and,**
5. **Emissions trading**

It should be commented that the command-and-control approach could be an effective and perhaps more appropriate approach for the Mediterranean countries with pressing environmental problems and/ or immature markets.

Energy consumption is at the heart of the sustainable development debate. The greatest potential for energy savings in the EU industry rests with the industries of large combustion plants, refineries, chemicals, paper and steel³². **The most difficult challenge the Community proposes to set for itself, is the reduction of atmospheric greenhouse gas emissions** by an average of 1% per year over 1990 levels up to 2020.

The calls for assessment of the cost effectiveness of Community policy will strengthen. Of particular importance to industry and its competitiveness is the proposal of the Commission for an effective **Business Impact Assessment of all EU legislative proposals.**

The agricultural, chemical, food, pharmaceutical, biotechnology and private car industries will come under increasing legislative pressure and control.

Significant opportunities will emerge in pollution prevention and control, organic farming, biotechnology, renewable energy and CHP, public transport, computers, software and telecommunications.

The abolishment of the price support system in the EU Common Agricultural Policy will most probably have effects on agricultural products within the EU and within the EU's export markets. There could be significant opportunities for agricultural industries in Mediterranean non-member countries.

EU action discouraging over-fishing will create opportunities for aquaculture.

³¹ As mentioned before, the IMPEL Network follows this aim.

³² AEA Technology plc, Study on Energy Management and Optimisation in Industry, July 2000.

- On environmental issues there can be strong differences of expert opinion: "First, energy and other natural resources have become more abundant, not less so since the Club of Rome published "The Limits to Growth" in 1972. Second, more food is now produced per head of the world's population than at any time in history. Fewer people are starving. Third, although species are indeed becoming extinct, only about 0.7% of them are expected to disappear in the next 50 years, not 25-50%, as has so often been predicted. And finally, most forms of environmental pollution either appear to have been exaggerated, or are transient—associated with the early phases of industrialisation and therefore best cured not by restricting economic growth, but by accelerating it. One form of pollution—the release of greenhouse gases that causes global warming—does appear to be a long-term phenomenon, but its total impact is unlikely to pose a devastating problem for the future of humanity. A bigger problem may well turn out to be an inappropriate response to it."³³
- So far, Community environment and sustainable development policy has been largely justified on the precautionary principle. Increasingly, it will have to be justified on the potential benefits and costs of action or lack of action.
- The Mediterranean region is characterised by its rather arid climate. Treated wastewater is thrown in the sea causing environmental problems, when it can be used to increase the forest coverage of barren land. Policy makers need pay more attention in dealing with the sinks of CO₂, not just its sources.
- Community climate change policy will inevitably lead to increasing the attractiveness of nuclear energy, unless specific action is taken not to. A lot of people could prefer taking the risk of a yearly flood or drought, rather than the risk of a nuclear accident once every one hundred years.
- Nuclear fission Electric Power may not look or feel as a sustainable energy option. Nuclear fusion though does; and could alter the energy landscape completely. This is just one example of how breakthrough technology could offer policy-makers, and humanity at large, unexpected sustainable solutions.
- Progress has historically been based on the willingness of humanity to throw away the old and adopt the new. The boom in economic growth in the 1990s, notably in the USA, can be largely attributed to advances in computers and telecommunication and, the Internet. A lot of that growth was fuelled by the willingness of business and consumers to throw away perfectly working computing equipment and replace it with the more advanced, new models. A seemingly unsustainable activity of reckless consumption, which nevertheless has increased the productivity and dematerialisation of the rest of the economy.
- A knowledge driven economy, appears to be one of the few (if not the only one) true long-term promises for changing today's worrisome trends in production and consumption patterns and, sustainable development.
- In the past decade industry has been more than willing to invest in information technology and pay their dues to the information industry. The pollution prevention and control industry must seek the ways and create the conditions, by which the rest of industry will invest in waste minimisation, pollution prevention and control, with the same willingness and urgency. The policy-maker's primary role, should be to target their policies towards the strengthening of the determinants of competitiveness of the pollution prevention and control industry. Innovation and entrepreneurship should be at the heart of these policies.
- In the 1970s quality management professionals were spreading the idea that quality and the minimisation of waste (zero defects) does not cost money but makes money. Better quality can command higher prices. Environmental management can be regarded as an extension to the total quality management concepts. A new trend is emerging in the 1990s: Environmental responsibility and eco-efficiency does not cost money but makes money; eco-products can command higher prices.

³³ The Economist Aug 2 2001, The truth about the environment, about a book by Bjorn Lomborg entitled "The Sceptical Environmentalist" to be published soon.

- The command and control approach is very effective to tackling urgent environmental problems of toxicity, public health and the protection of wild life. But it is a short term tool. It should be realised that the setting of maximum emission limits does not make the polluters pay; on the contrary, it gives the polluter rights to pollute, without paying. In the long term, we must give industry the market incentives to strive for zero emissions and waste.
- Waste is by definition worthless to the producer. In an era when businesses, especially SMEs, are increasingly focusing on their core business, it might be totally unrealistic for policy makers to expect that the busy management of a small company will opt to deal with worthlessness. Quite often, all policy has to provide are the intermediation mechanisms for matching and directing waste to the right downstream industry to use as raw material.
- The cement industry has the potential of recovering the heat content of almost anything that has calorific value and cannot be recycled, in an environmentally friendly way. It should be encouraged to do so.
- Process change solutions potentially save industry money. End of pipe solutions generally cost money. Policy should encourage more of the former.
- Apart from process changes, Combined Heat and Power has been identified as the single most important technology that could significantly improve energy efficiency in industry. The non-liberalisation of electricity markets is probably the only serious impediment to the application of this technology.
- Grid connected, building mounted photovoltaic systems will present significant opportunities, when the cost of photovoltaic modules is sufficiently reduced to enable competitive electricity production, in comparison to fossil fuelled plants. The Flexible Mechanisms under the Kyoto Protocol could accelerate the rate of investment into photovoltaic power in the Mediterranean region, and help the global market expand and mature.
- Low cost measures such as better management, could still offer significant scope for improvement.

3

Annexes

Regional Workshop of the MCSD Industry and Sustainable Development Working Group, Barcelona 27-29 June 2001

Proposals for action (UNEP (OCA) MED WG. 192/5)	65
Report (UNEP (OCA) MED WG. 192/4)	71
List of participants (UNEP (OCA) MED WG. 192/Inf.1)	81

Proposals for action (UNEP (OCA) MED WG. 192/5)

PROPOSALS FOR ACTION SUBMITTED BY THE MCSD WORKING GROUP ON INDUSTRY AND SUSTAINABLE DEVELOPMENT

THE MCSD WORKING GROUP ON INDUSTRY AND SUSTAINABLE DEVELOPMENT,

having regard to the terms of reference as set for it by the Mediterranean Commission on Sustainable Development (MCSD) meeting held in Tunis in November 2000,

having convened in Barcelona (Spain) from 27 to 29 June 2001 under the auspices of the United Nations Environment Programme Mediterranean Action Plan, and with the support of the Regional Activity Centre for Cleaner Production (RAC/CP) and MEDPOL,

having regard to the background paper entitled "*Status and trends of industry and sustainable development in the Mediterranean Region*" and the various regional and national case studies presented at the Regional Workshop held in Barcelona,

having regard to the ensuing discussions, the views and recommendations put forward by the various members of the Working Group,

having regard to the main actors, legal frameworks, tools and instruments that may play a part in the integration of industry and environment so as to reach ecologically sustainable industrial development (ESID), and

considering the Contracting Parties' international commitments, particularly the Barcelona Convention and its Protocols,

considering that the pressure from industrial activities, particularly around pollution hotspots and sensitive zones, calls for an integrated approach so as to reduce the adverse impacts arising from pollution,

considering the need to give due consideration to climate change, biodiversity and transboundary issues,

considering the need to assist enterprises, particularly Small and Medium Enterprises, and Small and Medium

Industries (SMEs/SMIs), to comply with their legal obligations, and to adopt the concept of sustainable development — by developing and mobilising the means and the appropriate instruments, and by fostering a participatory approach, such as voluntary agreements,

considering the precautionary and polluter pays principles as a means for reducing industrial pollution,

aware of the lacunae that exist in initiatives currently undertaken to reduce industrial pollution,

aware that the Strategic Action Programme (SAP) is a vital instrument for implementing the LBS Protocol to combat pollution from land-based sources and activities, particularly industrial pollution, and that its application contributes to improving the quality of the marine environment and the environmental performance of enterprises and their competitiveness, and desiring to meet fully the SAP objectives and targets,

desiring to integrate the concept of sustainable development into the industrial development process,

desiring to anticipate foreseeable impacts on the environment arising from the evolution of socio-economic development of the Mediterranean basin region, particularly the establishment of the Euro-Mediterranean Free Trade Zone,

desiring to promote the transparency of any monitoring and evaluation processes applied towards reaching ecologically sustainable industrial development (ESID),

desiring to strengthen the competitiveness of the industrial pollution prevention and control sector in the Mediterranean countries, and

in order to promote the integration of industry and the environment so as to reach ecologically sustainable industrial development (ESID), notably through cleaner production, at regional, national and local levels, and by particularly targeting SMEs/SMIs,

hereunder submits a proposed set of actions and recommendations in contribution to the preparation of the Mediterranean Strategy for Sustainable Development. These proposed actions will be presented at the next plenary session of the MCSD to be held in Antalya in October 2001.

PROPOSED SET OF ACTIONS

1. To identify the stakeholders involved, to sensitise them about the implications of sustainable development and to promote co-operation among these stakeholders, namely:

- governmental bodies (ministries of the environment, industry, planning, economic affairs, tourism, etc.);
- financial institutions;
- industries, chambers of commerce and industrial associations;
- regional and international institutions, notably UNEP, MAP, EU, LAS, UNIDO, WBCSD, ASCAME, etc;
- local authorities;
- non-governmental organisations and other members of civil society;
- academia, training and research institutions,

2. To strengthen and make co-ordinated use of the relevant existing international, regional and national resources, such as Cleaner Production (CP) centres, UNIDO, R&D institutions, industry, professional associations, etc;

To promote and support the establishment of new resource centres and other relevant bodies of expertise at national and local levels, where needed.

3. To promote consensus building through consultation mechanisms at the national and local levels for the integration of industry and sustainable development, notably through sound environmental management and cleaner production practices;

To prepare and disseminate through regional bodies, the tools, experiences, lessons learned and the methodologies which would facilitate consensus-building and consultation mechanisms;

To provide the appropriate framework for the promotion of successful voluntary agreements and for the periodic monitoring of their performance and compliance.

4. To establish incentives aimed at encouraging existing industries to adapt to present-day environmental requirements;

To require environmental management plans for any newly proposed industrial activities, prior to their start-up, and to provide assistance in the preparation and implementation of such environmental management plans when needed;

To set specific after-care obligations, particularly relating to the decommissioning of industrial establishments, including site remediation, as conditions for the granting of an industrial operating permit;

To set up an effective inspectorate system so as to ensure that industrial establishments comply with the conditions attached to their operating permit.

5. To promote the transfer of environmentally sound technologies, and their adaptation to national and local conditions, notably through partnership and twinning;

To promote the dissemination of information about any relevant technological know-how, practices, diagnostic tools, guides, etc;

To exchange information, particularly at the regional level, through networking and other electronic means, including the interconnection of existing networks and the creation of a common web site, which would particularly target SMEs/SMIs.

6. To promote an integrated approach to sustainable development through the use of existing and emerging environment management tools, such as:

- Sustainability Impact, Strategic Environmental and Environmental Impact Assessments
- Environmental Management Systems (ISO 14000, EMAS, etc.)
- Integrated Product Policy and Life-Cycle Analysis
- Waste reduction audits, good housekeeping methods, the simple material balance approach and sector/specific CP opportunity assessment checklists;

To apply environmental criteria and standards:

- to marketed products including imported ones.
- to privatisation processes.
- in codes of practice relating to national and foreign investments

7. To ensure the enforcement of any relevant legal instruments;

To improve and implement monitoring and evaluation systems which are consistent with internationally accepted ones and which are namely:

at the **company** level

- performance indicators to monitor continuous improvement;

at the **sectoral and national** levels

- benchmarking mechanisms, including indicators;
- sectoral reports;

at the **regional** level--

- sustainable industry indicators that complement those already adopted in the region;
- a regional review of progress of the status of industry and sustainable development.

8. To internalise environmental externalities (hidden or implicit environmental costs), and apply the polluter pays principle;

To progressively reduce subsidies in production input, notably in water and energy costs so as to better reflect environmental costs of production.

9. To use economic and financial instruments, such as grants, soft loans, tax deductions and levies, as tools to ease the introduction of sustainability in the general management of enterprises.

10. To promote the monitoring and following up of sustainability-related projects, by entities which are independent of the financing and executing agencies of such projects.

11. To give due consideration to the environmental implications of Free Trade Zones, notably of the Euro/Mediterranean Free Trade Area, on the industrial sector.

12. To integrate the principles of cleaner production and sustainable development in processes, products and services, notably in strategic sectors such as communications, transportation and tourism;

To integrate the principles of cleaner production and sustainable development in all aspects of human resources training and education.

13. To create mechanisms (through training, twinning, technical information, business incubators, public participation, etc.) to enhance capacity-building:

- for the required experts,
- for the technical bodies of public administration, including inspectorate bodies,
- for SMEs/SMIs,
- for vulnerable areas and islands.

14. To require the MAP Secretariat (RAC/CP and MEDPOL) to follow-up the implementation of these proposals for action, in co-operation with the other regional and international institutions concerned.

Report

(UNEP (OCA) MED WG. 192/4)

INTRODUCTION

A. Background

1. At the 6th Meeting of the Mediterranean Commission on Sustainable Development (MCSD), held in Tunis from 14 to 17 November 2000, it was decided to convene a regional Workshop on Industry and Sustainable Development in 2001.
2. In accordance with that decision, the Regional Workshop on Industry and Sustainable Development was held at the Gran Hotel Catalonia, Barcelona, Spain, from 27 to 29 June 2001, at the invitation of the Governments of Spain and of the Government of Catalonia. The Workshop was organised by the Regional Activity Centre for Cleaner Production (RAC/CP) of the Mediterranean Action Plan (UNEP/MAP) of the Barcelona Convention for the Protection of the Mediterranean.

B. Attendance

3. Participants in the Workshop were selected among concerned governmental institutions, competent intergovernmental and non-governmental organisations, as well as local authorities and socio-economic actors. In addition, several experts were invited.
4. The Workshop was attended by the following members of the MCSD Industry and Sustainable Development Working Group: Algeria; Chambers Group for the Greek Islands (EOAEN), Israel, Italy, MEDCOAST, Spain, Tunisia, Turkey.
5. The following MCSD members attended: Albania; Bosnia and Herzegovina, Croatia, Cyprus, Egypt, Environment and Development in Maghreb (ENDA), Lebanon, Malta, MEDCITIES, MEDENER, MED FORUM, Monaco, Morocco, Slovenia, Syrian Arab Republic, Municipality of Tripoli.
6. The Palestinian Authority also attended as an observer.

7. The following United Nations bodies and Secretariat units, non-governmental organisations and other stakeholders participated in the Meeting as observers:
- (a) *United Nations bodies and Secretariat units:* ICS/United Nations Industrial Development Organisation (UNIDO), United Nations Environment Programme (UNEP), MAP Regional Activity Centre for the Blue Plan (RAC/BP), MAP Regional Activity Centre for the Priority Actions Programme (RAC/PAP);
 - (b) *Non-governmental organisations and other stakeholders:* Cambra de Comerç de Barcelona, CEFIC-EUROCHLOR, Centre Marocain de Production Plus Propre (CMPP), CITET, Croatian CPC, Ministry of the Environment of the Government of Catalonia, Egyptian Environmental Affairs Agency (EEAA), ENVIROTECH, Spanish Enterprises Representative, Institut Catala de la Mediterranea (ICM), Institut Internacional de Governalitat (IIG), Malta Cleaner Technology Centre (CTC), Arab Network for Environment and Development (RAED), TUBITAK.
 - (c) The Coordinating Unit for the Mediterranean Action Plan (MAP), the Regional Activity Centre for Cleaner Production (RAC/CP) and the MEDPOL Programme acted as the Secretariat of the Workshop.

ITEM 1. OPENING OF THE MEETING

8. The meeting was opened by Mr. Arab Hoballah, UNEP/MAP Deputy Co-ordinator, at 9.30 a.m. on Wednesday, 27 June 2001.
9. In his opening statement, Mr. Hoballah welcomed all participants and thanked the Governments of Spain and Catalonia for their generous support in hosting and helping to finance the current Workshop. He also thanked the Secretariat of RAC/CP for its assistance in organising the Workshop. He recalled that one of the thematic groups set up by the Mediterranean Commission for Sustainable Development (MCSD) had been mandated with the task of carrying out an in-depth analysis of industry and making proposals for consideration by the Contracting Parties to the Barcelona Convention. Those proposals would also be an important input for the preparation of guidelines for countries to implement activities to combat the pollution of the Mediterranean region. Work had started in 1997, under the leadership of co-Task Managers from Algeria and Italy, with support from MEDPOL and RAC/CP. Because of the lack of technical capacity in the Mediterranean area, the lack of a pre-feasibility analysis, and the difficulty of clearly identifying the relations with the Strategic Action Programme (SAP), it had initially been difficult to prepare an in-depth regional analysis. With the support of RAC/CP, a first regional assessment had been made of the status and trends of industry in the Mediterranean environment, together with relevant case studies.
10. He stressed that participants were attending the current Workshop in their personal capacity as experts, rather than representatives, and should aim to enrich the assessment with debate on industrial considerations and appropriate practical recommendations. Those recommendations would be considered by the MCSD at its meeting in Antalya, Turkey, in October 2001 and subsequently submitted to the Contracting Parties for approval. In conclusion, he stressed that it was also important to see how countries could be assisted in the implementation of activities related to adopted recommendations.
11. Opening statements were also made by Mr. Víctor Macià, Director, RAC/CP, Mr. Saverio Civili, MEDPOL Coordinator, and Mr. Giovanni Guerrieri, Co-Chair of the MCSD Work Group on Industry and Sustainable Development.
12. In his statement, Mr. Macià welcomed participants on behalf of the Governments of Spain and Catalonia and on behalf of the RAC/CP Secretariat. Drawing attention to the complexity of the interrelationship between industry and sustainable development, he pointed to the tasks before the Workshop and the need to come up with practical proposals that could be integrated into the Strategic Action Programme (SAP). He highlighted importance of preparing practical proposals for consideration by MCSD and for

integration into its work programme. He also pointed to the need for recommendations on the role of RAC/CP in implementing the recommendations within the framework of MAP, and in interacting with Governments, industry and others.

13. Mr. Saverio Civili highlighted the importance of the recent adoption of the revised Protocol on Land-based Sources of Pollution and of the Strategic Action Programme for its implementation, which would become binding upon the entry into force of the Protocol. Among the problems identified for the region, land-based sources were considered very important in terms of levels of pollution and costs. The SAP would in future give countries concrete possibilities of reducing pollution. The tasks before MAP and MEDPOL also included creating the supporting structures to help countries to combat pollution and reach the goals of the SAP. Concerning industry, it was proposed that, in the course of the coming biennium, all countries would prepare a national baseline budget of emissions into the Mediterranean, and then carry out reductions in line with the objectives of the SAP. Thus, the current Workshop was being held in the important period of entering the phase of practical reductions in pollution, and it was hoped that it would help to identify the instruments that would help attain that goal.
14. Mr. Guerrieri said that the current Workshop was the result of the work carried out over the past years by the Thematic Group, and he gave thanks for the contributions and support given by organisations that were not MCSD members. He stressed that the recommendations of the current Workshop should be few in number, rather than just a shopping list, and should be practical and capable of being implemented. In addition, it was necessary to consider the need for practical tools for operators, decision-makers and civil society. Information was crucial, particularly when it identified support measures, training and new approaches to best available technologies (BAT) and best environmental practices (BEP). Moreover, in addressing the issues of sustainable development and pollution, it was important to try to bring about a change in the attitudes of consumers.

ITEM 2. ELECTION OF OFFICERS

15. At the opening session of the Workshop, on 27 June 2001, the Secretariat proposed the following: Mr. Anton Pizzuto (Malta), Ms. Garrette Clarke (UNEP/IE), and Mr. Víctor Macià would, respectively, chair days one, two and three of the Workshop, under the overall coordination of the Task Managers (Mr. Giovanni Guerrieri, Co-Chair of the MCSD Task Group on Industry and Sustainable Development and Ms. Dalila Boudjema Co-Chair of the MCSD Task Group on Industry and Sustainable Development).

ITEM 3. ADOPTION OF THE AGENDA AND ORGANIZATION OF WORK

16. The Meeting adopted the following agenda on the basis of the provisional agenda proposed in document UNEP(OCA) MED WG.192/1, as amended:
 1. Opening of the meeting
 2. Election of Officers
 3. Adoption of the agenda and organisation of work
 4. Presentation of the background document "Status and Trends of Industry and Sustainable Development in the Mediterranean Region"
 5. Open discussion
 6. Presentation of regional-national initiatives related to industry and sustainable development

7. Presentation and discussion of issues related to Actors, Legislation framework, Instruments and tools
 8. Review of proposed set of actions
 9. Other business
 10. Adoption of the summary of conclusions and proposals for action to be presented to the next MCSD meeting in Antalya
 11. Closure of the Regional Workshop
17. The Workshop decided that all items would be taken up directly in plenary.

ITEM 4. PRESENTATION OF THE BACKGROUND DOCUMENT "STATUS AND TRENDS OF INDUSTRY AND SUSTAINABLE DEVELOPMENT IN THE MEDITERRANEAN REGION"

18. The Workshop took up agenda item 4 at its 1st session, on Wednesday, 27 June 2001. Introducing the item, the consultant to RAC/CP, Mr. Nordine Sini, presented the background paper entitled "Status and Trends of Industry and Sustainable Development in the Mediterranean Region" (UNEP(OCA) MED WG.192/3), stressing that the document was not meant to be an exhaustive study, but rather the basis for discussion and formulation of specific recommendations for adoption by the Workshop. He emphasised that the details would be discussed later and that the basic protocols of the Barcelona Convention, regional plans and programmes, MAP PHASE II and the SAP had been used to prepare the background document. He considered that the real value of the background paper would be fruitful discussion leading to realistic and practical recommendations for submission to the next meeting of MCSD.

ITEM 5. OPEN DISCUSSION

19. Following the presentation by the consultant, an open discussion was held on the content of the background paper on status and trends of industry and sustainable development in the Mediterranean region (UNEP(OCA) MED WG.192/3), in which many experts participated.
20. During the discussion, the following main points were raised: the need to involve further actors in the sustainable development process, such as the Ministry of Industry and other relevant Ministries, and regional and local actors, such as district industrial associations, and universities; the importance of national-level co-ordination of sustainable development; the difficulty of identifying the tools available for addressing bad practices; ways to overcome the lack of access to data; the possible mechanisms for financing the introduction of cleaner production methods, in particular the identification of possible national solutions and methods for financing, as well as the issues of direct foreign investment, financial incentive measures, soft loans, and government and regional subsidies; the fact that cleaner production methods were applied with different levels of stringency, both in terms of the North and South Mediterranean areas and with regard to large-scale versus small-scale enterprises; the particular problems of introducing the concept of sustainable development to SMEs, including the need for capacity-building and technology transfer to address outdated practices responsible for high levels of pollution, the demand for short-term, rapid-payback solutions, and the possibility of public-private partnerships; the possibility of a formal twinning system, perhaps using CP/RAC as a mechanism, to match SMEs with improved technologies; the need for sustainable management and development planning prior to the establishment of new production facilities; the need to take into account the impact of the decisions of the World Trade Organisation (WTO) and the decisions and Directives of the EC, particularly concerning the requirements for environmentally friendly products; the need to link up with the operational plan for the implementation of the SAP; and the specific problems of Mediterranean islands.

21. The representative of MEDPOL, addressing the issue of identifying financial institutions for industries, pointed to the country-by-country financial mechanism for the implementation of the SAP, which was directly related to the objectives of reducing industrial pollution. Pilot testing of the mechanism would be carried out in countries and it was expected that new tools would be available by the end of the biennium. A mixed steering committee, composed of donors and the Secretariat, overviewed the mechanism. He believed that the problem lay not in the availability of funding but, rather, in putting those requiring funds in touch with what was available. For example, MEDPOL had US\$2 million available for pre-investment studies for pollution hotspots.
22. Noting that the European Union had very effective sanctions for transgressors of anti-pollution laws, he pointed out that, although the Barcelona Convention allowed no sanctions, the SAP foresaw a reporting system that would enable the Secretariat to monitor the results of implementation of the LBS Protocol in countries. Since the Secretariat closely followed what the EU was doing in the field, the type of decision-making it proposed for countries was unlikely to be incompatible with the decisions of the EU. He went on to note the need to involve subregional actors and, especially, the SMEs, since large industrial complexes easily acquired information and funding. The Ministries of Industry also needed to be involved, since they also played a role in the implementation of the SAP. Moreover, there should be an obligatory inter-ministerial committee. On the question of availability of data, he noted the possibility of buying the information required, and highlighted the fact that MEDPOL would be collecting data on emissions into the sea. In conclusion, he pointed to the importance of technology transfer.

ITEM 6. PRESENTATION OF REGIONAL-NATIONAL INITIATIVES RELATED TO INDUSTRY AND SUSTAINABLE DEVELOPMENT

23. At its 1st session, on 27 June 2001, the Workshop took up the above item of its agenda.
24. Mr. Ahmed Hamza, in his presentation on sustainable industrial activities in Egypt, stated that there were 25,000 large industrial sites and 100,000 service industries. Industry contributed 28 per cent of GNP and would be the subject of US\$ 120 billion in investment for industrial development over the following 20 years. National policy had concentrated on promoting the efficient utilisation of inputs, introduction of cleaner technologies, recycling of waste and introduction of efficient legislation and enforcement measures. In addition, 11 new cities had been created with industrial areas where one third of national industrial production was then located. Government actions stressed, *inter alia*, the development of guidelines for cleaner production, the provision of training and adaptation of the recycling of waste to reuse of recycled waste. It was stressed that the Government was motivated by the conclusion that cleaner production equalled a reduction in production costs.
25. Ms. Dalila Boudjemaa, in her presentation of government initiatives in promoting sustainable development in Algeria, described the policy of diversification and a programme of privatisation. Public policy encouraged adoption of new technologies and the protection of resources. The Government sought to promote long-term sustainable economic development, preserve natural resources and improve public health, as well as reduce poverty. Considerable effort was being made to generate broader awareness of the concept of cleaner production.
26. Mr. Rachid Nafti in his presentation described in detail the role of the Tunisian Centre for Environmental Technologies (CITET) and SMEs. The Centre had been created in 1996 to support sustainable development in Tunisia, with the broad mission of training and capacity-building, provision of technical assistance for adoption of environmental protection measures in industry and to serve as an information clearing house. The Centre promoted cleaner production and environmental management, provided expertise and advice, and developed integrated information systems. It had four quality laboratories for the 11,000 industries registered in Tunisia that produced 34 per cent of the GNP and were a major export activity. The political commitment of all parties was reflected in two declarations on cleaner production and the development of a national cleaner production action plan that was under way.

27. Mr. Víctor Macià in his presentation described the evolution and activities of the Centre per a l'Empresa i el Medi Ambient (CEMA) in Barcelona. In his view, the keys to success were preconditions of a clear willingness of Government to make progress, a clear definition of concepts, information about sources of pollution, a capacity to identify effective measures and the existence of suitable incentives. The Centre had been created in 1994 as a public company in order to increase its scope and improve its activities. The Government of Catalonia and the Spanish Ministry for the Environment provided financial support. The Centre was intended to be the pleasant face of the Ministry for the Environment, serving as a meeting point between economic sectors and the environmental authorities, dealing directly with private-sector companies, providing information, technical support and training. In addition, it acted as a technical tool for the Ministry of the Environment. The Centre had produced case studies, carried out more than 300 diagnostic studies, made presentations, prepared publications, analysed requests for special conditions and prepared reports. Its activities had resulted in a decrease in the use of water, a decrease in pollution and increased awareness.
28. Ms. Alissar Chaker described the problems related to the tanning sector in Lebanon and the work of Envirotech Ltd. in providing advice for relocation of the tanning industry in Lebanon, the largest source of industrial pollution. Envirotech Ltd. had produced a pre-feasibility study for a new industrial city for the tanning industry and related industries, represented by 25 small and medium industries in five separate areas on the coast on in catchment basins. That industry provided 28 per cent of GNP used a high level of technology and was one of the few industries to have survived the war. In addition, it was highly dependent on the use of chromium. Re-adaptation of the industry had successfully mobilised a participatory approach and achieved voluntary compliance. Major existing difficulties were the coastal concentration, a lack of planning, a lack of funds and a lack of economic incentives and awareness.
29. Mr. García-Muro described the activities of the Instituto Tecnológico de Aragón, which had a staff of 150 with the primary mission to support local industry, offering advice, quality control and the services of a calibration laboratory. The Institute carried out a programme of environmental certification, mostly for companies with fewer than 15 employees, in order to improve the management of waste.
30. Ms. Maria Dalla Costa from the Italian Environmental Protection Agency (ANPA), presented a preliminary overview of "Voluntary Agreements" in Italy, promoted by the Ministry of the Environment in co-operation with other Public Administrations at the national, regional and local level in partnerships with large industrial companies, industrial associations and small and medium size enterprises. The use of these tools began in 1990 with an increase in number from 1997, following ad hoc legislation to incorporate EU directives on waste management, recovery, recycling and reuse to reduce the quantity and danger of waste, also through the development of innovative production processes favouring the production of goods and services by the utilisation of less polluting and reusable materials and the rational use of energy. Examples were provided regarding agreements with Montedison, FIAT, ANCI and ANCI which are expected to lead to environmental improvements in sectors such as motorcycles, electric vehicles, detergents, energy, disposable cameras, paints and solvents, urban waste and the emission of greenhouse gases. A shortcoming had been the absence of an appropriate monitoring programme to measure compliance and achievement. Strong shared objectives and effective co-operation in the implementation stage are essential for the success of this programme.
31. Mr. Francisco Nuñez presented the strategic study methods of industrial activities in an area of Catalonia, describing the analysis aspects and other aspects, such as the safety of the workers, the plant and the neighbouring zone. He pointed to the importance of audits of plant activities, in order to ensure that emissions to the environment were correctly addressed. He highlighted the need to take into account the correct transport of the products, the correct use by consumers, the elimination and recycling of waste and the critical importance of collaboration. He also presented a case study of an analysis of accidental releases of pollutants at a PVC factory, and the methods used to determine the flows of such accidental emissions and how best to contain them and recover contaminants.

32. Ms. Nilgun Kiram Ciliz described the application of the CP methodology to the textile industry in Turkey, using the examples of cotton and wool processing. That had resulted in significant savings of water, energy and chemicals, leading to an immediate payback of the costs required for those inputs, while also benefiting the environment. She stressed that, in applying CP methodology to such enterprises, it was crucial to prove that it would not have any negative impact on the quality of the end product. In the near future, Turkey hoped to extend the application of the CP methodology to other sectors of industry.
33. Mr. Essam Nada described the structure, history and objectives of the Arab Network for Environment and Development (RAED) and presented its regional pilot project for the management of solid waste, which was being implemented in Egypt, Lebanon, Morocco and Tunisia. In selected target communities, training was provided in the sorting of solid waste at source, with particular attention to the separation and recycling of metals, paper, plastics and compostable materials. Activities were also undertaken to increase public awareness and to disseminate the results of the project to participating countries.
34. Ms. Savka Kucar-Dragicevic presented the 1997-1999 UNIDO umbrella project for CP in Croatia and its outputs. She drew attention to the fact that a high proportion of the projects had required relatively little or no financial investment and, where investments had been necessary, the payback period for the majority had been less than one year. She presented a case study of the project for CP in Osijek-Baranja county, setting out the main goals of reconstructing industry in a cost-effective way and giving the results of the projects for the year 2000. She described new projects for the year 2001, including the Test project, which formed part of the project to reduce pollution of the River Danube. In conclusion, she said that a new development strategy was being prepared in Croatia, and that the sustainable development approach had been adopted as the starting point for all activities. Such an approach would also be integrated into all other sectoral strategies.
35. Mr. Abdeljaouad Jorio presented a paper on a study of the transportation sector in Morocco, with particular reference to identifying instruments to reduce the polluting factors from the domestic production, import and use of private automobiles. He pointed to the application of legislative and customs-tariff-related tools to discontinue imports and use of older, more polluting cars and to encourage the purchase of new, less environmentally damaging vehicles. He also analysed the impact of the creation of a free trade zone on the Moroccan car-making industry, and pointed to the enlarged market for new and cleaner cars, with a concomitant effect on environmental pollution. Assessing the technological effects, he also highlighted the importance of new, cleaner production technologies for both the unit consumption cost of each car produced and for the reduction of their pollution of the environment.
36. Mr. Said Jalala, in his presentation described the steps taken by the Palestinian Authority since 1994 to organise industrial activities in order to achieve environmentally sound socio-economic development. A full legal and regulatory framework had been adopted to ensure sound practices, taking into account the creation of special industrial zones, the requirements for cleaner production, waste management and training, among other considerations. The Palestinian Authority was fully committed to the concept of cleaner production.
37. Mr. Mounir Ghribi described the background, structure, objectives and activities of ICS/UNIDO, stressing its role in the pursuit of transfer of technology to SMEs. In that connection, the Centre actively carried out networking, in order to seek out new partners for technology transfer and for other co-operation activities. As well as organising scientific workshops and expert meetings, the Centre produced a number of publications. It also provided training, particularly in Geographic Information Systems (GIS), which were used as tools to support coastal zone management.

ITEM 7. PRESENTATION AND DISCUSSION OF ISSUES RELATED TO ACTORS, LEGISLATIVE FRAMEWORK AND INSTRUMENTS, PROGRAMMES AND TOOLS

38. Introducing the item, the consultant to RAC/CP, Mr. Nordine Sini, gave a presentation on how the comments made during the discussion of the "Status and Trends of Industry and Sustainable Development in the Mediterranean Region" (UNEP(OCA) MED WG.192/3) impacted on that report and how the issues raised could be related to possible recommendations by the Group.
39. Following a number of comments and proposals for elements for possible inclusion in the consultant's report or in the recommendations of the Group, the experts took up consideration of an informal paper, prepared by the Secretariat, entitled "Draft proposals for action by the MCSD Working Group on Industry and Sustainable Development".
40. Introducing the paper, a representative of the Secretariat explained that it was based on the comments and proposals made by experts during the open discussion under agenda item 5. She observed that the introduction of the paper, containing a summary of major issues, stakes and trends, achievements and gaps, would be completed by the Secretariat at a later stage. She clarified that, in drafting the paper, the Secretariat had considered it necessary to add to the existing three categories (Actors, Legal framework, and Instruments and tools) a fourth category (Horizontal), covering crosscutting issues.
41. During the discussion on the sections covering "Actors", experts considered the list should be supplemented to include the private sector and financial institutions, Ministries of Planning, the European Community and other European institutions, and the donors. One expert pointed to the need to distinguish between the universities and other important training and education bodies. It was pointed out that there were bodies that could be actors at the present time without their being aware of the fact, or which, as a result of developments, could become actors at some future time.
42. One expert considered that businesses that were environmental leaders needed to be identified and given special assistance, for example by provision of training in overseas financial investment, commitment by Governments to purchase their products, and assistance in certification and recognition that their products were the result of cleaner and sustainable production methods.
43. Some experts considered that it was necessary to identify which actors should undertake specific tasks. It was observed that a consulting and co-ordinating mechanism was needed to harmonise the activities of the actors and stakeholders. Some experts believed that a regional mechanism was needed, while one expert said that the mechanism should be at the national level and should co-ordinate the activities of Ministers in implementing a cleaner production agenda.
44. On the subject of the concept of sustainable development, one expert was of the view that a top- down approach from Governments would not easily cause businesses to adopt sustainable production methods. Rather, a consumer-driven strategy was necessary.
45. One expert, pointing to experience with direct foreign investment, pointed to the danger of having only the stronger firms surviving the introduction of strict norms for sustainable production. The SMEs would need time to be able to integrate those into their industrial practices and reach the required level, and many would be unable to compete and would go under, with the loss of many industries and jobs. Foreign direct investment also brought the risk of relocating polluting activities to the Mediterranean area. A recommendation was needed to address that risk.
46. Concerning co-ordinated use of existing resources, it was proposed that industrial associations, as well as regional bodies for cleaner production, be included in the list of such resources. In addition, one expert considered that, in addition to establishing new bodies, it was also necessary to make reference to the need to strengthen existing bodies.

47. Several experts commented on various aspects of any requirements for an environmental impact study and the question of a need for voluntary agreements.
48. Concerning a legal framework, comments ranged from specific proposals for modification of text, to the need to eliminate the sections (Actors, Legal framework, Instruments and tools and Horizontal) and to close the gap between legal provisions and real results. As for the section on instruments and tools, it was suggested that the technique of life-cycle assessment could be a useful tool. Another suggestion was that there be a focus on training in simple environmental management techniques to promote eco-efficiency, along with related considerations. Several experts asked that a recommendation be expanded to include provision for site recovery. A question was raised about environmental indicators as valid and full indicators of progress and compliance. Another expert commented on mechanisms for incubation of industries in relation to sustainable development.
49. Several experts expressed views on the relations between assisted countries and donors or investors. The monitoring of results and the promotion of sustainable development were considered to be of paramount importance. Several textual changes were proposed under that section. One expert suggested that the use of a glossary or expansion of abbreviations might prove useful. The view was expressed that there was a need to recommend the formulation and submission of good projects that would immediately find financing. Another expert stressed the importance of public participation in the process of promoting cleaner production.
50. A number of proposed changes were submitted for incorporation into a revision of draft recommendations for subsequent discussion and adoption.

ITEM 8. REVIEW OF PROPOSED SET OF ACTIONS

51. At its session on 29 June 2001, the Workshop reviewed the paper prepared by the Secretariat, entitled "Proposals for action by the MCSD Working Group on Industry and Sustainable Development".
52. In the course of the discussion, experts made a number of proposals for amendment to the proposals.

ITEM 9. OTHER BUSINESS

53. No other matters were raised for discussion.

ITEM 10. ADOPTION OF THE SUMMARY OF CONCLUSIONS AND PROPOSALS FOR ACTION TO BE PRESENTED TO THE NEXT MCSD MEETING IN ANTALYA

54. Following an exchange of views, it was agreed that the Secretariat would be entrusted with the finalisation of the proposals, taking into account the comments and proposals made at the Workshop.

ITEM 11. CLOSURE OF THE REGIONAL WORKSHOP

55. The Workshop rose at 1p.m. on Friday, 29 June 2001.

List of participants

(UNEP (OCA) MED WG. 192/Inf.1)

INDUSTRY AND SUSTAINABLE DEVELOPMENT WG MEMBERS

ALGERIA

Mme Dalila BOUDJEMAA
Responsable du Programme Industriel
Chargé d' Etudes et de Synthesè.Cabinet du Ministre
Ministère de l'Aménagement du Territoire et de
l'Environnement
9,avenue de l'indépendance
16000 Alger
Algérie

Tf. (213) 21 654951
Fax (213) 21 666172/654951
e-mail: sdai@environnement-dz.org

M Ahmed AKLI
Sous-Directeur
Ministère de l'Aménagement du Territoire et de
l'Environnement
9, avenue de l'indépendance. Palais Mustapha Bacha
16000 Alger
Algérie

Tf. (213) 21 676360/ 21432700
Fax (213) 21 654951
e-mail: sdai@environnement-dz.org

**CHAMBERS GROUP FOR THE
DEVELOPMENT OF GREEK ISLANDS
(EOAEN)**

M George GIOURGAS
Conseiller Affaires Européenes
17, Avenue de Phalenes
B-1000 Bruxelles
Belgique

Tf. [322] 6485726
Fax [322] 6485725
e-mail: g.giourgas@freebel.net

ISRAEL

Dr. Noam GRESSEL
Director of the Environment Programme
MAALA - Business Social Responsibility
10, Kehilat Venezia St.
69400 Tel Aviv
Israel

Tf. [972] 3 6482579
Fax [972] 3 6496829 - 972 53 414847
e-mail: noamgres@netvision.net.il, noam@arava.org

ITALY

Mr. Giovanni GUERRIERI
Expert Water Protection Dept.
Ministry for the Environment
Via C. Colombo, 44
00144 Rome
Italy

Tf. (39) 06 57225102/ 339 29 076 00
Fax (39) 06 57225195
e-mail: g.guerrieri@tin.it

Ms. Maria DALLA COSTA
RAC/CP NFP
Head, International Affairs
Italian Environment Protection Agency,
representing the Italian Ministry of the Environment
via Vitaliano Brancati, 48
00144 Rome
Italy

Tf. [39] 06 50072160
Fax. [39] 06 50072219
e-mail: dallacosta@anpa.it

MEDCOAST

Dr. Goksel DEMIRER
Associate Professor of Environmental Engineering
Middle East Technical University
Dept. of Environmental Engineering
Inonu Bulvari
06531 Ankara
Turkey

Tf. (90) 312 210 58 67
Fax (90) 312 210 12 60
e-mail: goksel@metu.edu.tr / medcoast@metu.edu.tr

SPAIN

Mr. Adrián VECINO VARELA
Técnico Superior.
Subdirección General de Cooperación Institucional y
Políticas Sectoriales
Ministerio de Medio Ambiente
Plaza San Juan de la Cruz, s/nº
28071 Madrid
España

Tf. [34] 91 5976732
Fax [34] 91 5975980
e-mail: adrian.vecino@sgcips.mma.es

Mr. Miguel Ángel GARCIA-MURO
Jefe Dept. Calidad-Medio Ambiente
Instituto Tecnológico de Aragón
María de Luna,7 (Pol.Actur)
50015 Zaragoza
España

Tf. [34] 976 716250/6272
Fax [34] 976 71 62 98
e-mail: magarcia@ita.es

TUNISIA

Dr. Lofti BEN SAID
Sous-Directeur Technologies Propres
Direction Générale de l'Environnement et la Qualité de Vie
Ministère de l'Environnement et de l'Aménagement du
Territoire
Centre Urbain Nord - Bâtiment I.C.F.
B.P. 52
2080 Ariana - Tunis
Tunisie

Tf. [216] 1 70 4000
Fax [216] 1 704340
e-mail: BOC@mineat.gov.tn

TURKEY

Mr. I. Fatih ERKAL
Section Head
General Directorate of Prevent and Control of Environment
Pollution
Ministry of Environment
Eskisehir Yolu 8 Km
06530Ankara
Turkey

Tf. [90] 312 287 99 63/53 07
Fax [90] 312 28558 75
e-mail: fatiherkal@mynet.com

MCS D MEMBERS

ALBANIA

Ms. Aurela BINJAKU
Expert on solid waste management
Environment Pollution Control&Prevention Directory
National Environmental Agency
Blvd. Zhan D'Ark, n 2
Tirana
Albania

Tf. [355] 42 30682/43 65 229
Fax. [355] 4 365229
e-mail: albnea@albnet.com, zamir@cep.tirana.al

Ms. Dolores DANI
Chief of Regional Environment Agency
National Environmental Agency
Lagja Skender Libohova, Ap N° 25
Lushnye
Albania

Tf. [355] 42 30682/65 225 83/ 65 230 44
Fax. [355] 4 365229
e-mail: albnea@albnet.net, zamir@cep.tirana.al

BOSNIA&HERZEGOVINA

Ms. Gorjana RADULOVIC
Professional Adviser
Hydro Engineering Institute
Stjepana Tomica, 1
71000 Sarajevo

Bosnia and Herzegovina
Tf. [387] 33 207949/212466
Fax. [387] 33 207949
e-mail: gradulov@utic.net.ba

CROATIA

Mr. Andrija RANDIC
Head of Marine and Coastal Protection Unit
Ministry Environment Projection/Physical Planning
Uzarska ulica 2/I
HR-51000 Rijeka
Croatia

Tf. [385] 51 213499
Fax. [385] 51 214324
e-mail: andrija.randic@duzo.hinet.hr

CYPRUS

Mr. Ioannis A. ECONOMIDES
Industrial extension officer
Department of Industry
Ministry of Commerce, Industry and Tourism
4, Aranouzios Street
1421 Nicosia
Cyprus

Tf. [357] 2 867147 (100)
Fax. [357] 2 375120
e-mail: econom@cytanet.com.cy

EGYPT

Dr. Amin MOBARAK
Prof. Cairo University
Member of Egyptian Parliament.
3 Mousadek str. Dokki
Cairo
Egypt

Tf. [202] 572 07 24/ 336 76 27/ 7947514
Fax. [202] 748 12 25
e-mail: aminm@idsc1.gov.eg

Ms. Hanan EL-HADARY
Director of the Egyptian Pollution Abatement Project.
Egyptian Environmental Affairs Agency
30 Misr Helwan Rd / Maadi
11728 Cairo
Egypt

Tf. [202] 526 14 19/ 201 01 24 08 14
Fax. [202] 526 14 21
e-mail: h_elhadary@hotmail.com

**ENVIRONMENT AND DEVELOPMENT
IN MAGHREB (ENDA)**

Mr. Abdeljaouad JORIO
Consultant
Environnement et Developpement au Maghreb
196, Quartier O.L.M.
10100 Rabat-Souissi
Maroc

Tf. [212] 37 756414-5
Fax. [212] 37 756413
e-mail: coord@enda.org.ma

LEBANON

Mr. Hassan HOTEIT
Engineer
Protection of the Built Environment
Ministry of the Environment
PO Box 70
70 1091 Antelias
Lebanon

Tf. [96] 4 52 2222
Fax. [961] 4 52 5080
e-mail: h.hoteit@moe.gov.lb

MALTA

Ms. Catherine POLIDANO
Environmental Projects Manager
Environment Protection Department
Corradino
Malta

Tf. [356] 660060/ 677038
Fax. [356] 241378
e-mail: kukkudrill@malta.nextgen.mt

MEDCITIES

Mr. Joan PARPAL
General Secretary
MEDCITIES
Mancomunitat de Municipis de l'Àrea Metropolitana de
Barcelona C/ 62, Núm. 16/18 - Sector A, Zona Franca
08040 Barcelona
Spain

Tf. [34] 93 2234169
Fax. [34] 93 2235128
e-mail: desurb@amb.es

MEDENER

Ms. Cristina CAÑADA
Resp. Proyectos Promoción PYME
IDAE
Paseo de la Castellana, 95 - planta 21
28046 Madrid
Spain

Tf. [34] 91 4564959
Fax. [34] 91 5551389
e-mail: canada@idea.es

MED FORUM

Mr. Rafael MADUEÑO
General Secretary
MEDFORUM
Gran Via de les Corts Catalanes, 643, 3
08010 Barcelona
Spain
Tf. [34] 93 4124309
Fax. [34] 93 4124622
e-mail: medforum@pangea.org

Ms. Contxita VICARIA
Coordinadora d'Estudis i Projectes EcoMediterrania
MEDFORUM
Gran Via de les Corts Catalanes, 643, 3
08010 Barcelona
Spain

Tf. [34] 93 4125599
Fax. [34] 93 4124622
e-mail: medforum@pangea.org

MONACO

Mr. Wilfrid DERI
Administrateur
Cooperation Internationale pour l'Environnement et le
Developpement
Ministère de l'Environnement
Villa Girasole - 16, Boulevard de Suisse
9800 Monaco
Principaute de Monaco

Tf. [377] 93152122
Fax. [377] 93509591
e-mail: wderi@gov.mc

MOROCCO

Mme. Mouna SEKKAT
Administrateur
Ministere de l'Aménagement du Territoire, de l'Urbanisme,
de l'Habitat et de l'Environnement
2, rue Oum Rbiaa, Agdal
10000 Rabat
Maroc

Tf. [212] 61 65 40 20
Fax. [212] 37 68 0741
e-mail: dpar@minenv.gov.ma

SLOVENIA

M. Sc. Tomaz POGLAJEN
International Centre for Sustainable Development
Dunajska 104
SI-1000 Ljubljana
Slovenia

Tf. [386] 1 5657480
Fax. [386] 1 5657484
e-mail: tomaz.pogljajen@icsd.si

SYRIAN ARAB REPUBLIC

Ms. Abir ZENO
Head of EIA Permit Division/ CP coordinator
Ministry of State for Environmental Affairs
P.O. Box 3773 - Tolyani Street
Damascus
Syrian Arab Republic

Tf. [963] 11 4461072
Fax. [963] 11 3335645
e-mail: ab_zeno@yahoo.com, env-min@net.sy, enveng@net.sy

MUNICIPALITY OF TRIPOLI

Ms. Nadia REFAT
Head of Consulting Office of the Mayor of Tripoli
Municipality of Tripoli
PO Box 12733
Tripoli, Libyan Arab Jamahiriya

Tf. [218] 21 44 49 065/ 21 47 71194
Fax. [218] 21 44 49 065
e-mail: nad_rif@yahoo.com

OBSERVERS

CAMBRA COMERÇ BARCELONA

Ms. Elvira CARLES
Environment Depart. Responsible
Cambra Barcelona
Av. Diagonal, 452
08006 Barcelona
Spain

Tf. [34] 93 416 94 21
Fax. [34] 93 416 93 25
e-mail: ecarles@mail.cambrabcn.es

CEFIC - EUROCHLOR

Mr. Arseen SEYS
Director
CEFIC - EUROCHLOR
Av. E Van Nieuwenhuysse 4, box 2
B-1160 Brussels
Belgium

Tf. [32] 2 6767251
Fax. [32] 2 6767241
e-mail: ase@cefic.be

Mr. Emilio TIJERO
Eurochlor GTWG member
ERCROS SA
Avda. Diagonal 593
08014 Barcelona, Spain

Tf. [34] 93 4393009
Fax. [34] 93 4193229
e-mail: etijero@ercros.es

Mr. Mateo JAUME
Representant Eurochlor
SOLVAY
Mallorca, 269
08008 Barcelona, Spain

Tf. [34] 93 4847403
Fax. [34] 93 4878886
e-mail: mateo.jaume@solvay.com

CENTRE MAROCAIN DE PRODUCTION PLUS PROPRE (CMPP)

Mr. Mourad SKALLI
Directeur
CMPP
23, Bd. Mohammed Abdouh - Quartier Palmier
Casablanca
Maroc

Tf. [212] 22 250547
Fax. [212] 22 23 04 66
e-mail: cmpp-maroc@iam.net.ma

Ms. Asma TAZI
Deputy Director
CMPP
23, Bd. Mohammed Abdouh - Quartier Palmier
Casablanca
Maroc

Tf. [212] 22 25 11 61/ 250871/250547
Fax. [212] 22 23 04 66 / 25 38 45
e-mail: asmaatazi@caramail.com, cmpp-maroc@iam.net.ma

CITET

Mr. Rachif NAFTI
Chef de Projet METAP/EIE
Boulevard de l'Environnement
1080 Tunis
Tunisie

Tf. [216] 1 770285 /808650
Fax. [216] 1 772255/820375
e-mail: rnafti@gnet.tn/rnafti@ati.tn, citet.metap@citet.nat.tn

CROATIAN CPC

Dr. Savka KUCAR-DRAGICEVIC
Director of the Board
Croatian Cleaner Production Center
Savska cesta 41/IV
HR-10000 Zagreb
Croatia

Tf. [385] 1 6176736
Fax. [385] 1 6176734
e-mail: savka.kucar-dragicevic@apo.tel.hr

**CATALAN MINISTRY OF
THE ENVIRONMENT**

Mr. Carles SEGURA
Technitian
Department of Environmental Planning
Departament de Medi Ambient
Avda. Diagonal,525
080029 Barcelona
Spain

Tf. [34] 93 4445104
Fax. [34] 93 4199718
e-mail: wcsegura@correu.gencat.es

**EGYPTIAN ENVIRONMENTAL AFFAIRS
AGENCY (EEAA)**

Prof. Ahmed HAMZA
Senior Technical Advisor
Egyptian Environmental Affairs Agency (EEAA)
Cabinet of Ministers
30, Hellwan Street
El Maadi-Cairo 11728
Egypt

Tf. [20] 2 5259542
Fax. [20] 2 5259542
e-mail: a_hamza@hotmail.com

ENVIROTECH

Ms. Alissar CHAKER
Environmental Specialist/Project Manager
Envirotech
Hujeij Bldg. 6602 - Adnan Al Hakim Street - Jnah,
Summerland Zone
PO 14-6420
Beirut
Lebanon

Tf. [961] 1 840401
Fax. [961] 1 840407
e-mail: a.chaker@envirotech.com.lb

**SPANISH ENTERPRISES
REPRESENTATIVE**

Mr. Francisco NUÑEZ
Director
SOLVAY
Marie Curie, 1
08760 Martorell, Spain

Tf. [34] 93 7734900
Fax. [34] 93 7751612
e-mail: francisco.nunez@solvay.com

**INSTITUT CATALÀ MEDITERRANEA
(ICM)**

Ms. M^a Angeles ROQUE
ICM
Girona, 20, 5a planta
08010 Barcelona
Spain

Tf. [34] 93 244 98 50
Fax. [34] 93 247 01 65
e-mail: picm0020@correu.gencat.es

ICS/UNIDO

Mr. Mounir GHRIBI
Environmental Technologies Engineer
ICS/UNIDO
Padriciano, 99 Palazzina L2
340 12 Trieste
Italy

Tf. [39] 040 9228105
Fax. [39] 040 9228136
e-mail: mounir.ghribi@ics.trieste.it, elisa.roa@ics.trieste.it

**INSTITUT INTERNACIONAL
DE GOVERNALITAT (IIG)**

Ms. Cristina QUEROL
Analyst of Governance and Sustainable Development
IIG
Corsega 255,5-1
08036 Barcelona, Spain

Tf. [34] 93 2389342
Fax. [34] 93 2376026
e-mail: cristina.querol@iigov.org

**MALTA CLEANER TECHNOLOGY
CENTRE (CTC)**

Mr. Anton PIZZUTO
Director
CTC
University Campus
Msida
MSD 06 Malta

Tf. [356] 313416
Fax. [356] 340979
e-mail: pizz@di-ve.com

PALESTINIAN AUTHORITIES

Mr. Khalid QAHMAN
Director General of Project and Planning
Ministry of Environmental Affairs
PO Box 3841
Ramallah, West Bank
Palestinian Authorities

Tf. [972] 8 2847208
Fax. [972] 8 2847198
e-mail: qahman@hotmail.com

Mr. Said JALALA
Director General
Ministry of Environmental Affairs
Elthawra Str.
Gaza, Palestinian Authorities

Tf. [972] 7 2847208
Fax. [972] 7 2847198
e-mail: said_halala@hotmail.com

**ARAB NETWORK FOR ENVIRONMENT
AND DEVELOPMENT (RAED)**

Mr. Essam NADA
Executive Director
RAED
PO Box 2 - Magles El Shaab
Cairo, Egypt

Tf. [202] 3041634 - 3059613
Fax [202] 3041635
e-mail: aoeye@link.net

TUBITAK

Ms. Nilgun KIRAN CILIZ
Senior Scientist
TUBITAK
Marmara Research Centre Institute
Energy Systems and Environmental Research Centre
PK 21
Gebze-Kocaeli 41470
Turkey

Tf. [90] 2626412300 Ext 3958
Fax [90] 262 6412309
e-mail: nilgun.kiran@pota.mam.gov.tr

UNITED NATIONS BODIES AND SECRETARIAT UNITS

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

Ms. Garrette CLARK
Cleaner Production Programme Coordinator
UNEP
Tour Mirabeau - 39-43, Quai André Citroën
Institute
75739 Paris Cedex 15
France

Tf. [33] 1 44371420
Fax [33] 1 44371474
e-mail: garrette.clark@unep.fr

COORDINATING UNIT FOR THE MEDITERRANEAN ACTION PLAN

Mr. Arab HOBALLAH
Deputy Coordinator /MCS D Coordinator
Coordinating Unit for the MAP
PO Box 18019
48, Vassileos Konstantinou Avenue
116 10 Athens
Greece

Tf. [30] 1 7253190-5
Fax [33] 1 7253196-7
e-mail: hoballah@unepmap.gr

Mr. Francesco-Saverio CIVILI
MEDPOL Coordinator
Coordinating Unit for the MAP
PO Box 18019
48, Vassileos Konstantinou Avenue
116 10 Athens
Greece

Tf. [30 1] 7273106
Fax [30 1] 7253196-7
e-mail: fscivili@unepmap.gr

REGIONAL ACTIVITY CENTRES OF THE MEDITERRANEAN ACTION PLAN

REGIONAL ACTIVITY CENTRE FOR THE BLUE PLAN (RAC/BP)

Mr. Patrice MIRAN
Regional Activity Centre for the Blue Plan
15, Avenue Beethoven Sophia Antipolis
06560 Valbonne
France

Tf. [33] 492387130
Fax [33] 492387131
e-mail: planbleu@planbleu.org

REGIONAL ACTIVITY CENTRE FOR THE PRIORITY ACTIONS PROGRAMME (RAC/PAP)

Mr. Marko PREM
Deputy Director
Regional Activity Centre for Priority Actions
Programme
11, Kraj Sv. Ivana PO Box 74
21000 Split
Croatia

Tf. [385] 21 343499
Fax [385] 21 361677
e-mail: ivica.trumbic@ppa.tel.hr

REGIONAL ACTIVITY CENTRE FOR CLEANER PRODUCTION (RAC/CP)

Mr. Víctor MACIA
Director

Ms. Esther MONFA
International Coordinator

Mr. Antoni HOMEDES
External Relations

Ms. Belen GALLEGO
Studies Coordinator

Mr. Alfred VARA
Technical Coordinator

Mr. Iñaki GILI
Director's Assistant

Ms. Beatriz PARRILLA
International Dept. Technitian

Ms Rosa M^a SANCHEZ
Studies Dept. Technitian

Ms. Marina CENTELLES
Technitian

Ms. Susana RIVERO
Technitian

Mr. Josep Ramon DOMENECH
Technitian

Regional Activity Centre for Cleaner Production
París, 184 – 3 planta
08036 Barcelona
Spain

Tf. [34] 93 415 11 12
Fax [34] 93 2370286

CONSULTANT

Mr. Sini NORDINE
2, rue de madrid
44 000 Nantes
France

Tf./Fax [33] 2 40202480
e-mail: Sini.Nordine@wanadoo.fr



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

París, 184, 3a planta - 08036 Barcelona (Spain)
Tel.: +34 93 415 11 12 - Fax: +34 93 237 02 86
E-mail: cleanpro@cema-sa.org
<http://www.cema-sa.org>