

Effectiveness of International Environmental Regimes
A case study of the Mediterranean Action Plan

Sofia Frantzi

Ph.D. in Environment and Politics

University of York
Environment Department & Department of Politics

September 2007

Abstract

Modern environmental problems are often so extensive that they do not respect national boundaries and cannot be managed by one country acting alone, so their management is attempted through regional or international agreements. The focus of academic research in international relations has been on issues associated with the challenge of achieving international cooperation, i.e. on regime formation, and less attention has been paid to the actual effectiveness of implementation after these treaties come into force. Hence this thesis aims to investigate the issue of the effectiveness of international environmental regimes by looking at how effectiveness can be defined, and how it can be evaluated in a particular case. The main research question addressed in the thesis is *'What is environmental regime effectiveness and how is it evaluated?'* The Mediterranean Action Plan / Barcelona Convention (MAP) was chosen as a case study because existing studies of its effectiveness present sharply contrasting views and, as a long established regime, it may have changed over time. Existing approaches to measuring effectiveness in the academic literature are characterised by a debate over institutional versus environmental effectiveness. It is argued that a complete theoretical framework would require *inter alia* evaluating both the institutional and environmental components of a regime, and also the interaction between them. A study using Q methodology reveals the existence of many discourses on MAP's effectiveness among practitioners. An examination of MAP's environmental effectiveness, shows that the environmental impact of regimes cannot be easily measured, and that the role of science in regime operation should be examined instead. The analysis of MAP's institutional effectiveness identifies a combination of qualitative criteria as determinants of institutional performance. Finally, an overall evaluation of MAP based on the theoretical framework proposed in the thesis, shows a decline in its effectiveness compared to the early years of its operation. It is argued that it is the combination or trade-off of benefits in both environmental and political terms, that is the key to a regime's success.

«Δυνατὸν δὲ καὶ μὴ ἄρχοντα γῆς καὶ θαλάττης πράττειν τὰ καλά»

Ἀριστοτέλης (384 - 322 π.Χ.)

Ἠθικὰ Κ': 1179a

“We can do noble acts without ruling the earth and sea”

Aristotle (384 - 322 BC)

Ethics X : 1179a

Contents

<i>List of Tables</i>	<i>vi</i>
<i>List of Figures</i>	<i>vii</i>
<i>Acknowledgements</i>	<i>viii</i>
<i>Author's declaration</i>	<i>ix</i>

Chapter I

<i>Introduction</i>	<i>1</i>
Research questions and case study	2
Theoretical perspectives – Chapter II	10
Exploring discourses – Chapter III	11
Environmental effectiveness – Chapter IV	12
Institutional effectiveness – Chapter V	13
Concluding remarks – Chapter VI	15
References	15

Chapter II

<i>Theoretical perspectives on international environmental regime effectiveness</i>	<i>18</i>
Introduction	20
International Environmental Regimes	20
The Mediterranean Action Plan and the Barcelona Convention	41
A new approach to defining and measuring effectiveness	59
Conclusion	63
Acknowledgements	64
References	64

Chapter III

<i>Exploring discourses on international environmental regime effectiveness with Q methodology</i>	<i>71</i>
Abstract	73
Introduction	74
Methods	78
Results	82
Discussion	90

Conclusions	92
Acknowledgements	93
References	93
Chapter IV	
<i>Is science the driving force in the operation of environmental regimes?</i>	97
Abstract	99
Introduction	100
Methods	105
Results	110
Discussion	125
Conclusion	127
Acknowledgements	129
References	129
Chapter V	
<i>What determines the institutional performance of environmental regimes?</i>	135
Abstract	137
Introduction	138
Methods	144
Results	145
Discussion	160
Conclusion	162
Acknowledgements	163
References	163
Chapter VI	
<i>Conclusion</i>	171
Research findings	172
Holistic approach	178
Pragmatic vision	180
Dynamic nature	184
Concluding remarks	187
References	190

List of Tables

Chapter I

No tables

Chapter II

Table 1. MAP Protocols 51

Table 2. Regional Activity Centres (RACs) 53

Chapter III

Table 1. Stakeholder groups 79

Table 2. Matrix for filtering the statements 80

Table 3. Statement scores on each factor or discourse 84

Table 4. Stakeholder group loadings on each factor or discourse 89

Chapter IV

Table 1. MED POL Database from Phase III 115

Chapter V

No tables

Chapter VI

Table 1. Effectiveness of the Mediterranean Action Plan 188

List of Figures

Chapter I

- Figure 1.** Satellite view of the Mediterranean Sea 4

Chapter II

- Figure 1.** General concept for measuring regime effectiveness 34

Chapter III

No figures

Chapter IV

- Figure 1.** Number of monitoring stations with different frequency of observations in the period 1975-1993 111
- Figure 2.** Hg concentration in *Lithognathus mormyrus*. Data from the research centre in Haifa, Israel. 112
- Figure 3.** PCB concentration in *Mullus barbatus*. Data from the research centre in Madrid, Spain. 113
- Figure 4.** MED POL Phase III Monitoring sites 114

Chapter V

No figures

Chapter VI

- Figure 1.** Effectiveness of International Environmental Regimes 187

Acknowledgements

First and foremost I would like to thank my supervisors Jon Lovett and Neil Carter for constantly guiding me throughout the research, giving me valuable comments and support.

I am also grateful to all the participants of this study for devoting their time and attention to the in-depth interviews and the completion of the Q sorts.

Moreover I would like to thank Professor Evangelos Raftopoulos and Professor Alexandros Laskaratos for their inspiring ideas during several discussions on the research.

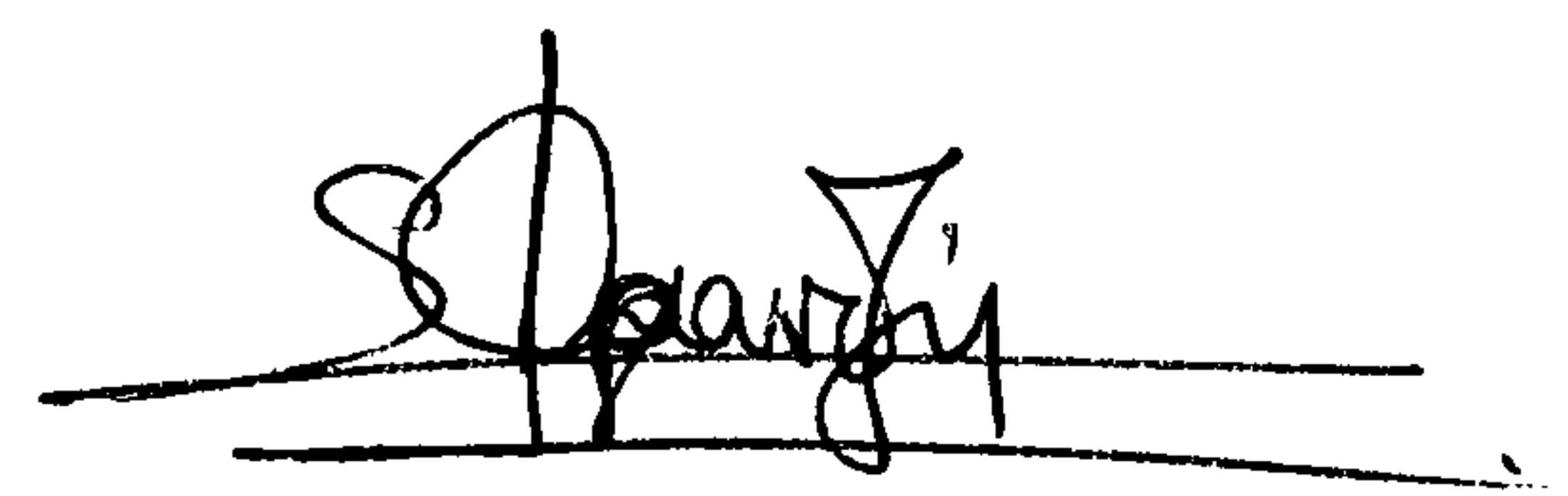
Special thanks go to Margaret Watts for providing me with a friendly working environment during the period I spent in the library of UNEP/MAP Secretariat.

I am really grateful to the ‘Firos Foundation’ for generously funding my doctoral studies.

Last but not least I would like to express my gratitude to my family and friends for being there for me throughout this journey. I cannot thank them enough.

Author's declaration

I declare that this thesis represents my own work, except where due acknowledgement is made, and that it has not been previously submitted to this university or any other institution for a degree or other award.



Σοφία Φραντζή

Sofia Frantzi

Chapter I

Introduction

Introduction

Research questions and case study

Environmental problems nowadays cannot be considered as occasional random events that suddenly arise but rather as long term processes which instead of a solution *per se* demand effective management through time. Their causes and their effects are complex issues, strongly interlinked with other aspects of social, political and economic realities. Modern environmental problems are often so extensive that they do not respect national boundaries and cannot be managed by one country acting alone. Where these problems are of a transboundary, or global nature, then their management must be attempted through regional (bilateral or multilateral), or international cooperation. This need for international cooperation was recognised in the 1970s and since the 1972 United Nations Conference on the Human Environment, international environmental institutions have proliferated. The UN Conference on Environment and Development or 'Earth Summit', held at Rio in 1992, pushed further towards this direction and today around 200 multilateral environmental treaties have been signed (Carter 2007). For example, new treaties have been established for the protection of stratospheric ozone, the protection of many regional seas from pollution, the control of European acid rain, the conservation of biodiversity and climate change amongst many others.

The focus of academic research in the field of international relations has been on issues associated with the challenge of achieving international cooperation, i.e. on regime formation. Indeed, extensive research has been devoted to the 'high politics' surrounding the negotiations of these international agreements. Little attention has been paid so far to the actual effectiveness of implementation after these treaties come into force, but recently there has been an increasing interest in that issue. In that respect, the main question puzzling researchers is: 'Do regimes matter?' Generally an environmental problem is recognised, an international agreement is negotiated, a regime is established and operates for some time, but does the regime really make any difference? Some scholars argue that the environmental impact of agreements might be negligible. Others answer that it is the political benefits that are of greatest

significance and this diplomatic activity counterbalances any weakness in tackling the actual environmental problem. It can be argued that it is the combination or trade-off of benefits in both environmental and political terms, that is the key to a regime's success. However, it can also be argued that regimes make a difference irrespective of whether this difference is in the environmental or political field. Hence, regimes might improve the environmental problem, or perhaps slow down its deterioration, but even if they do not have an evident impact on the problem, they might foster cooperation towards this goal.

This thesis aims to investigate the issue of the effectiveness of international environmental regimes by looking at how effectiveness is defined, and how it is evaluated in a particular case. The main research question addressed in the thesis is:

- 'What is environmental regime effectiveness and how is it evaluated?

Further research questions are then posed, in order to explore in more detail this issue:

- 'Is there one or various discourses on environmental regime effectiveness among practitioners?'
- 'Can the environmental impact of regimes be measured? What is the role of science in regime operation?'
- 'What determines the institutional performance of environmental regimes?'

For this purpose, a specific case study was chosen, namely the Mediterranean Action Plan / Barcelona Convention, for two reasons. First, it is a well established regime and the few existing studies focus on its early years, therefore there is scope to examine possible changes over time and to bring our understanding of MAP up to date. Second, and most important, the studies on its effectiveness present sharply contrasting views, with certain researchers praising it as a major success, whereas others consider that it has not offered much (Haas 1989, 1990; Kütting 2000a, 2000b; Skjaereth 1996, 2002). It is therefore of great interest to examine why opinions vary. Has the particular time that the studies were carried out influenced their outcome, or perhaps different criteria are used in each study? Also, of greatest interest is to discover whether the Mediterranean Action Plan has been effective and on what grounds. Therefore, the research questions mentioned above will be examined with

particular reference to the regime in question. Before going on to introduce the academic literature on effectiveness described in Chapter II, a short introduction to the case study follows below.

The Mediterranean Region

The Mediterranean Region has diverse and distinctive characteristics both in terms of natural and socio-economic aspects. The Mediterranean Sea, called Mare Nostrum (our Sea) in the Roman Age, has always been an area of shared interest to all its bordering countries for the operation of their economic activities and, more recently, a focus for environmental concerns and sustainable development efforts (Fig. 1).



Fig. 1. Satellite view of the Mediterranean Sea (Source: screenshot from NASA's World Wind)

Natural characteristics

The Mediterranean Sea occupies an area of 2.5 million km². It is about 3,800 km wide from East to West and has a maximum distance of 900 km from North to South between France and Algeria (EEA 1999, 2002, 2006). It has an average depth of 1.5

km with the greatest depth of 4,982 m off the shores of southwest Greece within the Hellenic Trench, along which several other small basins exceed 4,000 m in depth. The shallower part is located in the northern Adriatic, with a depth not exceeding 200 m (EEA 1999). The complex coastline is 46,000 km long and includes southern Europe, western Asia and northern Africa. It is divided into two main basins, the Western and the Eastern, separated by the Sicilian Channel. Among the characteristics of the Mediterranean Sea are the high temperatures (annual minimum of 12 °C, reaching up to 25 °C during summer) and the high salinity (EEA 2006). It is connected to the Atlantic Ocean through the Strait of Gibraltar, to the Black Sea through the Strait of Dardanelles, and to the Red Sea through the Suez Canal. The four major rivers flowing into the Mediterranean Sea are the Nile in Egypt, the Rhone in France, the Po in Italy and the Ebro in Spain (UNEP/MAP/MED POL 2005). The Mediterranean Sea is characterised by a very rich biodiversity despite its oligotrophic character. It includes around 4–18 percent of the world marine species (Bianchi and Morri 2000) even though it accounts for only 0.8% of the area and less than 0.25% of the volume of the world oceans. Rough estimates suggest more than 8,500 species of macroscopic marine organisms with endemism characterising more than 25% of the biota. The hydrological balance is deficient as loss through evaporation exceeds input through run-off and precipitation. Atlantic waters flowing in through the strait of Gibraltar mainly balance this deficiency. Estimated turnover time for the Mediterranean Sea water body is 80 years (Jeftic et al. 1990), however, other estimates for the turnover period for water entering through the strait of Gibraltar range from 80 to 200 years (UNEP/MAP/MED POL 2005).

Socio-economic aspects

The Mediterranean Sea is bordered by 21 coastal states. Three of them in the north-west are highly industrialised. A few countries have relatively limited industrial development in the north-eastern part, and several on its eastern and southern coast are developing countries (Massoud et al. 2003; Pavasovic 1996). Population growth has shown a dramatic increase during recent decades. The total population grew from 246 to 450 million from 1960 to 1997. Recent Blue Plan estimates predict a population of 520-570 million in all of the Mediterranean countries by 2025 (EEA 2006). However, the growth is uneven since the EU Mediterranean countries have not experienced a substantial change, whereas the southern countries are estimated to

have a growth of 2 to 3 percent per year (UNEP/MAP/MED POL 2005). The northern countries now contain only 50 percent of the total population and this percentage is expected to decline to a third by 2025 and perhaps a quarter by 2050. Population densities are much greater in coastal than in non-coastal areas, especially in the southern parts of the Mediterranean. Almost a third of the total Mediterranean country population is located in coastal areas (EEA 1999). As with the total population, the coastal population in the North is not expected to show substantial changes, whereas the coastal population in the South is expected to increase substantially. Tourism is causing growing pressure on the Mediterranean Sea coast, particularly since it has characteristics such as high seasonality and high coastal localisation. Natural and cultural diversity of the region makes it one of the world's most popular tourist destinations. Currently it attracts around 30% of the world's tourism, with around 135 million visitors in the coastal areas in 1990, estimated to rise to 235-355 million in 2025 (EEA 1999). The tourism sector is of great economic importance for Mediterranean countries, sometimes contributing 29% or 35% of Gross National Product (UNEP/MAP/MED POL 2005). Maritime traffic is another important economic and environmental feature. It is estimated that around 220,000 vessels of more than 100 tonnes annually cross the Mediterranean. This is about 30% of the world's merchant shipping and 20% of the world's oil shipping (EEA 1999, 2006). This activity increases the risk of accidental or incidental oil spilling in the sea. However, as many MED POL reports have shown, the main sources of pollution in the Mediterranean Sea are land-based, and these are the ones to focus on eliminating.

The above description of the Mediterranean Region, indicates the diversity and peculiarity of this particular region. The Mediterranean Action Plan should thus be examined in the light of the various natural and socio-economic features which drive its member states to protect their common resource, and cooperate with each other.

The Mediterranean Action Plan / Barcelona Convention

The Mediterranean Action Plan (MAP) was created in 1975, under the auspices of the United Nations Environment Programme (UNEP), only three years after the Stockholm Ministerial Conference set up the latter Programme. MAP was adopted as a Regional Seas Programme under UNEP's aegis. The UNEP Regional Seas

Programme is an attempt to develop treaties and soft rules and standards at the regional level, using MAP as a model for designing the other plans, since it was the first plan adopted, and successfully implemented. MAP involves 21 countries¹ bordering the Mediterranean Sea, as well as the European Union.

According to Raftopoulos (1993) Regional Action Plans consist usually of five components: the assessment component, the management component, the legal component, the institutional component and the financial component. MAP's legal component is the Barcelona Convention and its related Protocols. The 'Convention for the Protection of the Mediterranean Sea against Pollution', was signed in 1976, and has been in force since 1978. In 1995 it was replaced by an amended version taking into account recommendations of the 1992 Rio Conference on Environment and Development and it was recorded as the 'Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean', being in force since 2004 (UNEP/MAP 2005). It includes 6 Protocols, namely, the Dumping Protocol, the Prevention and Emergency Protocol, the LBS (Land-Based Sources) Protocol, the SPA (Specially Protected Areas) and Biodiversity Protocol, the Offshore Protocol and the Hazardous Wastes Protocol. A seventh Protocol concerning Integrated Coastal Zone Management (ICZM) is currently under preparation.

Institutionally, authority is given to two organs; the Meetings of the Contracting Parties and the Secretariat. Moreover, following the shift towards a 'sustainable development' orientation, the Mediterranean Commission on Sustainable Development (MCSDD) was set up as an advisory body to MAP in 1996 as a think-tank on policies for promoting sustainable development in the Mediterranean Basin. The operation of MAP is also supported through six Regional Activity Centres, (RACs) in six Mediterranean cities, which under the supervision of the Secretariat help in a more decentralised way of operation, each offering expertise in specific fields of action for facilitating the operation of MAP.

¹ Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Serbia and Montenegro, Slovenia, Spain, Syria, Tunisia and Turkey.

The environmental assessment component of MAP is the MED POL programme, or else ‘Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean’. It is the most straightforward technical aspect of MAP and operates in phases. Its first phase, MED POL – Phase I, lasted from 1975 until 1980. Phase II of MED POL lasted from 1981 until 1990 and was named ‘Long-term Pollution Monitoring and Research Programme’. MED POL has recently finished its Phase III, which started in 1996 and lasted until 2005. Following the shift towards a ‘sustainable development’ orientation, in Phase III there was a slow change from pollution assessment to pollution control, which enabled MED POL to become a tool for the member states to manage properly their marine and coastal areas. From 2005 until 2013, a new phase of MED POL has come into operation, but it has kept the objectives and goals set out in Phase III, as they were considered adequate for supporting the overall objectives of the Convention and the Protocols.

The MAP environmental management component, called ‘Integrated planning of the development and management of the resources of the Mediterranean Basin’, was the first of the main elements of MAP to be implemented. Its aim is also to protect the Mediterranean marine environment, but instead of focusing only on pollution sources, it integrates regional development issues with environmental management concerns. From the beginning it was divided in a long term research and study programme, the Blue Plan, and a more straightforward and immediate programme aiming at performing specific actions, the Priority Actions Programme. However, even though it is a large and important aspect of MAP, the environmental management component was clearly not covered in the Barcelona Convention (Raftopoulos 1993). This means its ideas and findings were not translated into legal provisions, so to a large extent the integration of environment and development was in words rather than substance.

Finally, as for the financial component of the Mediterranean Action Plan, this is mainly covered by the Mediterranean Trust Fund, which all the Contracting Parties to the Convention contribute to, according to their respective national wealth. The Contracting Parties may also contribute to the operations of MAP through in kind contributions (e.g. through the participation of their national institutes in MED POL programme especially in MED POL Phase II). Additionally some Contracting Parties, as for instance the European Union, may provide extra voluntary contributions to the

Mediterranean Trust Fund even on a regular basis. The financial arrangements of MAP are also supported on certain occasions by UNEP through project funding, as was the case especially in the first years of MAP's operation.

A detailed overview of the history and negotiations up to the adoption of MAP is given by Haas (1990). However, its effectiveness has not been extensively studied by international relations academics. The few exceptions include Haas (1989, 1990) who brought MAP to the attention of the academic community by praising it as a major success and others like Skjaereth (1996, 2002) and Kütting (2000a, 2000b) who were more critical of it.

The thesis aims to use this regime as a means to approach the concept of international environmental regime effectiveness, trying to answer the research questions posed in the beginning of this section. As opposed to the traditional book style written thesis, this study is a paper-based thesis, consisting of four individual papers, presented here exactly as submitted to journals or books for publication.

Chapter II is single-authored, written in the style of and included as a book chapter in: Lovett, J.C. and Ockwell, D.G. (eds.) *A Handbook of Environmental Management*, in press by Edward Elgar.

Chapter III is co-authored with Neil Carter and Jon Lovett, written in the style of and accepted for publication in the *Journal of Environmental Management*. The design of the study, the collection and analysis of data, as well as the main part of the writing of the paper was the responsibility of the first author.

Chapter IV is co-authored with Jon Lovett, written in the style of and accepted for publication in *Ocean and Coastal Management*. The collection and analysis of data, as well as the main part of the writing of the paper was the responsibility of the first author. An earlier version of this chapter has been presented at the 2006 Berlin Conference on the Human Dimensions of Global Environmental Change 'Resource Policies: Effectiveness, Efficiency and Equity', on 17 – 18 November 2006, in Berlin, Germany.

Chapter V is single-authored, written in the style of and accepted for publication subject to minor revision in *Marine Policy*.

Theoretical perspectives – Chapter II

The second chapter of the thesis discusses the concept of the effectiveness of international environmental agreements as debated within the academic literature. Thus, it directly addresses the main research question ‘What is environmental regime effectiveness and how is it evaluated?’

In the first part the major theoretical perspectives on international relations are presented as the context for understanding the different explanations given to international cooperation. Historically, the study of international environmental agreements has been based in realism, neorealism and neoliberal institutionalism, evolving into what is now called regime theory. In addition, international political economy approaches based on historical materialism have often been used to study cooperation on environmental problems. After some basic observations about these different theoretical perspectives, the different approaches to defining and measuring effectiveness of the agreements are described in more detail. Regime effectiveness is a complex concept so the literature has been characterised by a debate over its definition and measurement. One of the main problems is the difficulty in estimating the hypothetical ‘business-as-usual’ situation in the absence of the regime so as to compare them, and the establishment of a clear relationship between the regime and any change in the situation itself. Given the difficulty of establishing a causal chain, most studies have analysed effectiveness primarily in terms of institutional performance, rather than attempting to measure environmental improvement. Instead they emphasise the political effects of institutions rather than their environmental impact. Although there have been approaches that consider environmental improvement is the fundamental purpose of a regime, they still see institutional performance as the best proxy indicator of effectiveness. The variety in approaches is evident also in the choice of the method employed to the measurement of effectiveness. Various qualitative approaches have been employed and recently several more quantitative methods of measuring effectiveness have been developed,

without intending to substitute the qualitative ones, but rather aiming to allow for a more systematic and robust analysis of patterns across cases.

The second part of the chapter examines MAP as a particular example of an environmental agreement. It outlines its origins and structure, and reviews the different studies that have dealt with the regime.

The final part of the chapter sets out a new theoretical framework to evaluate effectiveness drawing on insights from the aforementioned literature. It is based on the premise that rather than engage in an adversarial debate about the ‘environmental’ versus ‘institutional’ performance of regimes, it is better to adopt a combined, holistic view that requires them to be effective in both respects, which will provide a more complete way to evaluate them. Moreover, in that framework, their evaluation should also be based on whether their goals are sufficiently pragmatic to be effectively implemented, and whether they are sufficiently dynamic in character to be able to adapt to changes, especially in the case of longstanding regimes, such as the Mediterranean Action Plan. Thus, this new perspective on effectiveness would require a regime to use a *Holistic approach*, based on science, policy and their interaction, have a *Pragmatic vision* for its ultimate goals and be of a *Dynamic nature* to evolve through time.

Thus, this chapter, apart from providing a detailed review of the academic literature on the effectiveness of international environmental regimes in general, and of MAP in particular, goes beyond that by offering a new approach to the study of effectiveness. Bearing in mind that the new framework presents a very broad approach, the concluding chapter will elaborate this model in further detail.

Exploring discourses – Chapter III

The third chapter of the thesis addresses the question ‘Is there one or various discourses on environmental regime effectiveness among practitioners?’ In order to explore whether different discourses exist, it uses a qualitative-quantitative technique to discover whether the different stakeholders - or practitioners - involved in the

implementation of an international regime share a common understanding of effectiveness, or whether there are different interpretations of this concept.

Q methodology is used to identify discourses on effectiveness prevalent amongst the stakeholders involved in the Barcelona Convention / Mediterranean Action Plan. Interviews were conducted with a sample of people who are directly involved with the interpretation and implementation of the Mediterranean Action Plan. Q methodology, which originated in psychology (Stephenson 1953), combines qualitative and quantitative research characteristics by exploring and identifying a number of ‘viewpoints’ or ‘discourses’ of people concerning a specific theme (Brown 1980). It is qualitative in the sense that it extracts qualitative, subjective data from the respondents about their values and beliefs and does not require large population samples to produce statistically valid results, which distinguishes it from other traditional survey techniques. One of its strengths is that it limits research bias because the statements used are generated purely by the participants and are not imposed by the researcher. However, it is also quantitative since data collection and analysis involve statistical and mathematical techniques, and it is now widely used in a range of fields including political science, social science, environmental politics and policy, sustainability and health economics.

The chapter answers the theoretical question by revealing four different discourses on environmental regime effectiveness. Moreover, it contributes to academic knowledge by applying for the first time Q methodology to the study of effectiveness, giving thus quantitative / statistical support to theoretical assumptions on the issue.

Environmental effectiveness – Chapter IV

As mentioned earlier, one side of the theoretical debate concerns the environmental effectiveness of international agreements, and the question posed ‘Can the environmental impact of regimes be measured? What is the role of science in regime operation?’ Thus, this fourth chapter of the thesis explores this question by assessing the environmental performance of the Mediterranean Action Plan, focusing on the MED POL programme, MAP’s environmental assessment component.

The chapter examines first whether the environmental state of the Mediterranean Sea has improved over the years of operation of the regime. For this purpose statistical analysis of environmental data is employed, but as will be clearly shown there is no obvious answer. Moreover, even if there was a definite positive or negative change, how much of this could be actually attributed to the regime and not to other factors, such as ecological processes, economic and industrial activities, or other policies including cleaner production techniques, is open to question. However, one proxy measure of the environmental effectiveness of a regime is whether the regime itself performs adequate monitoring of the environmental state and whether it applies a feedback mechanism between the results and the measures taken afterwards. The chapter employs statistical analyses, extensive research in the scientific publications and other official documents of the regime, and interviews with scientific personnel.

The effectiveness of the MAP regime has been reviewed by several academic studies, most notably the highly cited study by Haas on ‘epistemic communities’ (Haas 1989), which describes how a group of scientific experts raised public concern, initiated the negotiations and helped in the creation of the regime. Subsequently these experts were empowered by its creation and were able to redirect government policy (Haas 1989, 1990). So, according to this theory, science was the force that gave life to the regime. However, whether science continues to be the driving force in its operation is open to question.

Therefore the contribution of this chapter shows that environmental effectiveness can not be easily measured, and explores ways to assess the environmental performance of the Mediterranean Action Plan. In this case it also finds that the theory of Haas concerning the role of ‘epistemic communities’ in the regime’s formation, in the light of its subsequent implementation, is no longer applicable.

Institutional effectiveness – Chapter V

The environmental effectiveness of international agreements examined in the previous chapter is only one side of the theoretical debate. The other is their institutional effectiveness and the question following ‘What determines the institutional performance of environmental regimes?’ After having examined one side in the

previous chapter, namely the environmental effectiveness, this fifth chapter assesses the institutional performance of the Mediterranean Action Plan, aiming to complete the picture and answer the theoretical question posed above.

Flowing from the literature review, it is evident that the definition and measurement of effectiveness is a highly debated issue. This chapter examines institutional effectiveness using a qualitative approach which provides data about various aspects of a regime's operation. Particular attention is paid to the political impact of the regime, which can be measured by the political benefits generated for the member states. Also it can be measured by the change in the behaviour of the actors, mostly shaped by the political influence of the regime, which in turn is largely influenced by its institutional settings, i.e. its decision making process. Additionally, the political impact of regimes is largely associated with international relations theories, so the synergies between them and other institutions or actors in the international arena, can initiate behavioural change accordingly. The second aspect examined is the legal implementation of, and compliance with, agreements. Third, the importance of economic performance of institutions is identified by the theory of institutional economics, since transaction costs affect the operation of regimes. Finally, according to domestic politics analyses, public opinion can exert pressure and significantly affect the formulation of domestic or foreign policy (e.g. with regard to environmental agreements), and in this era of global governance public awareness and participation are crucial to a regime's institutional performance.

This analysis is based on data obtained from a six month period that the author spent within the MAP Secretariat, drawing on both official documents of the regime and elite interviews with 25 officials, all of them directly or indirectly involved now or in the past with the implementation of the regime.

This chapter assesses the institutional performance of the Mediterranean Action Plan, against a combination of qualitative criteria, which could be applied to any international agreement. These are political impact, legal implementation and compliance, economic performance, and public awareness and participation. In that respect it looks at institutional performance from a different angle, from those

previously sought. Apart from this contribution, it offers an updated evaluation of MAP, to be reviewed alongside the existing studies on its effectiveness.

Concluding remarks – Chapter VI

The final chapter of the thesis examines the research questions posed in the introduction, in the light of the theoretical and applied research findings presented in each of the four main chapters of the thesis.

Thus it begins by restating each research question and explains how each chapter answers its question respectively. Then, based on the theoretical framework proposed in Chapter II, it examines the Mediterranean Action Plan, according to the three criteria set out in that framework.

Therefore, the concluding chapter presents the author's argument concerning both the theoretical questions posed in the thesis and the effectiveness of a particular regime. Additionally, it summarises the contributions of this thesis to the academic knowledge, accounts for limitations of the particular methodologies used, and proposes ideas for further research.

References

Bianchi, C.N., and C. Morri. 2000. Marine biodiversity of the Mediterranean Sea: Situation, problems and prospects for future research. *Marine Pollution Bulletin* 40 (5): 367-376.

Brown, S.R. 1980. *Political Subjectivity: Applications of Q-methodology in Political Science*. New Haven and London: Yale University Press.

Carter, N.T. 2007. *The Politics of the Environment. Ideas, Activism, Policy*. 2nd ed. Cambridge: Cambridge University Press.

EEA. 1999. State and pressures of the marine and coastal Mediterranean environment. Environmental issues series No 5., eds. Evangelos Papathanassiou, and Gabriel P. Gabrielidis. Luxemburg: European Communities.

EEA. 2002. Europe's biodiversity - biogeographical regions and seas. Environmental issue report. Copenhagen: European Environment Agency.

EEA. 2006. Priority issues in the Mediterranean environment. EEA Report No 4/2006. Copenhagen: European Environment Agency.

Haas, P.M. 1989. Do regimes matter? Epistemic Communities and Mediterranean Pollution Control. *International Organization* 43 (3): 337-403.

Haas, P.M. 1990. *Saving the Mediterranean: The Politics of International Environmental Cooperation*. New York: Columbia University Press.

Jeftic, L., M. Bernhard, A. Demetropoulos, F. Fernex, G.P. Gabrielidis, F. Gasparovic, Y. Halim, D. Orhon, and L.J. Saliba. 1990. State of the marine environment in the Mediterranean Region. UNEP Regional Seas Reports and Studies No 132, MAP Technical Report Series No 28. Nairobi: UNEP.

Kütting, G. 2000a. Distinguishing between Institutional and Environmental Effectiveness in International Environmental Agreements: The Case of the Mediterranean Action Plan. *The International Journal of Peace Studies* 5 (1): 15-33.

Kütting, G. 2000b. *Environment, Society and International Relations: Towards more Effective International Environmental Agreements*. New York: Routledge.

Massoud, M.A., M.D. Scrimshaw, and J.N. Lester. 2003. Qualitative assessment of the effectiveness of the Mediterranean action plan: wastewater management in the Mediterranean region. *Ocean & Coastal Management* 46 (9-10): 875-899.

Pavasovic, A. 1996. The Mediterranean Action Plan phase II and the revised Barcelona Convention: New prospective for integrated coastal management in the Mediterranean region. *Ocean & Coastal Management* 31 (2-3): 133-182.

Raftopoulos, E. 1993. *The Barcelona Convention and Protocols. The Mediterranean Action Plan Regime*. London: Simmonds and Hill.

Skjaereth, J.B. 1996. The 20th Anniversary of the Mediterranean Action Plan: Reason to Celebrate? In *Green Globe Yearbook 1996*, eds. H.O. Bergesen, and G. Parmann. Oxford: Oxford University Press.

Skjaereth, J.B. 2002. The Effectiveness of the Mediterranean Action Plan. In *Environmental Regime Effectiveness: Confronting Theory with Evidence*, eds. E.L. Miles, A. Underdal, S. Andresen, J. Wettstad, J.B. Skjaereth, and E.M. Carlin. Cambridge, MA: MIT Press.

Stephenson, W. 1953. *The study of behavior: Q-technique and its methodology*. Chicago: University of Chicago Press.

UNEP/MAP. 2005. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. Athens: UNEP/MAP.

UNEP/MAP/MED POL. 2005. Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea. eds. Fouad Abousamra, Ante Baric, and Francesco S. Civili. Athens: UNEP/MAP.

Chapter II

Theoretical perspectives on international environmental regime effectiveness

Theoretical perspectives on international environmental regime effectiveness: a case study of the Mediterranean Action Plan

Sofia Frantzi

This chapter is written in the style of and is included as a book chapter in: Lovett, J.C. and Ockwell, D.G. (eds.) *A Handbook of Environmental Management*. Edward Elgar, Cheltenham. (in press).

1. Introduction

Many modern environmental problems are not occasional random events that suddenly arise, but are rather the result of long-term processes requiring effective management through time instead of instant solutions. Their causes and effects are complex issues, strongly interlinked with other aspects of social, political and economic realities. When these problems are of a transboundary, or global nature, then their management must be attempted through regional (bilateral or multilateral), or international agreements.

Traditionally the focus of academic research has been on issues associated with the challenge of achieving international cooperation, in other words on regime formation, but recently there has been an increasing interest in implementation issues, i.e. regime effectiveness. This chapter aims to discuss the concept of effectiveness of international environmental agreements as debated within the academic literature. In the first part the major theoretical perspectives on international relations are presented as the context for understanding different explanations given to international cooperation. Different approaches to defining and measuring effectiveness of the agreements are then described in more detail. In the second part there is specific reference to a particular example of an environmental agreement. The Mediterranean Action Plan was chosen for this purpose since it has not been studied extensively and in addition its effectiveness is ambiguous according to different viewpoints. Finally in the last part, a new definition of effectiveness is given drawing insights from the aforementioned literature, suggesting that for a regime to be effective it has to use a *Holistic approach*, to have a *Pragmatic vision* and to be of a *Dynamic nature*. This perspective attempts to provide a new approach to the future study of international environmental agreements.

2. International Environmental Regimes

Modern environmental problems are often so extensive that they do not respect national boundaries and cannot be managed by one country acting alone. The need for international cooperation was at the forefront of concern about the environment in the 1970s, and since the 1972 United Nations Conference on the Human Environment,

international environmental institutions have proliferated and over sixty multilateral environmental treaties have been signed. For example, new treaties have been established for the protection of stratospheric ozone, the protection of many regional seas from pollution, the control of European acid rain and the conservation of biodiversity amongst many others (Sands 2003).

Extensive research has been devoted to the 'high politics' surrounding the negotiations of these international agreements. However, little attention has been paid to the actual effectiveness of implementation after these treaties come into force. The main question that has puzzled researchers is: 'Do regimes matter?' Generally the sequence of events is that scientists recognise an environmental problem, an international agreement is negotiated, a regime is established and operates for some time, but does the regime really make any difference? Some scholars argue that the environmental impact of agreements might be negligible. Others answer that it is the political benefits that are of significance and this diplomatic activity counterbalances any weakness in tackling the actual environmental problem. It can be argued that it is the combination or trade-off of benefits in both environmental and political terms, that is the key to a regime's success. However, it can also be argued that regimes make a difference irrespective of whether this difference is in the environmental or political field. Below, the main academic and research viewpoints considering effectiveness are described in more detail.

2.1 International Relations and Regime Theory

The study of international environmental agreements has become an increasingly important issue in the literature of international relations. Historically the study of these agreements is based in realism, neorealism and neoliberal institutionalism, evolving into what is now called regime theory. In addition, international political economy approaches based on historical materialism have often been used to study cooperation on environmental problems. Some basic observations about these different theoretical perspectives are given below in order to demonstrate the background to explanations used for international environmental cooperation.

2.1.1 Realism

The realist approach has descended from traditional texts such as Thucydides' 'History of the Peloponnesian War', Machiavelli's 'The Prince' and Hobbes' 'Leviathan' and has been mainly concerned with state security (Haas 1990: 35). Emphasising the political sphere, the realist approach analyses relationships among states only according to issues of power and self-interest (Kütting 2000a: 12). It assumes that states are only guided by national interest and that their purpose must be to maximise power, a process that ultimately leads to war as states compete amongst themselves. According to realists the actors (states) act rationally and prefer those options which best suit their interests, under the assumption that they have full awareness of world events and thus can estimate both costs and benefits of alternative solutions. Those solutions chosen concern the acquisition of power (Haas 1990: 35). Hence only when the effectiveness of an international environmental agreement coincides with the interests of the states, can the agreement be effective (Kütting 2000a: 12). However, since international discussions about environmental problems are often concerned with common threats to livelihoods and not about power, there is a difference in focus between realist thought about war and power on one hand, and concerns about environmental degradation on the other. Moreover, Haas (1990: 36) notes that there has been substantial criticism about realism not being an appropriate model for the analysis of environmental cooperation because of the importance it places on matters of security, which are generally not salient features of environmental agreements. However, if security could be extended to matters of public health or security of borders then it could be included as a theme when studying international environmental agreements.

2.1.2 Neorealism

Neorealism is the most recent version of classical realism in international relations and is also known as structural realism. With Kenneth Waltz (1979) as its main representative (Keohane 1986), this approach describes and studies international relations according to the system's structure. Neorealists take methods from game theory and microeconomics in order to explain how states behave under anarchy, and how they negotiate among themselves, resulting in hypotheses about their motives

and the results of this negotiation (Haas 1990: 37). However, realism and neorealism share some basic principles such as the international system still operating under anarchy and the states still being the main actors within it. Neorealism, however, allows for some kind of cooperation among states so as to reach a shared goal as, for example, tackling a common environmental problem, since its centre of attention has shifted from war (Kütting 2000a: 13). This form of cooperation can be explained in two different ways, first through hegemonic stability theory and second through game theoretic approaches (Haas 1990; Paterson 1996).

2.1.2.1 Hegemonic Stability

Hegemonic stability theory suggests that cooperation is most likely to occur when it is imposed by a dominant state or a 'hegemon' within a system (Haas 1990: 40). The difference between the states that just dominate and the hegemons is that the latter already have their power and leading role legitimately approved by the other states (Paterson 1996: 94; Kütting 2000a: 13). However, according to Kütting (2000a: 14) this theory can only explain the existence of cooperation among states but not the quality of that cooperation, because the latter is out of its remit and therefore doesn't have the appropriate methods. For this reason it is not appropriate for studying the effectiveness of international environmental regimes.

2.1.2.2 Cooperation under Anarchy (Rational Choice and Game Theory)

The 'cooperation under anarchy' tradition is another school within neorealism, which suggests that even in the absence of a hegemon cooperation is still possible. As Paterson (1996: 101) observes, scholars of this tradition, influenced largely by game theory, believe that cooperation is indeed possible under conditions of anarchy without, however, suggesting generally that this cooperation could change the primarily anarchic character of the international political order. Rational choice and game theory study and foresee the behaviour of the actors by calculating the best possible decision, under rational terms, for any actor under a particular state of affairs (Kütting 2000a: 14). This school looks at game-theoretic work focusing primarily on repeated game situations such as the Prisoner's Dilemma, the Chicken Game and Stag Hunt. One of the best known options in empirical research for measuring regime effectiveness by using rational choice and game theoretic approaches is the so called Oslo-Potsdam solution, for which further details are given later in this chapter. A

difference with the hegemonic stability school is that cooperation under anarchy suggests that various factors can cause the maintenance of the agreements by states after the decline of a hegemonic power that was initially necessary for the creation of these agreements. Moreover, the supporters of this school, in contrast to the realists, assume imperfect information, variable interest and choices of the actors, and only limited effort at seeking alternative solutions to the problem (Haas 1990: 44). However, according to some authors (Paterson 1996; Kütting 2000a) rational choice, game theoretic approaches and neorealist approaches in general, do not offer a major contribution to the study of the effectiveness of international environmental agreements for various reasons. First, they focus on the behaviour of units (states) and do not really include the object of cooperation (the environmental problem) in their analysis in the sense of dealing with the environmental degradation *per se* (Kütting 2000a: 15). Second, their main assumption is that states can be treated as actors with given interests on a particular matter, generated by their position in the international system, whereas on environmental issues the interests of states can vary according to their internal structure, e.g. the interests of states in the climate change debate (Paterson 1996: 108). Third, according to Young (2001, 2003), while specifically criticising the Oslo-Potsdam solution, these approaches encounter many analytical and empirical problems which have largely to do with neglecting important factors when accounting for the hypothetical situation in the absence of the regime, and for the collective optimal solution.

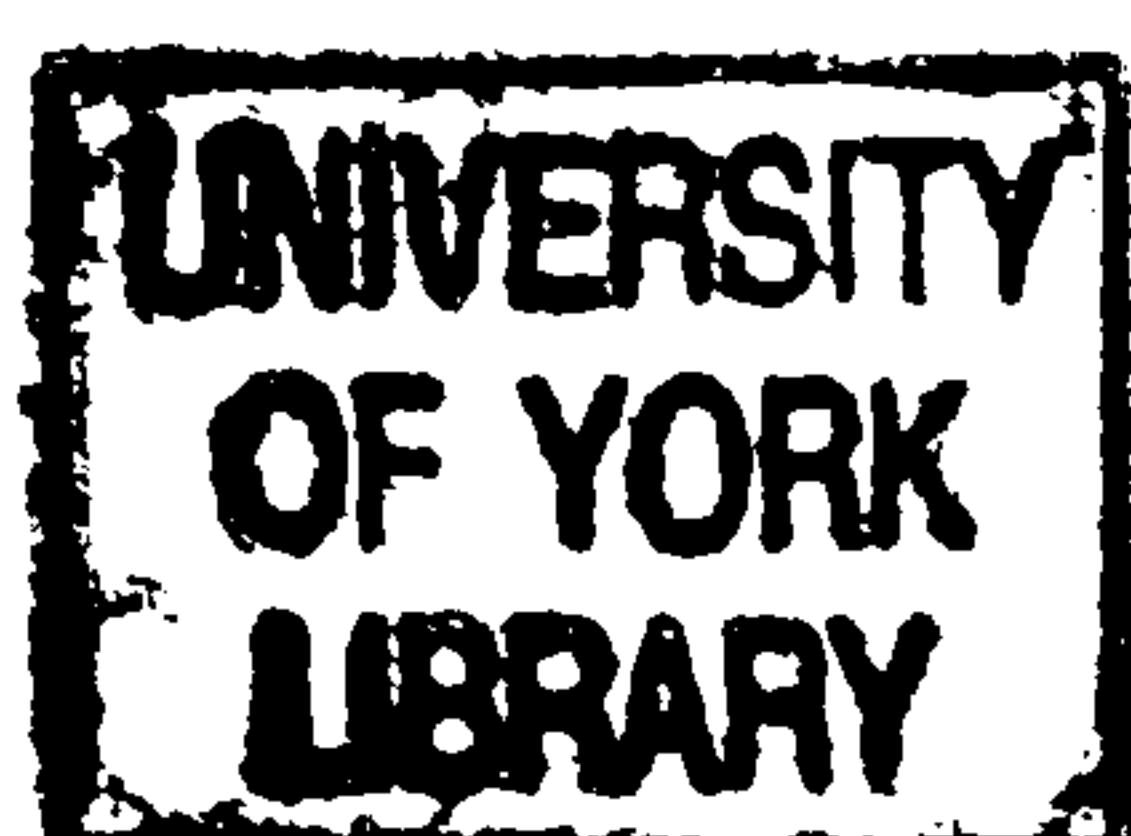
2.1.3 Historical Materialism and International Political Economy

Another approach often used for assessing international cooperation is an international political economy approach based largely on historical materialism (Paterson 1996: ch. 8). Historical materialism is mainly concerned with the distribution of economic resources and international equality, often expressed as the North-South divide. Historical materialists explain cooperation in terms of the control of powerful capitalist states (e.g. North American and European countries) over weaker ones (e.g. developing or Third World countries). According to them the world is broadly divided into three categories on the basis of the division of labour internationally. These are the highly industrialised western countries, the industrialising countries and finally the developing countries (Haas 1990: 47).

Historical materialists identify a much less democratic and equitable structure of international relations (both economic and political) than the neorealists, by suggesting that in cases where effective cooperation does take place it always repeats the principles of capitalism, i.e. reproducing the structures where the North takes advantage of the South (Haas 1990: 47). Some authors have found the international political economy approach appropriate for understanding the complex patterns of cooperation with regard to international environmental agreements. For example, according to Paterson (1996: ch. 8) it has been useful in assessing the difficult negotiations among countries over global warming and the UN Framework Convention on Climate Change. However, economic globalisation gives rise to complex relations between environment on one hand and global trade and investment on the other, and so raises debates (Stavis and Assetto 2001; Clapp and Dauvergne 2005: ch. 5). According to Clapp (2006) there are three different views within this debate. The first one can see positive effects for the environment from international growth and even in cases where some negative side effects appear, then environmental issues can find ways around them without restricting economic relations. The second view is primarily negative suggesting that international economic growth can only harm the environment, hence requiring environmental agreements to restrict international economic relations. Finally, the last view is somewhere in between, admitting the potential for both advantages and disadvantages, arguing though that proper management of the global economy can generate benefits for both sides, environment and growth (Clapp 2006). In this sphere of 'global governance' some writers suggest that in order for this link between trade and environment to work beneficially, the creation of a World Environment Organisation (Biermann 2000, 2006) might balance the negotiating power of the World Trade Organisation. To conclude, according to the new perspective on the relationship between international political economy and the environment, the former could potentially offer some explanation of international environmental cooperation which differs significantly from historical materialism.

2.1.4 Neoliberal Institutionalism

Neoliberal institutionalism has dominated the study of international environmental agreements (Paterson 2000: 12) and centres on the work of regime theorists such as



Keohane, Young, Levy and others. This theory evolved from the development of traditions as old as those of Grotius and Kant (Paterson 1996: 115; Kütting 2000a: 15). In spite of the establishment of the United Nations after the Second World War, institutionalism faded mainly because it was considered to have failed in preventing international violence during the inter-war period (Paterson 1996: 115). However, the strengthening of international reliance and collaboration and the emergence of regional integration in the 1950s and 1960s (in particular the European Community) led to its recurrence in an advanced form and its subsequent significance in the 1990s (Paterson 1996: 115; Kütting 2000a: 15). Neoliberal institutionalism, when studying the effectiveness of international environmental agreements, is closely interlinked with regime theory. Regime theory and a different approach within it, of great influence in the past decade, that of Haas's 'epistemic communities', will be discussed in detail below.

2.1.4.1 Regime Theory

Regime theory or neoliberal institutionalism evolved out of general developments in the international relations sphere and specifically out of neorealism, thus producing a whole new range of views about the role and importance of international institutions (Paterson 1996: 116). According to Krasner (1983: 358), who was one of the first and more important authors on the subject, "once regimes are established they assume a life of their own". He suggests that there are many ways in which international institutions affect outcomes by influencing state behaviour. They can alter actors' capabilities including states', they can alter states' interests, they can be a source of power that states can appeal to and they may alter the calculations of states concerning the maximisation of their self-interest (Krasner 1983: 361). So regime theory could in many cases be seen as synonymous with institutionalism as already described since both focus on the effect of the processes held to influence states' behaviour, and within which sovereign states are caught (Paterson 1996: 117).

The best known and cited definition of regimes was given by Krasner (1983: 2) who stated that "*Regimes can be defined as sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of fact, causation and rectitude. Norms are standards of behaviour defined in terms of rights and*

obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice.”

This definition is closely related to Young's and Keohane's definitions of institutions. Young (1989: 32) defines institutions as *“social practices consisting of easily recognised roles coupled with clusters of rules or conventions governing relations between occupants of these roles”*. Keohane (1989: 3) gives another definition as *“persistent and connected sets of rules (formal and informal) that prescribe behavioural roles, constrain activity, and shape expectations”*. Moreover, Keohane et al. (1993: 5) extend the definition of institutions by adding that *“they may take the form of bureaucratic organisations, regimes (rule-structures that do not necessarily have organisations attached), or conventions (informal practices).”* Later Levy et al. (1994, 1995: 274) in their work ‘The study of international regimes’ define international regimes as *“social institutions consisting of agreed upon principles, norms, rules, procedures and programs that govern the interactions of actors in specific issue-areas.”*

The above definitions, differing slightly one from another, all allow for the study of international agreements regarding them as regimes and explaining their attributes according to them. For the purposes of this study Krasner's definition will be the point of reference.

According to Krasner (1983: 6-10) there are three orientations of regime theory. The realist/structuralist view sees the states as actors in the international system that want to maximise their power, thus they use regimes only as means to establish rules expressing their interests. It does not allow for regimes to have an independent impact on behaviour, so it views the regime concept as useless. The modified realist/structuralist view sees regimes as the outcome of negotiations and bargaining, often analysed by rational choice and game theory, and includes other factors of international cooperation such as social or technological, hence moving away from the pure politics of maximisation of interest. This view suggests that regimes may matter but only under fairly restrictive conditions, for instance when independent decision making leads to unwanted outcomes. Finally, the Grotian view lays emphasis

on social factors, and even though it sees the states as still the main actors in the international sphere, it assumes that these actors are necessarily bound by specific norms and rules. This last orientation considers regimes as much more persistent and accepts them as a fundamental part of all patterned human interaction, including interaction in the international system (Krasner 1983: 6-10).

Nevertheless, the distinction among the above three orientations does not really play an important role. Regimes cannot always be irrelevant, and they cannot always be necessary. So the view that regimes may matter under certain conditions, is the most appropriate. Their effectiveness is of great importance, since only effective regimes may make a difference. More details will be given below on the way that regime theory is applied to the study of international environmental regimes when discussing how regime theorists define and measure environmental regime effectiveness.

2.1.4.2 Epistemic communities

A popular tradition within environmental international regime theory is that of 'epistemic communities' (Haas 1989). This theory highlights the role of knowledge-based 'epistemic communities' consisting of specialists responsible for articulating policies and identifying the national interest. Initially, the term 'epistemic community' was used in literature on the sociology of knowledge. It was later borrowed by international relations specialists and adapted to describe a specific community of experts. This community "shares a belief in a common set of cause-and-effect relationships as well as common values to which policies governing these relationships will be applied" (Haas 1989: 384). The community, even though originating from various disciplines, operates within a common network where there is an exchange of ideas, concerns, results and solutions, aiming at the same political objectives (Haas 1990: 55). This approach focuses on the groups of people who initiate cooperation rather than on which states are the leading actors who start the process. However, supporters of this theory do not suggest it should replace the older international relations theories, but rather complement them. For instance, as will be described below, Haas (1990) in his study about the Mediterranean Action Plan explains the cooperation by referring to 'epistemic communities', but he also offers other explanations from the perspectives of realism/neorealism and historical materialism.

2.2 Defining and measuring regime effectiveness

Within regime theory there have been many efforts from researchers to rigorously study international environmental regimes and try to identify not only how these agreements were formed, but also if they were effective afterwards. There is a growing interest in the effectiveness aspect of regimes, but it is a matter of debate because quite different definitions are used, resulting in different ways of estimating effectiveness. As Kütting (2000a: 30) observes “*Within the effectiveness debate in regime theory...on one level effectiveness is seen in terms of institutional workings through good institutional structures...on another level effectiveness is measured on the basis of environmental impact.*”

Usually regime theorists look at effectiveness as institutional performance and not as environmental improvement. Even though some of them recognise the need to look at the environmental impact, only a few actually try to measure it. For example, some of the Norwegian regime theorists (Underdal 1992; Wettestad and Andresen 1991) have considered the environmental problem but still focus on the institutional performance of a regime. Also, Haas et al. (1993: 7) ask the question whether the quality of the environment is better because of the regime but they do not indicate how such change could be measured and how much of it could be assigned to the regime itself, rather than to other external factors. Nevertheless, change itself is not a sufficient measurement of effectiveness (Kütting 2000b). However, recently there has been an attempt by Kütting (2000a, 2000b) to introduce the concept of environmental effectiveness when studying environmental regimes by distinguishing the concept of effectiveness as seen in institutional terms from that of accounting for improved environmental quality, though still having a regime theory perspective.

Furthermore, the attempts to measure effectiveness have been mainly qualitative. These qualitative methods vary in whether their view is descriptive (trying to explain what did happen), predictive (trying to estimate what will happen), normative (looking at what should ideally happen) or explanatory (trying to explain the reasons why something happened) (Mitchell and Bernauer 2002: 2). However, a small but increasing number of researchers have approached the subject quantitatively.

recognising the need for these methods to complement each other in order to produce more reliable results. A brief discussion of some of these methods is provided below.

2.2.1 *Qualitative approaches*

In order to estimate whether international environmental institutions are effective, Haas et al. (1993) refer to certain conditions known as the three C's. They measure the impact of international institutions on three conditions essential for effective action in environmental problems: high levels of *governmental concern*, a hospitable *contractual environment* in which agreements can be made and kept, and sufficient *political and administrative capacity* in national governments. In each regime they examine three phases of activity; agenda-setting, international policies and national policy responses which are referring to each of the three conditions respectively. Thus a regime is deemed effective if it increases governmental Concern, enhances the Contractual environment and builds national Capacity. They ask the question 'Is the quality of the environment or resource better because of the institution?', but due to lack of available data concerning changes to the state of the biophysical environment that can be actually assigned to the institution, they decide to focus on "observable political effects rather than directly on environmental impact" (Haas et al. 1993: 7).

Young (1999) looks at causal connections and behavioural mechanisms. A regime is considered effective based on the extent it ameliorates the problem that led to the regime's creation in the first place. However, he admits that this approach is practically difficult to analyse since complex social and natural systems within which regimes operate do not allow for the observed changes to be assigned to the regime itself. According to the legal approach, the regime is effective to the extent it is followed by legal compliance, and in the economic approach if it incorporates the legal definition and adds a cost-efficiency criterion. In the normative approach, effectiveness equals achievement of values such as fairness or justice, stewardship and participation. Whereas in the political approach a regime is effective if it causes changes to the behaviour of actors, in the interests of actors, or in the policies and performance of institutions in ways that contribute to positive management of the targeted problem. Moreover, Young differentiates the effects of environmental regimes in three dimensions. Firstly, he divides them into internal and external to the

behavioural complex, which is the group of actors, interests and interactions on a specific issue area. Secondly, he separates them into direct and indirect effects. Finally, he divides them into good or bad according to the impact on the problem, in other words if they ameliorate or worsen it (Young 1999).

Another approach to the measurement of effectiveness focuses on institutional factors and addresses a series of related questions based on the identification of problem structure, institutions and institutional fit and the analysis of legal and organizational issues that arise from this approach (von Moltke 2000). This research strategy begins with consideration of a problem's structure. It then proceeds to identify the institutions that may be needed – and those that have been employed – to address the issue in light of its problem structure. Von Moltke's underlying hypothesis is that it is more likely for a regime to be effective when it achieves a good fit between problem structure and institutional characteristics, and that it is the desirable fit between problem structure and institutions that is a primary reason for its effectiveness. Moreover he stresses the importance of science assessment (the interpretation of the research for policy purposes), and the need for transparency and participation. He goes on to discuss the issue of dispute settlement mechanisms, without considering them necessary for environmental regimes since they pursue effectiveness and implementation in entirely different ways (von Moltke 2000).

As mentioned earlier, one qualitative approach which is different from the others in the sense of introducing the concept of environmental effectiveness, is that of Kütting (2000a, 2000b). She suggests a distinction between institutional and environmental effectiveness, since most regime theories are interested in the structure of the institution and the behaviour of the actors in it, judging its effectiveness by the occurrence of change in this behaviour which it is assumed would eventually lead to a positive environmental result. However, the change in actors' behaviour might not actually result in environmental improvement, and even if it does, this improvement might not be sufficient to solve the problem. In addition, the assessment of the state of the environment before and after the regime and how much of a change can be actually assigned to the regime itself poses another methodological problem. For this reason, Kütting regards the distinction between institutional and environmental effectiveness as necessary, stressing however that a good definition should

incorporate both these dimensions since these are ‘two sides of the same coin’ (Kütting 2000a: 30-34). Her approach looks at four areas of environmental effectiveness, which describe the relation of an environmental problem to the particular regime established for its abatement, and the social structures within which they are found. These four determinants are economic structures, time, science and regulatory structures. Economic structures include not only the structures concerned directly with the agreement but also refer to the economic organisation of the society. Environmental problems can occur through the economic organisation of the society but they can also be avoided through the same structures. Time is crucial when damage may be irreversible and this is frequently the case in environmental problems so the time plan of the environmental regimes has to account for that pressure. Science is necessary in policy making in order to define the roots and the solutions to the problems, but according to Kütting its importance should not only be limited to being an input in the creation of the regime, but it should also be regarded as a social activity consistent with other social processes, emphasising the constant interaction between science and policy. Finally, regulatory structures are mainly concerned with institutional design and effectiveness, referring not only to the structure of the agreement but also to the other bureaucratic structures within which the regime operates, and they are important because regime design matters (Kütting 2000a: ch. 4).

Generally, when specific cases are studied in qualitative research, there is a problem about generalising the results and assuming they will apply in all cases. Even though results may be reliable for a particular case, they cannot always be extended to others. Moreover, no matter how well a study of effectiveness is designed and carried out, its relative outcome depends heavily on the initial definition of effectiveness, and the criteria used to assess it.

2.2.2 Quantitative approaches

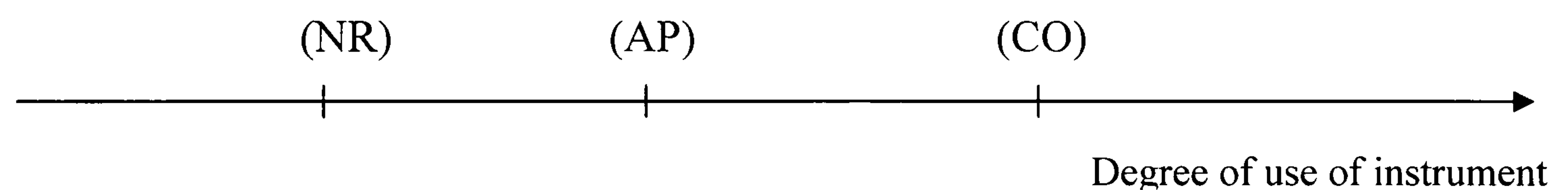
A discussion of the main quantitative approaches in the study of environmental regime effectiveness is given below. Some of them are described briefly, whereas others are given in more detail due to their complex statistical nature. One of the most well known options in empirical research for measuring regime effectiveness is the so

called Oslo-Potsdam solution. This is an ‘umbrella term’ referring to two closely interlinked approaches, that of Underdal (1992, 2002) and that of Helm and Sprinz (2000).

Underdal (1992, 2002: 5-6) focuses on the relationship between the regime’s output – the institution established as a new set of rules and regulations; its outcome – the change in the behaviour of states; and its impact – the actual change in the state of the biophysical environment. He suggests that regime effectiveness has two components: changes in human behaviour and changes in the state of the biophysical environment itself. Moreover, he asks some critical questions. First, what is the object to be evaluated, because it makes a vast difference whether the evaluation concerns only the regime, or whether it concerns the whole problem-solving effort which might include various kinds of costs or positive side effects associated with the process of its establishment and maintenance. Second, he discusses the standard against which this should be evaluated, stressing however, that effectiveness is only a relative term and should be defined in each regime independently. The issue he raises about standards is important since environmental scientists and activists on one hand and regime theorists on the other, could have diverse opinions about the nature of standards against which they measure effectiveness. Third, he raises the issue of methodology in order to measure the object of evaluation against the standard. Methodologically, Miles and Underdal use counterfactual analysis against certain behavioural and technical optima by comparing the actual regime versus no-regime and the regime versus the collective optimum (Miles et al. 2002: ch. 2). They use qualitative case studies (e.g. the Vienna Convention and Montreal Protocol, the International Whaling Commission *inter alia*) to assess effectiveness on a 0-4 scale for behavioural change and on a 1-3 scale for environmental improvement. They then normalize the scales to range from 0 to 1 in order to make comparisons between them. A weakness of this approach is the difficulty of estimating the counterfactual by assuming hypothetical conditions in the absence of the regime. This is largely true since assessing the current state of the environment is difficult in itself. Even more difficult, if not impossible, is the idea of estimating how the state of the environment would be today if the regime in question did not exist in the first place. Moreover, the basis of this technique is still qualitative since environmental improvement and behavioural change are still assessed through qualitative case studies.

Helm and Sprinz (2000) also use counterfactual analysis based largely on the questions Underdal posed about the object of evaluation, the standard against which it should be evaluated and the methodological approach used. According to them regime effects are improvements in the object of evaluation, measured by application of policy-instruments leading to changes such as emission reductions. A lower bound is determined by the no-regime counterfactual (NR), which is the degree of policy-instrument application that would have occurred in the absence of the regime. An upper bound is established by the collective optimum (CO), the degree of application that would have been obtained by a perfect regime. Accordingly, the regime potential is expressed in units of policy-instrument use and is the difference between the no-regime counterfactual and the collective optimum. The actual policies executed by countries (AP) usually fall into this interval. Thus the effectiveness of a regime can be measured as the percentage of the regime potential that has been achieved, where this score falls into the interval of 0-1 (Figure 1).

Figure 1. General concept for measuring regime effectiveness



$$\text{Effectiveness score } ES = \frac{AP - NR}{CO - NR}$$

where (NR)=no-regime counterfactual, (CO)=collective optimum, (AP)=actual performance

leaves out many important factors such as political, technological, demographic and social factors. He has similar concerns about the collective optimum, pointing out that it neglects important side effects of regimes when accounting for regime consequences. Empirically, Young suggests that the use of the counterfactual poses the same methodological problems discussed before since the use of expert judgements to estimate it are insufficient especially when they do not account for social or technological factors (Young 2001: 110-114). This critique led to a fruitful debate on the issue and on potential ways to improve these approaches (Hovi et al. 2003a, 2003b; Young 2003).

Another approach to measuring effectiveness is given by Mitchell (2004) who, in order to evaluate international environmental regimes, uses regression analysis on panel data. He proposes a quantitative approach by developing a model for a single regime's effects. In this model he uses time-series data for one country at a time for the 1985 Sulphur Protocol of the European Convention on Long-Range Transboundary Air Pollution. He specifies the following model to estimate national sulphur emissions for the LRTAP case (Mitchell 2004: 127):

$$\text{EMISS} = \alpha + \beta_1 * \text{MEMBER} + \beta_2 * \text{INCOME} + \beta_3 * \text{POP} + \beta_4 * \text{COAL} + \beta_5 * \text{EFFIC} + \dots + \beta_N * \text{OTHER} + \varepsilon$$

where EMISS is annual emissions of sulphur dioxide and MEMBER is coded as 0 in years of non membership of the country to the regime and as 1 in years of membership. Generic drivers of emissions of most pollutants are also included such as per capita income (INCOME) and population (POP). Emission specific drivers are included, such as the country's coal power plants (COAL) and their average efficiency (EFFIC). The model estimates difference in sulphur emissions and how these are explained by the different variables. For instance β_1 represents the expected difference in emissions that would arise from a country becoming a regime member, holding all other variables constant. The coefficients of the other independent variables β_2 through β_N correspond to the estimated increase in emissions that would arise from a one-unit increase in that variable. The t-statistic on the coefficients shows the statistical significance of the independent variables, whereas the goodness-of-fit

(R^2) of the model equation as a whole provides an estimate of how completely the analyst has modelled the dependent variable.

Mitchell (2004: 129) advances his method by developing another model that allows comparison by combining data from different regimes. He uses time series data and data across regimes. As an example he develops a model to assess the simple claim that sanctions are necessary for a regime to significantly influence behaviour. An extension of this model could be used to evaluate how much a regime's effectiveness depends on contextual factors. For example, international conferences and reports might raise the importance of an environmental issue for a few years, and therefore lead to increased levels of implementation and compliance (Brown Weiss and Jacobson 1998).

An advantage of this technique, and also of other quantitative methods, is that its conclusions can hold reasonably well across many cases even though they cannot completely explain any specific regime (Mitchell 2004: 122). However, it is important to avoid confusion between the notions of statistical significance and policy significance of the independent variables (Mitchell 2004: 128). For instance, a study might show that an independent variable is statistically significant, which means that it can definitely explain the variation in the dependent variable. Despite that, the change in the variation might be so small as to be environmentally meaningless.

Mitchell's approach is a promising new angle to assess effectiveness with the use of econometrics and by using actual scientific measurement of the environmental problem (e.g. emissions). However, it largely depends on availability of similar data for other regimes. For instance, when measuring marine pollution, it is almost impossible to keep a long time series record of pollutants released into the sea, which is necessary for this type of analysis. Methodological problems would include which pollutants to measure, at what locations (since pollution may be a localised phenomenon), and how to connect these releases directly to the regime's regulations. Moreover the high costs of marine monitoring deters countries from keeping regular data. So this approach may prove innovative and useful in certain cases, but its applicability in others remains in question.

All the above quantitative techniques have many advantages, as they can be based on actual measurements and their conclusions can be valid for many cases. They counterbalance the problem of generalisation of results that qualitative techniques face. However, they might ignore aspects that are difficult to measure numerically (e.g. political benefits) and might not completely explain particular cases. In that respect, quantitative analysis should not replace qualitative approaches, but instead a combination of the two can enable an integrated study of regime effectiveness.

2.2.3 Other issues related to the study of regime effectiveness

In addition to the definition and measurement of regime effectiveness some other issues related to the study of environmental regimes are worth mentioning, notably institutional economics, compliance and verification, transparency, openness and participation, and environment and security. These issues can directly or indirectly affect the effectiveness of regimes, therefore they should be taken into account when studying a particular regime.

2.2.3.1 Institutional economics

Within the framework of effectiveness of international environmental regimes, and since they belong to the broader category of institutions, an issue that is certainly worth looking at is economic efficiency or cost effectiveness. This is the extent to which the production of the best economic outcome is produced by means of the least-cost combination of inputs. As North (1990) observes, transaction costs are the measure of economic efficiency of institutions. He stresses the message from Coase theorem that when it is costly to transact, then institutions matter (Coase 1960). North's theory of institutions combines human behaviour with the costs of transacting. The key to the costs of transacting is the costliness of information. This is because transaction costs include the price of what is being exchanged, and the costs of protecting rights and policing and enforcing agreements. He also argues that it needs resources not only to protect property rights and to enforce agreements but also to define these rights and agreement rules beforehand. Environmental regimes must perform certain functions such as limiting use, coordinating users and responding to changing environmental conditions, which include the transaction costs of coordination, information gathering, monitoring and enforcement. It is easily possible

to create a regime so costly to implement that it overcomes the benefits to be gained from its existence. Therefore, when examining the effectiveness of international environmental regimes, researchers should also take into account economic efficiency and transaction costs. No matter how effective a regime is in the amelioration of the problem it was designed for, it could not perform in the long term if it costs the countries too much.

2.2.3.2 Compliance and verification

When studying international environmental agreements and their effectiveness, Ausubel and Victor (1992) introduce the importance of verification of compliance. They suggest that verifiable international environmental agreements have more chances to have successful negotiation procedures and thereafter are more likely to be implemented properly by the participants. They define verification as ‘the process determining whether a Party is in compliance’ and note that it has not been regarded as a significant aspect of most international environmental issues to date. In order to fulfil this criterion the creation of large costly new international or national organisational infrastructures is necessary, which in most cases has not been done, so most of the formal information under the regimes is collected, if indeed it is, by national organisations already existing before the regime was established. In many cases other actors such as NGOs are involved in this process. However, verification is still mainly dependent on national reports, which might be unreliable or even false especially when national interests are at stake. Hence, practically, it could be the case that compliance is not achieved even if reporting indicates to the contrary. Furthermore, it is crucial to properly set the standards against which compliance will be measured so as to be meaningful (Ausubel and Victor 1992). Only recently have studies have paid attention to the issue of compliance in international climate regimes (Barrett and Stavins 2003; Victor 2003) noting that successful implementation means high levels of participation and compliance. Barrett and Stavins (2003), commenting on the Kyoto Protocol find that it does not induce significant participation and compliance and propose different approaches to improve it by offering positive or negative incentives. In the Montreal Protocol, for instance, a threat of restrictions on trade of CFCs or products containing CFCs between the countries participating in the agreement and those not participating proved successful in motivating more countries to participate. However, it is commonly acknowledged, especially in the case of the

Kyoto Protocol, that compliance alone (even if fully achieved) cannot always mitigate the environmental problem, since some of the heavier polluters might not choose to participate in the agreement at all.

2.2.3.3 Transparency, openness and participation

One of the issues requiring attention from international environmental regime practitioners and scholars is transparency and openness. According to Ausubel and Victor (1992) transparency refers to the clear presentation of the regime's activities and information collected, whereas openness means access of actors to the negotiating process and information, irrespective of whether these actors come from within the government or not. They also note that successful environmental regimes should provide for these conditions, since in their case studies of arms control regimes the latter proved unsuccessful partly due to concealment and restricted participation (Ausubel and Victor 1992). Moreover, von Moltke (2000) also stresses the importance of transparency and participation in environmental affairs in general, though remarkably few formal rules have been adopted in international environmental agreements to address these needs. A first step in this direction was the adoption in 1998 of the Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (von Moltke 2000).

2.2.3.4 Domestic politics

Another important factor that affects international environmental cooperation is change in the patterns of domestic politics. According to Weale (1992: 200), domestic public policy can naturally be affected by actors and procedures in the international sphere. However, with the internationalisation of political life, domestic actors and procedures may similarly affect and shape foreign policy making. Active pressure groups may play a crucial role by shedding light on important issues and attracting media attention. This extra power can prove very useful with regard to international environmental agreements since it can be used to push governments into participating and complying with them. Moreover, as Carter (2001: 239) observes, domestic political pressure can originate from environmental groups, from the media, public opinion or political parties (especially the Greens). This pressure can persuade a government to change its position in the negotiations surrounding an international environmental regime, often resulting in that country becoming a 'lead state' with a

key role in persuading or forcing other states to join efforts to form the regime. Carter gives as examples the swing of the West German government in the 1980s from veto to lead state on acid rain as a response to the Green party becoming an electoral force and the decision of the Australian Labor party to reject the Antarctic Minerals treaty as a result of its pro-green position at the 1987 election which aimed to win the support of environmentally conscious voters (Carter 2001: 239). Finally, Haas et al. (1993: 17) argue that 'lead states' are subject to more intense domestic political pressure than other countries, something that led to US leadership on marine oil pollution in the 1970s and on ozone in the 1980s. This pressure, together with the frequently greater damage to the country from the environmental problem, and the advanced policies for that problem, increase governmental concern and capacity resulting in promotion of institutional solutions to the problems by the 'lead states'.

2.2.3.5 Environment and security

Traditionally, in political science, security has been considered as protection of a sovereign state from other sovereign states that might threaten it by means of military power (Morgenthau 1978). Nowadays there is an increasing concern that environmental problems can threaten security by leading to violent conflict. According to Swatuk (2006) in the 1990s two different debates arose within the academic community. One is concerned with the redefinition of security in order to include environmental concerns, whereas the other focuses on the ways and extent that environmental issues may threaten security in the first place. The two sides have failed to reach a consensus. The first tries to interlink environmental change with the causes of conflict, identifying ways in which this might happen (Homer-Dixon 1999). The other group, by contrast, suggests that whilst the high degree of global interdependence might result in environmental problems producing complex situations, it is rather unlikely to lead to violent conflict (Deudney 1990). Some argue that many environmental problems may present significant threats to human health and welfare, which in turn would affect the wellbeing of nations themselves and therefore these problems should be taken into account when considering issues of national and regional security (Kullenberg 2002). This necessity for combining security matters with environmental issues is most appropriate in many cases of environmental problems, and especially so when addressing maritime affairs (Kullenberg 2002). Moreover, Carter (2001) observes that according to realists the

environment could be considered a security issue in cases where global commons problems might cause conflicts among countries. Such cases where military conflict arose straight from disputes over environmental problems are rare. However, a significant emerging issue is the rising number of environmental refugees who, while trying to escape from natural disasters such as drought, famine, degraded land and deforestation, seek a more secure future by crossing national borders (Carter 2001: 227). As Paterson (2000: 18-23) puts it, again according to a realist view, there are two senses in which environmental change can threaten security. It may lead to interstate war especially over shared renewable resources, traditionally water, although this is an unlikely possibility. It is likely to cause internal instability of states, especially when combined with or caused by population growth. In that case environmental change may lead to a complete collapse of the social structure by unplanned urbanisation, spreading disease and ecological marginalisation of poor people. Haas (1990: 36) also recognises the threat that environmental degradation poses to international security. He admits that the realist view of security has received criticism concerning whether it is appropriate for environmental issues and he finds it ambiguous. If the idea of security includes public health, security of borders, social and economic stability, then cooperative solutions would be more easily achieved for environmental problems. Haas argues that countries might still underestimate the environmental issues when matters of national power are involved, describing for instance the political tension which persisted in the negotiations of the Mediterranean Action Plan, resulting from a Greek-Turkish diplomatic incident in the sea. No matter which side of the debate one takes, environmental degradation does seem to be associated with the security of nations, even if only in the sense of internal stability and social integrity, hence environmental regimes should also be assessed as an aspect of security.

3. The Mediterranean Action Plan and the Barcelona Convention

Having reviewed the literature concerning effectiveness of international environmental regimes in general, in this part of the chapter the discussion will focus on a particular environmental regime, the Mediterranean Action Plan. As mentioned earlier, it was chosen as a case because it has not been studied extensively (but see

Haas 1989, 1990, Kütting 2000a, 2000b, Skjaereth 1996, 2002), and also its effectiveness is ambiguous according to different viewpoints.

The Mediterranean Action Plan (MAP) was created in 1975, under the auspices of the United Nations Environment Programme (UNEP), only three years after the Stockholm Ministerial Conference set up the latter Programme. MAP was adopted as a Regional Seas Programme under UNEP's aegis. The UNEP Regional Seas programme is a promising attempt to develop treaties and soft rules and standards at the regional level taking into consideration the different characteristics – both needs and capabilities – of the different regions (Sands 2003). MAP was the first plan adopted and has worked since then as a model for designing the other plans.

The Barcelona Convention was signed in 1976 and forms the legal part of MAP, in force since 1978 and amended in 1995. It includes 6 Protocols, namely, the Dumping Protocol, the Prevention and Emergency Protocol, the LBS (Land-Based Sources) Protocol, the SPA (Specially Protected Areas) and Biodiversity Protocol, the Offshore Protocol and the Hazardous Wastes Protocol. The Barcelona Convention is complemented by a research component (MED POL), policy-planning programmes (Blue Plan and Priority Actions Programme) and financial/institutional arrangements.

The Mediterranean Action Plan (UNEP/MAP) involves 21 countries bordering the Mediterranean Sea, as well as the European Union, which are Contracting Parties to the Barcelona Convention and its Protocols.

MAP's main objectives (UNEP 1995b: Annex IX) are:

- to ensure sustainable management of natural marine and land resources and to integrate the environment in social and economic development, and land-use policies;
- to protect the marine environment and coastal zones through prevention of pollution, and by reduction and, as far as possible, elimination of pollutant inputs, whether chronic or accidental;
- to protect nature, and protect and enhance sites and landscapes of ecological or cultural value;
- to strengthen solidarity among Mediterranean coastal States in managing their common heritage and resources for the benefit of present and future generations; and

- to contribute to improvement of the quality of life.

3.1 Origins, negotiations and formation of the Mediterranean Action Plan

Haas (1990: ch. 3) gives a detailed overview of the history and negotiations up to the adoption of MAP, which is summarised below. Early worries about Mediterranean Sea pollution arose between the late 1960's and 1974 when some Mediterranean officials expressed for the first time a need for action and governments sought ways to obtain information on the extent of marine pollution by identifying sources and types of pollutants and on possible ways to deal with the situation. Since adequate information was not yet available the attention focused on oil pollution resulting from maritime traffic and accidental spills, as this was the most visible form. Afterwards however, several scientific meetings and conferences revealed a variety of pollutants and their sources, with the most important being the land-based, so in 1974 a first draft of a treaty was prepared by the Food and Agriculture Organisation. However, later the same year, Mediterranean governments approached another United Nations organisation, the United Nations Environment Programme (UNEP) to guide and support this regional effort, which in turn with the help of forty Mediterranean marine experts, developed a comprehensive plan. Finally, in 1975 the Mediterranean Action Plan was adopted including seven monitoring and research projects, for an entire set of pollutant types and sources, and several pilot demonstration projects (Haas 1990: ch. 3). Thereafter MAP gradually widened its scope through creation of Protocols covering land-based sources of pollution, marine dumping, tanker oil pollution, as well as pollution transported by rivers and in the atmosphere and by extending the lists to include more pollutants. The environmental assessment component of MAP also evolved as the research and monitoring projects increased from seven to twelve and some interim standards were developed (Haas 1990: ch. 4).

However, following the 1992 UN Conference on Environment and Development 'Earth Summit' in Rio and the requirements of the Rio Declaration on Environment and Development (Agenda 21), MAP attempted to translate the results of the summit onto the regional Mediterranean level, and adapted Agenda 21 to the Mediterranean context by setting up Agenda MED 21. This led to adoption of the Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal

Areas of the Mediterranean (MAP II) on 10 June 1995 (UNEP 1995b). MAP II reflected both increasing concern for the pressures exerted on the Mediterranean environment and commitment of Mediterranean States to the ideal of sustainable development.

3.2 International environmental cooperation and the creation of the Mediterranean Action Plan

Regional cooperation was necessary to create a treaty aimed at protection of the Mediterranean against pollution. Environmental cooperation, as with any other international relations procedure, requires different actors or states to co-ordinate decisions and actions with the other actors involved. Reaching an international political agreement is difficult and there are different explanations about the conditions under which cooperation in the Mediterranean Basin was achieved through the framework of MAP and Barcelona Convention. Haas (1990) summarises these different interpretations into the main categories described below, explaining the causes of cooperation, its effects and its forms in each one of the views.

Realism and neorealism are concerned mainly with the relationship between state power and order in security affairs and the political economy of advanced industrialised societies. Realists and neorealists would relate cooperation to the distribution of power between the Mediterranean States. Under this perspective the regional hegemonic leadership of France would play a key role in developing cooperation under conditions of international anarchy. This hegemony would dictate that the scope of the agreements would mainly cover pollutants of interest to France but also extend to other issues of national French interest. The strength of cooperation – how weak or binding it is – would be dependent on French power and might also depend on information available. Under a realistic view the duration of the cooperation – how persistent it is – would also vary with the two previous factors and the effects of the cooperation would be to strengthen the influence of France in the region and achieve common benefits for all the Parties. However, this explanation did not prove adequate when, after the decline of the regional French hegemony, MAP continued to exist and to receive increased support both from the hegemon and also

from weaker states, showing that it is difficult to predict potential change in the motives of the states (Haas 1990: ch. 6).

Historical materialism, as discussed earlier, is basically concerned with distribution of economic resources and international equality, very often expressed as the North-South divide. Historical materialists explain cooperation in terms of the control of powerful capitalist states (i.e. European countries in the case of the Mediterranean region) over weaker less-developed ones (i.e. North African and/or Middle East countries in the same case). According to them the imperialism of European states would lead to cooperation under conditions of capitalism. The scope of the cooperation would not be clear but it would strengthen areas where European states have interests. Both strength and duration of the cooperation would vary with European dominance and effects of cooperation would be imposition of unwanted forms of development on less-developed countries excluding alternatives, and the provision of relatively more benefits to European states thus increasing commercial dependence of the less-developed countries on them. So, in the context of MAP, under a historical materialist interpretation, northern Mediterranean countries would try to impose capitalist policies on the southern Mediterranean developing countries. However, the negotiations proved to be a compromise where both sides' interests were equally represented, indicating that historical materialism was not able to provide a satisfactory explanation of cooperation (Haas 1990: ch. 7).

A third set of explanations introduced by Haas (1989, 1990) involves the 'epistemic communities' theory. This theory highlights the role of specialist knowledge-based 'epistemic communities' in formulating government policy and altering national interests and finally leading to international cooperation. The 'epistemic community' approach gives a more flexible character to the cooperation, having a broader scope than the other explanations. According to this approach the acquisition of new information and the negotiations between the states would lead to cooperation under conditions of scientific uncertainty. The scope of the cooperation would be broad and specifically outlined by the 'epistemic community' and the strength and duration of the cooperation would vary with extent of the involvement of the 'epistemic community' and coalitions within the states. This cooperation would lead to adoption of convergent pollution control policies, and would eventually inspire Mediterranean

governments to design and implement new models of comprehensive environmental policy. Indeed, the countries where scientific experts were strong had deeper involvement in MAP and became its strongest proponents, and *vice versa*. The ‘epistemic communities’ explanation complements the previous two theories, since it accounts for variability in the preferences of the states through time, an aspect missing from other explanations (Haas 1989, 1990: ch. 8). However, even though this theory has been useful in explaining the negotiations and creation of MAP, it is open to question whether the current operation of the regime is based on ‘epistemic communities’. Moreover, the generalisability of the theory to explain other regimes is not yet proven.

3.3 Structure of the Mediterranean Action Plan and its components

According to Raftopoulos (1993) Regional Action Plans usually consist of five components: the assessment component, the management component, the legal component, the institutional component and the financial component. The basic characteristics of each MAP component are described below.

3.3.1 The Legal Component of MAP

MAP seeks to achieve all its objectives through its legal component, the Barcelona Convention and related Protocols. The ‘Convention for the Protection of the Mediterranean Sea against Pollution’, was signed in 1976, and has been in force since 1978. In 1995 it was replaced by an amended version taking into account recommendations of the 1992 Rio Conference on Environment and Development and it was recorded as the ‘Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean’, being in force since 2004. The amended version of Barcelona Convention introduces new principles such as Environmental Impact Assessment (EIA), the polluter pays principle and the precautionary principle and also suggests time limits for environmental regulations (UNEP/MAP 2005a). The 22 Contracting Parties to the Barcelona Convention are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Serbia and Montenegro, Slovenia, Spain, Syria, Tunisia and Turkey.

As described in Article 1.1 of the Convention (UNEP/MAP 2005a) geographically, it covers “...*the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between Mehmetcik and Kumkale lighthouses*”.

As is obvious from the above definition, the internal waters of the Contracting Parties are excluded in the provisions, as are the Black Sea, the sea of Marmara and the Bosphorus, since the ‘demarcation line’ is the southern limit of the Straits of the Dardanelles. In the following provisions, the Convention may be extended to include coastal areas as defined by each Contracting Party within its own territory, and also any Protocol to the Convention may extend geographical coverage to that which the particular Protocol applies.

In Article 2(a) pollution is defined and described as: “...*the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results, or is likely to result, in such deleterious effects such as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of seawater and reduction of amenities.*”

The Protocols to the Barcelona Convention, also summarised in Table 1, are the following:

3.3.1.1 Dumping Protocol

The full title is ‘Protocol for the Prevention of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft’. It was signed in 1976 and has been in force since 1978. This Protocol was amended and recorded as the ‘Protocol for the Prevention and Elimination of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea’. It was signed in 1995 but still awaits entry into force. The Dumping Protocol commits states to banning dumping of certain substances – the ‘black list’ – and issue permits for dumping of less hazardous substances – the ‘grey list’. Factors to be considered when establishing criteria governing issue of permits

include characteristics and composition wastes or other matter, features of the dumping site and method of deposit of matter to the site. An exception to the Protocol's provisions is the case of *force majeure* due to stress of weather or any other cause when human life or the safety of a ship or aircraft is threatened.

3.3.1.2 Prevention and Emergency Protocol

The full title is 'Protocol Concerning Cooperation in Preventing Pollution from Ships, and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea'. This Protocol was signed in 2002, and has been in force since 2004, replacing the existing 'Protocol Concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency', which was in force from 1976. The Prevention and Emergency Protocol commits states to notify each other in case of an oil spill and to co-operate in the cleanup. In the event of an oil spill or other emergencies UNEP and also any other state likely to be affected must be informed. Moreover, in the framework of this Protocol, a regional activity centre (REMPEC – Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea) has been established in Malta, administered by the International Maritime Organization and the United Nations Environment Programme to deal with the implementation of this Protocol. Cooperation in the cleanup includes salvage or recovery of packages containing hazardous or noxious substances released or lost overboard. The Protocol also provides for other actions such as dissemination of reports and information. The article about assistance allows for it to be asked for and given by the regional activity centre or by any other signatory state in the form of equipment, products and facilities, expert advice, and the costs of any action shall be borne by the requesting Party.

3.3.1.3 LBS (Land-Based Sources) Protocol

The full title is 'Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources'. It was signed in 1980 and has been in force since 1983. This Protocol was amended as the 'Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities'. The amendment was signed in 1995 but still awaits entry into force. The LBS Protocol covers some sectors of activity, including heavy metal industries, agriculture, energy production and waste treatment, binding the countries to adopt new industrial, agricultural and waste

treatment practices. It also commits states to ban or strictly limit a number of compounds such as organohalogenes, organophosphorus compounds, organotins, heavy metals, chlorinated hydrocarbons, radioactive substances and thermal discharges *inter alia*. The Protocol in itself does not define specific emission or time limits however it provides that states should progressively adopt such guidelines and measures. Following this, in 1997 the MED POL programme assisted countries to design and adopt the ‘Strategic Action Programme to Address Pollution of the Mediterranean sea from Land-based Activities (SAP)’ which entails more specific emission and time limits for pollution reduction.

3.3.1.4 SPA (Specially Protected Areas) & Biodiversity Protocol

The full title is ‘Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean’. This Protocol was signed in 1995, and came into force in 1999, replacing the existing ‘Protocol Concerning Mediterranean Specially Protected Areas’ which came into force in 1982. The SPA Protocol was outside of the scope of the program as this was initially anticipated in the Barcelona Convention and MAP and this is why it is considered different from the other Protocols, which were provided for in the Convention. It encourages creation and development of marine parks to safeguard representative types of coastal and marine ecosystems and their biodiversity, endangered habitats, and habitats critical to the survival of endangered species. The Protocol also provides for protection of sites of particular importance because of their scientific, aesthetic, cultural or educational interest. It suggests the regulation of certain activities such as fishing, hunting and trade of animals, and the passage, stopping or anchoring of ships. Moreover it suggests the establishment of a ‘List of Specially Protected Areas of Mediterranean Importance’ or ‘SPAMI List’. A regional activity centre has been established in Tunis (SPA/RAC) to deal with issues of protected areas. However, the Protocol only encourages development of specially protected areas and does not oblige the signatory states to take any form of action, so the question of whether this issue should be treated in the form of a Protocol remains unanswered.

3.3.1.5 Offshore Protocol

The full title is ‘Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed

and its Subsoil'. It was signed in 1994 but still awaits entry into force. This Protocol requires authorisation by national authorities for any offshore activity, which should be granted only after study of the activity's potential environmental effects. It includes lists of harmful or noxious materials and substances, the disposal of which is either prohibited or requires a special permit, and provides for monitoring of planned installations for environmental and safety effects. In addition to this the Protocol provides that each Party shall prescribe sanctions to be imposed for breach of obligations and that as soon as possible appropriate rules and procedures for the determination of liability and compensation for damage resulting from relevant activities should be formulated and established. Delay in adoption and ratification of this Protocol is attributed to involvement of offshore industries, especially the oil industry, in the decision making of the governments.

3.3.1.6 Hazardous Wastes Protocol

The full title is 'Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal'. It was signed in 1996 but still awaits entry into force. The Protocol requires Parties to take all appropriate measures to eliminate pollution resulting from the transboundary movement and disposal of hazardous wastes to the fullest possible extent and to eliminate such movements if possible. Contracting Parties are obliged to generally prohibit the export and transit of hazardous wastes to developing countries and the Parties which are non-EU members should prohibit all imports and transits. Moreover, the countries directly or with the help of competent authorities should implement programmes of financial and technical assistance to developing countries for the implementation of this Protocol. Lists of hazardous wastes and hazardous characteristics of substances are also described, and provisions for liability and compensation for damage resulting from the transboundary movement of hazardous wastes are also included in the Protocol. The delay in the adoption and ratification of this Protocol is also considered to occur for the same reasons as for the Offshore Protocol, i.e. due to conflicting interests with the oil industry.

In addition there is a seventh Protocol under preparation concerning Integrated Coastal Zone Management (ICZM). In most cases the Protocols have been revised

and supplemented. Most of the amendments, including the new Barcelona Convention, are still in the process of ratification as summarised below in Table 1.

Table 1. MAP Protocols

Protocol	Entry into force	Description
Dumping Protocol Protocol for the Prevention of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft	Adoption: 1976 Entry into force: 1978 Amendments: 1995 but in force the oldest version	Aims at prohibiting discharge of wastes and other materials by committing states to ban dumping of certain substances – the ‘black list’ – and issue permits for the dumping of less hazardous substances – the ‘grey list’
Prevention and Emergency Protocol Protocol Concerning Cooperation in Preventing Pollution from Ships, and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea	Adoption: 2002 Entry into force: 2004 Replaced the oldest version in force since 1976	Focuses on promoting means of combating oil pollution through multilateral cooperation, by committing states to notify each other in case of an oil spill and to co-operate in the cleanup
LBS (Land-Based Sources) Protocol Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources	Adoption: 1980 Entry into force: 1983 Amendments: 1995 but in force the oldest version	Focuses on eliminating persistent toxic substances by committing states to ban or strictly limit a number of compounds such as organohalogen, organophosphorus & organotin compounds, heavy metals, chlorinated hydrocarbons, <i>inter alia</i>
SPA (Specially Protected Areas) and Biodiversity Protocol Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean	Adoption: 1995 Entry into force: 1999 Replaced the oldest version in force since 1982	Encourages creation and development of marine parks to safeguard representative types of coastal and marine ecosystems and their biodiversity, endangered habitats and species, and sites of aesthetic or cultural importance
Offshore Protocol Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil	Adoption: 1994 Not yet in force	This Protocol requires authorisation by national authorities for any offshore activity, which should be granted only after the examination of a study of the activity’s potential effects on the environment (Environmental Impact Assessment)
Hazardous Wastes Protocol Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal	Adoption: 1996 Not yet in force	The Protocol requires Parties to take all appropriate measures to eliminate pollution resulting from the transboundary movement and disposal of hazardous wastes to the fullest possible extent and to eliminate such movements if possible

The Barcelona Convention and Protocols raise the issue of dealing with a legally and institutionally complex scheme, because it concerns an international environmental order, which develops “diachronically rather than synchronically and contextually rather than in isolation from its relational foundation” (Raftopoulos 1993: 42). The legal component of MAP is divided in two broad categories, the common environmental norms and rules and the community membership norms and rules. The

former relate to specific environmental provisions, whereas the latter give standard ‘membership’ powers and duties to each ‘Contracting Party’ (Raftopoulos 1993).

3.3.2 The Institutional Component of MAP

The institutional component of MAP, as defined within the framework of Barcelona Convention, is structured in such a way as to give authority to two organs: the Meetings of the Contracting Parties and the Secretariat. The highest authority in decision making is given to the Meetings of the Contracting Parties, which occur every two years, and reflect shared interests of all the Parties. They also make sure that current legal obligations are met, and oversee formation of new rules. The second authority is the Secretariat of MAP, based in Athens, Greece, which supports its operation, by carrying out all the administrative tasks that secure its smooth implementation but which also helps to integrate stakeholder interests into the legislative goals (Raftopoulos 1993: 73).

Moreover, following launch of the MAP II process and a shift towards a ‘sustainable development’ orientation, the Mediterranean Commission on Sustainable Development (MCSD) was set up as an advisory body to MAP in 1996 as a think-tank on policies for promoting sustainable development in the Mediterranean Basin. Moreover, the operation of MAP is supported through six Regional Activity Centres, (RACs) in six Mediterranean cities, which help in a more decentralised way of operation under supervision of the Secretariat, each offering expertise in specific fields of action for facilitating the operation of MAP, as shown in Table 2, in the following page.

3.3.3 The Environmental Assessment Component of MAP

The Environmental Assessment Component of MAP, stated in the official text of UNEP (1978) as the ‘Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean’ is widely known as MED POL. It is the most straightforward technical aspect of MAP and has played “an important cohesive role for the development of a concrete, scientifically based, regional approach to the problems of the Mediterranean pollution” (Raftopoulos 1993: 5).

Table 2. Regional Activity Centres (RACs)

Regional Activity Centre	Establishment	Description
REMPEC Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea	Year: 1976 Place: Manoel Island, Malta Status: Centre under IMO/UNEP agreement, administrated by IMO	Aims at preventing and combating pollution from oil and other harmful substances by helping Mediterranean coastal states to be prepared for major marine pollution incidents and to cooperate for the clean up
BP/RAC Blue Plan Regional Activity Centre	Year: 1977 Place: Sophia Antipolis, France Status: National Centre, with an NGO status, with regional function	Adopts a systemic and prospective approach to Mediterranean environment and development issues using observation and evaluation tools, generating indicators and publishing several studies accordingly
PAP/RAC Priority Actions Programme Regional Activity Centre	Year: 1980 Place: Split, Croatia Status: National Centre with regional function	Aims to improve the Mediterranean environmental situation by addressing priority actions. It is mainly concerned with integrated coastal area management to lessen development problems in built up coastal areas
SPA/RAC Specially Protected Areas Regional Activity Centre	Year: 1994 Place: Tunis, Tunisia Status: National Centre with regional function	Focuses on biodiversity issues and is involved in the protection of Mediterranean species, their habitats and ecosystems by producing <i>inter alia</i> strategies for biodiversity conservation
CP/RAC Cleaner Production Regional Activity Centre	Year: 1995 Place: Barcelona, Spain Status: Public Company put at the disposal of MAP	Focuses on promoting and disseminating cleaner production technologies for industrial sector in order to reduce industrial waste at source of the Mediterranean industrial sector
INFO/RAC Information and Communication Regional Activity Centre previously ERS/RAC Environment Remote Sensing Regional Activity Centre	Year: 2005 INFO/RAC Year: 1993 ERS/RAC Place: Rome & Palermo, Italy Status: Public body put at the disposal of MAP	Aims to provide information and communication services and technical support to MAP also by enhancing public awareness (Initially ERS/RAC would promote and introduce remote sensing and GIS for environmental monitoring and sustainable development)

MED POL operates in phases. Its first phase, MED POL – Phase I, lasted from 1975 until 1980. At that time there was not enough scientific expertise either in the number of trained scientists or in terms of facilities established, therefore it was constructed upon pilot projects. This was considered a necessary condition, bearing in mind that full-scale regional assessments require identified pollution problems common to all the participating states (Raftopoulos 1993). Initially there were seven pilot projects approved in 1975 followed by several others to support the programme. States had designated national research centres to participate in the pilot projects, and the planning and carrying out of necessary actions was a collaborative effort of UNEP with several international organisations (ECE, UNIDO, FAO, WHO, WMO,

UNESCO, IAEA, and IOC of UNESCO). According to Raftopoulos (1993: 8-9) MED POL – Phase I proved largely successful in transferring technology and scientific expertise to many Mediterranean States, especially in less-developed countries since UNEP at the time followed a policy of allowing most of the resources to those needing them most.

Phase II of MED POL lasted from 1981 until 1990 and was named the ‘Long-term Pollution Monitoring and Research Programme’. For effective implementation of its specific objectives it was divided into four distinct components, monitoring, research and study topics, data quality assurance, and assistance. Overall coordination of Phase II was in the hands of the Mediterranean Action Plan Co-ordinating Unit (the secretariat of the Barcelona Convention) acting on behalf of UNEP, even though the countries were fully responsible for monitoring activities as stated in Article 12 of the Barcelona Convention and in Article 8 of the Land-Based Sources Protocol.

MED POL has recently finished its Phase III, which started in 1996 and lasted until 2005. Just before the end of Phase II important events at both international and regional levels took place, which guided MED POL to change its directions. These events were the adoption of Agenda 21 in Rio 1992 and the Global Programme of Action (GPA) in 1995 in Washington (UNEP 1995a) to address pollution from land-based sources and activities, and creation of the Mediterranean Commission for Sustainable Development (MCSDD) together with the amended LBS Protocol at regional level. Hence there was a slow change from pollution assessment to pollution control with MED POL becoming a tool for the countries to properly manage their marine and coastal areas. MED POL Phase III, adopted in 1995 and called the ‘Programme for the assessment and control of pollution in the Mediterranean region’, was directly concerned with implementation of the two relevant Protocols (Dumping and LBS), since it focused more on management of pollution control (UNEP 1999). It included activities such as pollutant trend monitoring and assessing effects of contaminants to living organisms as well as inventory of pollution sources and loads and finally the setting up of a database. Regarding control, compliance of the countries is monitored by an annual report discussing the country’s existing action plans, programmes and measures for pollution control and how well these comply

with national, regional or international legislation. All the above activities have to be described in agreements between each country and MED POL.

From 2005 until 2013, a new phase of MED POL has come into operation as put forward in the 13th Ordinary Meeting of the Contracting Parties to the Barcelona Convention (UNEP/MAP 2003). However, the starting point for its objectives and goals are those set out in Phase III, which was considered adequate for supporting the overall objectives of the Convention and the Protocols. In that respect it will continue to operate with the same tools (monitoring, compliance monitoring, assessments, capacity building, etc). However, taking into account recommendations of the evaluation of Phase III (UNEP/MAP 2005b), it focuses more on some aspects of Control and Assessment and Public Participation and it tries to use the Ecosystem Approach more widely in all its aspects (UNEP/MAP 2005c).

3.3.4 The Environmental Management Component of MAP

The MAP Environmental Management Component is called ‘Integrated planning of the development and management of the resources of the Mediterranean Basin’ (UNEP 1978) and was the first of the main aspects of MAP to be implemented. Its aim is also to protect the Mediterranean marine environment but instead of focusing only on pollution sources, it integrates development issues of the region in the sense of environmental management. From the beginning it was divided into a long term research and study programme, the Blue Plan and a more straightforward and immediate programme aiming at performing specific actions, the Priority Actions Programme (Raftopoulos 1993).

To assist implementation of the Blue Plan, a Regional Activity Centre was established in France, namely the BP/RAC. Initially the Blue Plan performed twelve investigative thematic studies with the help of experts both from North and South Mediterranean in each study. Later on a more thorough and complete scientific study was performed in order to examine the potential for integrating social and economic development in the region to enhance environmental protection. A synthesis and presentation phase was also planned in order to guarantee dissemination of the results of the above studies, nevertheless the Blue Plan was criticised for not being able to achieve that goal

(Raftopoulos 1993: 27). According to Raftopoulos it has not succeeded in getting through to the non-expert Mediterranean community such as stakeholders, or the wider public mainly due to a poor communication network.

For the Priority Actions Programme (PAP), another Regional Activity Centre was established, namely the PAP/RAC. Contrary to the Blue Plan, it involved particular actions to be taken on issues considered as priorities at the time. Following the example of MED POL it was designed to be implemented through demonstration and pilot projects. At that time there was inadequate scientific awareness on the integration of environment and development for the purposes of environmental management so this approach was the only solution (Raftopoulos 1993).

However, according to Raftopoulos (1993: 32), the environmental management component, consisting of the Blue Plan and the Priorities Action Programme, even though a rather large and important aspect of MAP, was clearly not covered in the Barcelona Convention. This means its ideas and findings were not translated into legal provisions, so to a large extent integration of environment and development was only in the form of words and not action.

3.3.5 The Financial Component of MAP

Finally, the financial component of the Mediterranean Action Plan is mainly covered by the Mediterranean Trust Fund. This is a fund that all the Contracting Parties to the Convention contribute to, according to their respective national wealth. The Contracting Parties may also contribute to the operations of MAP through in-kind contributions (e.g. through participation of their national institutes in MED POL programme especially in MED POL Phase II). Additionally some Contracting Parties may provide extra voluntary contributions to the Mediterranean Trust Fund, even on a regular basis as for instance the European Union. The financial arrangements of MAP are also supported on certain occasions by UNEP through project funding, as this was the case especially in the first years of MAP's operation.

3.4 Effectiveness of the Mediterranean Action Plan

Effectiveness of the Mediterranean Action Plan has not been extensively studied by international relations academics. A few exceptions include Haas who brought MAP to the attention of the academic community by praising it as a success and some others like Skjaerseth and Kütting who were more critical. Other types of studies carried out discussed certain aspects of MAP or tried to assess specific features (e.g. legal perspectives) of its operation (Boxer 1978; Raftopoulos 1993, 1997; Jeftic 1996; Pavasovic 1996; Vallega 1996; Massoud et al. 2003; Raftopoulos and McConnell 2004 *inter alia*).

Haas's study of 'epistemic communities' (Haas 1989, 1990) did much to bring the Mediterranean Action Plan to attention of the academic community. He suggests that many studies focused on regime negotiations and their creation but few attempts have been made to investigate their real and practical significance and their direct impact on the behaviour of actors (states). He proposes that MAP derives its effectiveness from the influence of 'epistemic communities'. He considers it a success because it "altered the balance of power within the Mediterranean governments by empowering a group of experts who then contributed to the development of convergent state policies in compliance with the regime" (Haas 1989: 377). He concludes that MAP may signal the emergence of an entirely new international political order for the environment and he stresses the role of 'epistemic communities' in promoting stronger national pollution controls (Haas 1990). Nevertheless, more than fifteen years after Haas's study, this enthusiasm is missing from other researchers of MAP.

Skjaerseth (1996, 2002) also studied MAP but he was not convinced about its success. He notes that the reasons for signing up to Barcelona Convention did not always have much to do with environmental concern. For the less developed countries it was an opportunity to receive training and equipment for monitoring pollution, since the financial burden, at least until 1979, was carried by UNEP. Also it was a diplomatic opportunity to establish political/diplomatic ties between countries traditionally in conflict. Therefore the states probably had mixed motives which were not necessarily entirely environmental. Moreover Barcelona Convention goals were vague, and even though a main goal of MAP in its second phase was to produce specific targets with

specific deadlines for the Parties to the Convention, it failed to do so. Moreover the states have not been very willing to provide adequate reporting on the national implementation of their commitments. Therefore, due to the lack of clear targets and the inadequate state reporting, it is difficult to estimate whether there has been behavioural change among target groups. Skjaereth also considers the MAP budget to be very limited compared to the wide scope of its demands. It is even more difficult to assess the impact of MAP on the state of the marine environment since there is lack of reliable and continuous pollution and water quality data. It has to be noted though that the collection of these scarce data is largely a result of MAP's establishment. However, even if there is an improvement in the marine environment it is rather difficult to attribute it all to the regime, since other factors such as general socio-economic and technological change or natural environmental variation have to be taken into account. Moreover, for many countries, much environmental national legislation was also required by other organisations such as the European Union. Skjaereth concludes that MAP is considered a collaborative political success since it produced a complete plan for de-polluting the Mediterranean Sea and furthermore because it increased the general environmental awareness and preparedness through regional cooperation and transfer of knowledge. However, its impact on behavioural change among target groups is not so clear (Skjaereth 1996, 2002).

Kütting (2000a: ch. 5) is also critical of MAP. Even though admitting that the regime has been successful in starting and maintaining a cooperation process for a significant period of time in a region traditionally characterised by many political conflicts, she finds that overall it can not be considered as successful either in terms of institutional or environmental effectiveness. Moreover she argues that basically MAP faced the typical North-South divide which underpins so many global environmental problems, although in this case at a regional scale. She also considers that MAP has been rather disregarded by the international relations academic community because traditional international relations research focuses on matters of national economic interest when examining international agreements and this was not the case in MAP, as it was formed due to environmental concern. She even asks the question why MAP "exists at all since there is an apparent lack of motivation?" (Kütting 2000a: 7). Overall, Kütting suggests that MAP may have been a political success but in terms of amelioration of the environmental problem, it has not offered a lot (Kütting 2000b).

MAP may have succeeded in fulfilling some activities but it is not clear how much can really be assigned directly to it. As mentioned earlier the most important part of the Mediterranean Action Plan is that which deals with combating pollution from land-based sources, since these are the main polluters of the Mediterranean marine environment. More than twenty years after the LBS Protocol's entry into force, its effectiveness cannot be clearly estimated. There have been several noteworthy actions, such as construction of sewage treatment plants in many Mediterranean cities, nevertheless it is quite likely that some of these actions would have been taken anyway.

In conclusion the focus should be on areas where the Mediterranean Action Plan has undoubtedly been successful. Even if it has not achieved an enormous change in the state of the biophysical environment, it has certainly enhanced cooperation, stability and security in a traditionally unstable and heterogeneous politically region. Moreover MAP has promoted environmental awareness and capacity building especially in the less developed countries of the southern Mediterranean. In some ways the political, rather than scientific, success of MAP is ironic as it was the expert scientific 'epistemic community' that first created the international collaboration responsible for launching the Barcelona Convention. But the legacy is diplomatic rather than scientific.

4. A new approach to defining and measuring effectiveness

In the first part of this chapter various theories about international environmental regime effectiveness and a range of efforts to define and measure this effectiveness in applied cases were reviewed and examined. What is evident is that there is no one way to define and measure such a concept, especially when dealing with complex interactive systems consisting of socio-economic factors, policy and politics and the global environment. The second part presented an overview of an international regime and a critical discussion of its effectiveness as a case study. The assessments of MAP made by different academics and practitioners largely varied according to which criteria they used in assessing the regime.

The theories of realism and neorealism are primarily concerned with state security and national interest. They do not include environmental concerns in their analysis, and assume that states have given interests, which is not the case in environmental issues. Looking at the formation of MAP, as Haas noted, an explanation through the hegemonic stability strand failed once France declined as the hegemon. MAP continued to exist and be supported by both the lead and weaker states. Historical materialism and international political economy, especially with the dominance of economic globalisation, can in some cases explain environmental cooperation better, but in the case of MAP these theories also failed since interests of both sides, developed and less-developed states, are represented equally in the regime. Therefore, neoliberal institutionalism and strand regime theory are the most suitable traditions to explain international environmental cooperation. The distinction between Krasner's different orientations is not important because regimes may matter under certain conditions, meaning that effective regimes do matter.

Concerning the different approaches used when defining and measuring effectiveness, most of the regime theorists focus on institutional performance of a regime. Even those that consider the environmental problem do not clearly define how this aspect can be assessed. A different approach by Mitchell gives an example of such an assessment, but it leaves out of the calculation factors that cannot be easily measured by numbers, such as the political benefits of cooperation. Kütting makes clear the need for a distinction between institutional and environmental performance, although looked at from a regime theory perspective. As far as qualitative and quantitative techniques used in the study of regime effectiveness are concerned, the former usually explains a case well, since time and effort are spent in researching that particular case, however generalisability poses problems. On the other hand, quantitative approaches can be valid for many situations, but they might miss important case-specific factors. For instance in counterfactual analysis it is difficult to estimate the hypothetical situation of the absence of a regime, and Mitchell's econometric approach depends heavily on the availability of data which renders it difficult to apply. Therefore a new approach, which would take into account both institutional and environmental parameters using complementary qualitative and quantitative techniques would be ideal to assess the effectiveness of regimes.

Looking at the case of the Mediterranean Action Plan, the handful of important studies on its effectiveness show a varied set of opinions, demonstrating that assessing effectiveness depends primarily on defining the criteria used for this process. Haas's prominent study on 'epistemic communities' found the regime successful and argued enthusiastically that it would introduce a new concept in international environmental cooperation. His theory can provide a satisfactory explanation for the role of scientific groups in creation of MAP, but its continued success was mostly political. It remains highly questionable whether these scientific groups are the power behind its implementation, or if these groups are instigating such processes in other international environmental regimes as well. On the contrary, the study of Skjaereth is more critical about the achievements of MAP. Even though he recognises its political contributions to cooperation and its overall enhancement of general environmental awareness, he notes that the desired change in behaviour of the actors is not very evident. Finally, Kütting, distinguishing between institutional and environmental effectiveness, concludes that unfortunately MAP was not successful in the long term in either of the two aspects. According to her criteria, its only real achievement is the instigation and continuation of a cooperation effort in a politically very difficult region of the world. Drawing from the previous three studies, and their different outcome on the same case, it is essential to define effectiveness before any attempt to assess it.

Undoubtedly, for a scientist, only improvement of the environment is the *raison d'être* of an environmental regime. However, the regime's institutional performance is equally important as an indirect way to achieve this as a means to an end and not as an end *per se*. Hence, the institutional and environmental aspects of effectiveness do not need to be separated, but rather integrated in order to provide a holistic view. The need for an interdisciplinary approach is the first and foremost rule in that respect. So far academics that study environmental regime effectiveness come mainly from a political science background rather than a scientific one. On the other hand scientists might not rigorously research international relations issues. 'Epistemic communities' drawing expertise from all disciplines and using both qualitative and quantitative methods of analysis might prove useful in order to design and implement these regimes. For instance in the Mediterranean Action Plan, the first question would be: Is the Mediterranean cleaner than before? Or at least cleaner than it would be without

MAP? Then methodological problems such as how to measure cleanliness would arise, which could only be superseded by proper design of long term environmental assessment and more importantly by a proper feedback mechanism between science and policy. In the absence of a clear scientific answer the question might be asked how well is MAP performing? Then the political aspects would come into play, combining all the relevant issues, whether the regime enhances international cooperation and security, creates structures, changes the behaviour of the actors, allows for multi-stakeholder participation and so on. Such a holistic approach could be the first rule for effective international environmental agreements.

Furthermore, practice has frequently deviated from theory. High expectations, ambitious plans and disregard of social and economic considerations have sometimes led to the establishment of regimes that are difficult to implement. A general drawback of international law is its voluntary nature, as it cannot legally bind any state, apart from those willingly participating in the regimes. For this reason a regime should provide incentives to its members for participation, and also for compliance in the long term, irrespective of whether these incentives would be of a political or economic nature. Even the imposition of rules such as sanctions might deter countries from agreeing, thus achieving even poorer results. Economic considerations should also be taken into account in terms of financial resources for all the parties to implement the provisions of the agreement, but also in terms of fair social policy. It may be that the environment is the object of protection, but in no way should this happen at the expense of human needs. People in developing countries need bread to eat before saving the earth and the sea, and even in developed ones governments might not accept strict agreements requiring for instance the closure of polluting industries, for fear of unemployment. Hence the environmental and time limits of an agreement should be specific but at the same time realistic. Only regimes with a pragmatic vision have more chances to succeed in the long term.

Ultimately, so far the discussion has focused on the criteria used when assessing effectiveness of environmental regimes. Various scholars define various criteria accordingly. Hence they examine each case by using this set of criteria and how the regime performs in each one of them at a given moment in time. Nevertheless, times change and with them whole new concepts in the environmental and political sphere

arise. Some regimes have a life of more than thirty years such as the Mediterranean Action Plan. Which leads to the logical question: How can the effectiveness of MAP be assessed today, since other criteria were used for its design thirty years ago? Even concepts such as marine pollution had a different meaning before the introduction of ideas such as habitat degradation or coastal zone management. In that respect a regime should always be ready to adapt properly and quickly to new needs, new definitions and new realities. It should have such an institutional structure that would allow for right and rapid amendments, and would eradicate any trace of bureaucracy. It should influence other international or national policies and politics and be open to be influenced by them. Effective regimes are the alive ones, which can move through time being older and wiser, not older and weaker. Hence regime effectiveness could not be assessed by static criteria, the only exception to this being the criterion of the regime's dynamic nature.

This new perspective on effectiveness would require a regime to: use a *Holistic approach* based on science, policy and their interaction, have a *Pragmatic vision* for its ultimate goals and be of a *Dynamic nature* to evolve through time.

Meeting all the above conditions is hard but perhaps it might prove successful in the quest for effective international environmental regimes. Bearing in mind that the above definition presents a very broad approach, it will be further developed in forthcoming studies and particularly applied in a specific case study, that of the Mediterranean Action Plan.

5. Conclusion

Environmental problems instead of a solution *per se* demand an effective management through time. Since this management especially in the case of global or transboundary environmental problems is very often in the hands of international environmental regimes, special attention should be paid to the design and implementation of these regimes, as well as their assessment. The new perspective on international environmental regime effectiveness might perhaps prove a helpful tool towards this direction.

Nevertheless, further research is needed in order to specify new ways that would bridge the gap between science and policy, that would provide realistic solutions reconciling conflicting interests and that would give life to manmade institutions.

Acknowledgements

The author is very grateful to Neil Carter for his valuable comments on earlier drafts of this study. Special thanks go to Evangelos Raftopoulos for his inspiring ideas during several discussions on the research. Thanks also go to Jon Lovett and Gabriela Kütting for their overall support. The ‘Firos Foundation’ is gratefully acknowledged for funding the author’s doctoral studies.

References

Ausubel, J.H. and D.G. Victor (1992), ‘Verification of International Environmental Agreements’, *Annual Review of Energy and Environment*, 17, 1-43.

Barrett, S. and R. Stavins (2003), ‘Increasing Participation and Compliance in International Climate Change Agreements’, *International Environmental Agreements: Politics, Law and Economics*, 3 (4), 349-376.

Biermann, F. (2000), ‘The Case for a World Environment Organization’, *Environment*, 42 (9), 22-31.

Biermann, F. (2006), ‘Global Governance and the Environment’, in M.M. Betsill, K. Hochstetler and D. Stevis (eds), *International Environmental Politics*, Basingstoke: Palgrave.

Boxer, B. (1978), ‘Mediterranean Action Plan: An Interim Evaluation’, *Science*, 202 (4368), 585-590.

Brown Weiss, E. and H.K. Jacobson (1998), *Engaging Countries: Strengthening Compliance with International Environmental Accords*, Cambridge, MA: MIT Press.

Carter, N.T. (2001), *The Politics of the Environment: Ideas, Activism, Policy*, Cambridge: Cambridge University Press.

Clapp, J. and P. Dauvergne (2005), *Paths to a Green World: The Political Economy of the Global Environment*, Cambridge, MA: MIT Press.

Clapp, J. (2006), 'International Political Economy and the Environment', in M.M. Betsill, K. Hochstetler and D. Stevis (eds), *International Environmental Politics*, Basingstoke: Palgrave.

Coase, R.H. (1960), 'The problem of social cost', *Journal of Law and Economics*, 3 (OCT), 1-44.

Deudney, D. (1990), 'The Case against Linking Environmental Degradation and National Security', *Millennium*, 19 (3), 461-476.

Haas, P.M. (1989), 'Do regimes matter? Epistemic Communities and Mediterranean Pollution Control', *International Organization*, 43 (3), 337-403.

Haas, P.M. (1990), *Saving the Mediterranean: The Politics of International Environmental Cooperation*, New York: Columbia University Press.

Haas, P.M., R.O. Keohane and M.A. Levy (1993), *Institutions for the Earth: Sources for Effective International Environmental Protection*, Cambridge, MA: MIT Press.

Helm, C. and D.F. Sprinz (2000), 'Measuring the effectiveness of international environmental regimes', *Journal of Conflict Resolution*, 44 (5), 630-652.

Homer-Dixon, T. (1999), *The Environment, Scarcity and Violence*, Princeton: Princeton University Press.

Hovi, J., D.F. Sprinz and A. Underdal (2003), 'The Oslo-Potsdam Solution to Measuring Regime Effectiveness: Critique, Response, and the Road Ahead', *Global Environmental Politics*, 3 (3), 74-96.

Hovi, J., D.F. Sprinz and A. Underdal (2003), 'Regime Effectiveness and the Oslo-Potsdam Solution: A Rejoinder to Oran Young', *Global Environmental Politics*, 3 (3), 105-107.

Jeftic, L. (1996), 'Integrated coastal and marine areas management (ICAM) in the Mediterranean Action Plan of UNEP', *Ocean & Coastal Management*, 30 (2-3), 89-113.

Keohane, R.O. (1986), *Neorealism and its critics*, New York: Columbia University Press.

Keohane, R.O. (1989), *International Institutions and State Power: Essays in International Relations Theory*, Boulder, CO: Westview Press.

Keohane, R.O., P.M. Haas and M.A. Levy (1993), 'The Effectiveness of International Environmental Institutions', in P.M. Haas, R.O. Keohane and M.A. Levy (eds), *Institutions for the Earth: Sources for Effective International Environmental Protection*, Cambridge, MA: MIT Press.

Krasner, S.D. (1983), *International Regimes*, Ithaca, NY: Cornell University Press.

Kullenberg, G. (2002), 'Regional co-development and security: a comprehensive approach', *Ocean and Coastal Management*, 45 (11-12), 761-776.

Kütting, G. (2000a), *Environment, Society and International Relations: Towards more Effective International Environmental Agreements*, New York: Routledge.

Kütting, G. (2000b), 'Distinguishing between Institutional and Environmental Effectiveness in International Environmental Agreements: The Case of the Mediterranean Action Plan', *The International Journal of Peace Studies*, 5 (1), 15-33.

Levy, M.A., O.R. Young and M. Zürn (1994), *The Study of International Regimes*, Working Paper 94-113. Laxenburg: International Institute for Applied Systems Analysis.

Levy, M.A., O.R. Young and M. Zürn (1995), 'The study of international regimes', *European Journal of International Relations*, 1 (3), 267-330.

Massoud, M.A., M.D. Scrimshaw and J.N. Lester (2003), 'Qualitative assessment of the effectiveness of the Mediterranean action plan: wastewater management in the Mediterranean region', *Ocean & Coastal Management*, 46 (9-10), 875-899.

Miles, E.L., A. Underdal, S. Andresen, J. Wettestad, J.B. Skjaereth and E.M. Carlin (2002), *Environmental Regime Effectiveness: Confronting Theory with Evidence*, Cambridge, MA: MIT Press.

Mitchell, R.B. (2004), 'A quantitative approach to evaluating international environmental regimes', in A. Underdal and O.R. Young (eds), *Regime Consequences: Methodological Challenges and Research Strategies*, Dordrecht: Kluwer Academic.

Mitchell, R.B. and T. Bernauer (2002), *Qualitative Research Design in International Environmental Policy*, Working Paper 2-2002. Zurich: Swiss Federal Institute of Technology.

Morgenthau, H. (1978), *Politics Among Nations*, 5th ed., New York: Knopf.

North, D.C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press.

Paterson, M. (1996), *Global Warming and Global Politics*, London: Routledge.

Paterson, M. (2000), *Understanding Global Environmental Politics: Domination, Accumulation, Resistance*, London: Macmillan.

Pavasovic, A. (1996), 'The Mediterranean Action Plan phase II and the revised Barcelona Convention: New prospective for integrated coastal management in the Mediterranean region', *Ocean & Coastal Management*, 31 (2-3), 133-182.

Raftopoulos, E. (1993), *The Barcelona Convention and Protocols. The Mediterranean Action Plan Regime.*, London: Simmonds and Hill.

Raftopoulos, E. (1997), *Studies on the implementation of the Barcelona Convention: the development of an international trust regime*, Athens: Ant. N. Sakkoulas.

Raftopoulos, E. and M.L. McConnell (2004), *Contributions to international environmental negotiation in the Mediterranean context*, Athens, Bruxelles: Ant. N. Sakkoulas, Bruylant.

Sands, P. (2003), *Principles of International Environmental Law*, 2nd ed. Cambridge: Cambridge University Press.

Skjaerseth, J.B. (1996), 'The 20th Anniversary of the Mediterranean Action Plan: Reason to Celebrate?', in H.O. Bergesen and G. Parmann (eds), *Green Globe Yearbook 1996*, Oxford: Oxford University Press.

Skjaerseth, J.B. (2002), 'The Effectiveness of the Mediterranean Action Plan', in E.L. Miles, A. Underdal, S. Andresen, J. Wettestad, J.B. Skjaerseth and E.M. Carlin (eds), *Environmental Regime Effectiveness: Confronting Theory with Evidence*, Cambridge, MA: MIT Press.

Stavis, D. and V.J. Assetto (2001), *The International Political Economy of the Environment: Critical Perspectives*, Boulder, CO: Lynne Rienner.

Swatuk, L.A. (2006), 'Environmental Security', in M.M. Betsill, K. Hochstetler and D. Stevis (eds), *International Environmental Politics*, Basingstoke: Palgrave.

Underdal, A. (1992), 'The concept of regime effectiveness', *Cooperation and Conflict*, 27 (3), 227-240.

Underdal, A. (2002), 'One Question, Two Answers', in E.L. Miles, A. Underdal, S. Andresen, J. Wettestad, J.B. Skjaereth and E.M. Carlin (eds), *Environmental Regime Effectiveness: Confronting Theory with Evidence*, Cambridge, MA: MIT Press.

UNEP (1978), *Mediterranean Action Plan and the Final Act of the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea*, New York: United Nations.

UNEP (1995a), Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, UNEP(OCA)/LBA/IG.2/7, Washington, D.C.: UNEP.

UNEP (1995b), Report of the Ninth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(OCA)/MED IG.5/16, Athens: UNEP.

UNEP (1999), MED POL - Phase III, Programme for the Assessment and Control of Pollution in the Mediterranean Region, MAP Technical Reports Series No 120, Athens: UNEP.

UNEP/MAP (2003), Report of the Thirteenth Ordinary Meeting of the Contracting Parties to the Convention for the protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(DEC)/MED IG.15/11, Athens: UNEP/MAP.

UNEP/MAP (2005a), *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*, Athens: UNEP/MAP.

UNEP/MAP (2005b), Evaluation of MED POL Phase III Programme (1996 - 2005), UNEP(DEC)/MED WG.270/Inf.10, Athens: UNEP/MAP.

UNEP/MAP (2005c). Recommendations for 2006-2007, UNEP(DEC)/MED IG.16/5, Athens: UNEP/MAP.

Vallega, A. (1996), 'Geographical coverage and effectiveness of the UNEP Convention on the Mediterranean', *Ocean & Coastal Management*, 31 (2-3), 199-218.

Victor, D.G. (2003), 'International Agreements and the Struggle to Tame Carbon', in J.M. Griffin (ed.), *Global Climate Change: The Science, Economics and Politics*, Cheltenham: Edward Elgar.

von Moltke, K. (2000), Research on the Effectiveness of International Environmental Agreements: Lessons for Policy Makers?, in *Final Conference within the EU-financed Concerted Action Programme on the Effectiveness of International Environmental Agreements and EU Legislation held in Barcelona 9-11 November 2000*, The Fridtjof Nasnen Institute.

Waltz, K.N. (1979), *Theory of International Politics*, Reading, MA: Addison-Wesley.

Weale, A. (1992), *The new politics of pollution*, Manchester: Manchester University Press.

Wettestad, J. and S. Andresen (1991), *The effectiveness of international resource cooperation: some preliminary findings*, Lysaker: The Fridtjof Nasnen Institute.

Young, O.R. (1989), *International Cooperation: Building Regimes for Natural Resources and the Environment*, Ithaca, NY: Cornell University Press.

Young, O.R. (1999), *The effectiveness of international environmental regimes: causal connections and behavioral mechanisms*, Cambridge, MA: MIT Press.

Young, O.R. (2001), 'Inferences and indices: evaluating the effectiveness of international environmental regimes', *Global Environmental Politics*, 1 (1), 99-121.

Young, O.R. (2003), 'Determining Regime Effectiveness: A Commentary on the Oslo-Potsdam Solution', *Global Environmental Politics*, 3 (3), 97-104.

Chapter III

**Exploring discourses on international environmental regime effectiveness
with Q methodology**

Exploring discourses on international environmental regime effectiveness with Q methodology: a case study of the Mediterranean Action Plan

Sofia Frantzi^{a,b,*}, Neil T. Carter^b and Jon C. Lovett^{c,d}

^a Environment Department, University of York, Heslington, York YO10 5DD, UK

^b Department of Politics, University of York, Heslington, York YO10 5DD, UK

^c Centre for Ecology, Law and Policy, Environment Department, University of York, Heslington, York YO10 5DD, UK

^d Technology and Sustainable Development Section, Centre for Clean Technology and Environmental Policy, University of Twente, P.O. Box 217, 7500 AE Enschede, The Netherlands

* Corresponding author.

E-mail addresses: sf505@york.ac.uk, sofia.frantzi@gmail.com

Tel.: +44 1904 434059; fax: +44 1904 432998

This paper is written in the style of and has been accepted for publication in the *Journal of Environmental Management*.

Abstract

Extensive research has been done on the ‘high politics’ of negotiations of international environmental agreements. However, little attention has been paid to the effectiveness of their implementation after coming into force. Effectiveness cannot be easily measured, since different stakeholders use different criteria as the basis of their opinion. The purpose of this study is to investigate discourses on the effectiveness of an international environmental regime. The regime chosen is the Mediterranean Action Plan (MAP) – and its legal framework, the Barcelona Convention – which was established in 1975 under the aegis of the United Nations Environment Programme (UNEP). Q methodology was used to reveal discourses on the effectiveness of UNEP/MAP. After collecting relevant literature and identifying the stakeholders, 25 in-depth interviews were conducted. The stakeholders were from the Secretariat of the Convention, academia, NGO workers, and others that studied or knew the subject well. From these interviews 294 statements were extracted, from which 44 were finally selected to be used in the Q study. The interviewees were approached for the second time to complete the Q sorts. This study revealed four distinct discourses concerning the effectiveness of international environmental regimes. It concludes that there is no one ‘right’ way of defining effectiveness and that no approach can provide more than a partial evaluation of the overall effectiveness of a regime.

Keywords: International environmental regime effectiveness, Q methodology, Barcelona Convention, Mediterranean Action Plan, Discourse

1. Introduction

There has been extensive research into the ‘high politics’ of international environmental diplomacy, focusing on the negotiation of international treaties or regimes and analysing the conditions under which sovereign states agree to cooperate. However, relatively little attention has been paid to the effectiveness of these regimes after they come into force. One problem is that the apparently simple, but profoundly important, question ‘do regimes matter?’ has proven difficult to answer as there is disagreement in the international relations literature over such basic concepts as the definition and measurement of ‘effectiveness’. Rather than engage directly with this debate, the starting point for this article is that the search for a precise definition and method of measuring regime effectiveness may be a hopeless task. Instead, the aim of this study is to discover whether the different stakeholders - or practitioners - involved in the implementation of an international regime share a common understanding of effectiveness, or whether there are different interpretations of this concept. We use Q methodology to identify four discourses on effectiveness prevalent amongst the stakeholders involved in the Mediterranean Action Plan (MAP), an international environmental regime established in 1975 under the aegis of the United Nations Environment Programme.

The first section briefly reviews literature on regime effectiveness. This is followed by an overview of the Mediterranean Action Plan. The methods section describes the application of Q methodology in the study and the discourses derived are presented in the results. We conclude that a wide range of opinions exist as to what constitutes effectiveness, even within a fairly narrow sample. The application of Q methodology offers a different, but complementary, approach to examining the effectiveness of international environmental regimes, and its findings have potentially important implications for the way both academics and practitioners manage and evaluate regimes.

1.1. Regime effectiveness

The rising tide of international cooperation has produced around 200 multilateral environmental agreements and spawned a plethora of institutional structures to

monitor, enforce and strengthen them. Yet the mere existence of these regimes - ‘sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations’ (Krasner, 1983: 2) - is something of a puzzle because they represent a degree of international cooperation that seems to fly in the face of traditional realist assumptions about the way states behave in an international system where, historically, conflict and mistrust have been the norm. Consequently, academic attention has focused on the formation and strengthening of regimes. By contrast, regime implementation has been relatively neglected, in part because of the youth of many of the new treaties agreed in the 1970s and 1980s, although since the mid-1990s a wave of studies examining these regimes has gone some way towards plugging the gap in the literature (Kütting, 2000a; Miles et al., 2002; Victor et al., 1998; Young, 1999 *inter alia*).

However, regime effectiveness is a difficult concept to pin down. Consequently, the literature has been characterised by a fierce methodological debate over the definition and measurement of regime effectiveness (Helm and Sprinz, 2000; Hovi et al., 2003; Underdal and Young, 2004; Young, 2001, 2003). A core problem is that to judge whether ‘regimes matter’ involves some assessment of the relative improvement in the situation directly resulting from the existence of the regime. To answer this question properly would require knowledge of the counter-factual – namely, what would have happened if there had been no regime in existence (Wettestad, 2006: 301). The causal relationship between a regime and environmental performance is extended, complex and ultimately, highly uncertain. Given the difficulty of establishing that causal chain, most studies have analysed effectiveness primarily in terms of institutional performance, rather than environmental improvement. Thus, Haas et al. (1993) focus on the *political* effects of institutions rather than on their environmental impact, while Young (1999, 2001, 2003) has emphasised the *behavioural* dimension of regime effectiveness, identifying key mechanisms by which regimes might influence actors and contexts. Even those approaches that recognise that environmental improvement is the ultimate aim of a regime still regard institutional performance as the best proxy indicator of effectiveness (Underdal, 1992; Wettestad and Andresen, 1991). By contrast, Kütting (2000a, 2000b) provides an exception to this dominant approach by trying to measure environmental impact more

directly, albeit qualitatively. She regards the distinction between institutional and environmental effectiveness as necessary, stressing however that a good definition should incorporate both these dimensions since these are ‘two sides of the same coin’ (Kütting, 2000a: 33).

Indeed, until recently, most studies have employed primarily qualitative approaches to the measurement of effectiveness. Various types of qualitative approach have been employed, including descriptive, predictive, normative and explanatory methods (Mitchell and Bernauer, 2002). However, there have been several attempts to develop a more quantitative method of measuring effectiveness (Helm and Sprinz, 2000; Miles et al., 2002; Mitchell, 2004). For example, Helm and Sprinz (2000) employ game theory to establish an empirical upper and lower bound of performance, and then relate actual performance to both of them to produce a simple coefficient. Mitchell (2004) applies regression analysis to yearly country level performance (see Wettestad, 2006: 307). The underlying aim in the quantitative work is to enable a more systematic and robust analysis of patterns across cases.

In this study we conducted interviews with a sample of people who are directly involved with the interpretation and implementation of an international environmental regime, the Mediterranean Action Plan. The aim was to reveal the opinions of actors who are operating the regime on a day-to-day basis in order to ascertain if there is a consensus or a range of different discourses on how effectiveness of the regime is perceived. If there is a consensus then it might help to focus the debate. On the other hand, the presence of multiple divergent discourses in a small and tightly defined group may suggest that efforts to devise ever more sophisticated ways of measuring regime effectiveness may be misplaced.

1.2. The Barcelona Convention / Mediterranean Action Plan

The Mediterranean Action Plan (MAP) was created under the auspices of the United Nations Environment Programme (UNEP) in 1975, only three years after UNEP was established by the Stockholm Ministerial Conference (see Haas, 1989, 1990 for a detailed overview of the history and negotiations that led to the adoption of MAP). MAP was the first plan to be adopted as a Regional Seas Programme under the UNEP

umbrella and it involves 21 countries bordering the Mediterranean Sea, as well as the European Union, all of which are Contracting Parties to the 1976 'Convention for the Protection of the Mediterranean Sea against Pollution' (Barcelona Convention) and its subsequent Protocols. The Convention, which forms the MAP legal framework, entered into force in 1978 and was amended in 1995, when it was replaced by a new version taking into account recommendations made by the 1992 Rio Conference on Environment and Development. The new version is the 'Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean', which came into force in 2004 (UNEP/MAP 2005).

The Convention and its six protocols - the Dumping Protocol, the Prevention and Emergency Protocol, the LBS (Land-Based Sources) Protocol, the SPA (Specially Protected Areas) and Biodiversity Protocol, the Offshore Protocol and the Hazardous Wastes Protocol - form the Barcelona System. The last two protocols are not yet in force even though they were signed in 1994 and 1996 respectively. A seventh protocol concerning Integrated Coastal Zone Management (ICZM) is in preparation.

According to Raftopoulos (1993), Regional Action Plans usually consist of five components: assessment, management, legal, institutional and financial. MAP seeks to achieve all its objectives through its legal component, the Barcelona Convention and its related Protocols. As the institutional component of MAP is formed within the framework of Barcelona Convention, it is structured in a simple way giving authority to two organs: the Meetings of the Contracting Parties and the Secretariat. The Environmental Assessment Component of MAP, as stated in the official text of UNEP (1978), is the Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean, which is widely known as MED POL. Finally, the Barcelona Convention is complemented by policy-planning programmes (Blue Plan and Priority Actions Programme) and financial/institutional arrangements.

Additionally, the Mediterranean Commission on Sustainable Development (MCSD) was formed in 1996 as an advisory body to MAP, and acts as a think-tank on policies for promoting sustainable development in the Mediterranean Basin. There are six MAP Regional Activity Centres (RACs) based in six Mediterranean cities, each offering expertise in specific fields of action to facilitate the operation of MAP.

The main objectives of MAP initially were to assist the Mediterranean countries to assess and control marine pollution and to formulate their national environmental policies. However, experience showed that most environmental problems are directly linked to socio-economic developments; for example, estimates by MED POL showed that up to 80% of marine pollution originated from land-based activities. Therefore, the focus of MAP gradually expanded from its original focus on marine pollution control, to encompass integrated coastal zone planning and management as part of the sustainable development agenda.

2. Methods

Q methodology was used to reveal discourses on the effectiveness of the Mediterranean Action Plan. Q methodology, which originated in psychology (Stephenson, 1953), combines qualitative and quantitative research characteristics by exploring and identifying a number of ‘viewpoints’ or ‘discourses’ of people concerning a specific theme (Brown, 1980; McKeown and Thomas, 1988; Stephenson, 1953). It is qualitative in the sense that it extracts qualitative, subjective data from the respondents about their values and beliefs and does not require large population samples to produce statistically valid results, which distinguishes it from other traditional survey techniques. One of its strengths is that it limits research bias because the statements used are generated purely by the participants and are not imposed by the researcher (Barry and Proops, 1999). However, it is also quantitative since data collection and analysis involve statistical and mathematical techniques, and is now widely used in a range of fields including political science, social science, environmental politics and policy, sustainability and health economics (Addams and Proops, 2000; Baker et al., 2006; Barry and Proops, 1999, 2000; Brown, 1980; Dryzek and Berejikian, 1993; Hooker-Clarke, 2002; Salazar and Alper, 2002; Watts and Stenner, 2005).

Q methodology can be broken down into six distinct phases or steps. Firstly, the researcher identifies the theme or area of study and the population to which the study will be applied. For this article the general theme was international environmental regime effectiveness using the Barcelona Convention / MAP (the terms ‘Convention’

and ‘MAP’ are used here to refer to the regime) as a specific case study. The topic is detailed and requires specific knowledge, so the sample had to be drawn from people familiar with the operation of the Convention. The stakeholder groups identified are presented in Table 1.

Table 1
Stakeholder groups

-
- MAP Personnel
 - MAP External Consultants
 - MAP National Focal Points (governmentally assigned)
 - Ministry for the Environment
 - Non-Governmental Organisations (partners of MAP)
 - Other Non-Governmental and Intergovernmental Organisations
 - MAP Research Centres
 - Independent Researchers
 - Academics
-

The second step is to generate a series of opinion statements on the topic under investigation. These viewpoints have to be statements actually phrased by the stakeholders, and not by the researcher (Barry and Proops, 1999; Brown, 1980; Dryzek and Berejikian, 1993). The statements can be drawn either from structured or semi-structured interviews previously conducted with the respondents, or from literature such as newspapers, magazines, ethnographic studies, stakeholder conference proceedings etc. (Dryzek and Berejikian, 1993). In this study, 25 face-to-face semi-structured interviews were conducted with a range of stakeholders during the period from February to April 2006. The interviews were recorded and transcribed. The respondents were encouraged to speak freely and discuss anything they considered important related to the theme. A total of 294 opinion statements were initially extracted from the interview transcriptions.

The third step is to reduce the statements to a manageable number both for the researcher and Q sort participant. Barry and Proops (1999) consider that 36 statements are a manageable number sufficient to generate meaningful and statistically significant results. For the purposes of this study three filters were used to select the statements to be ranked by the Q sort participants. Firstly, statements were chosen that were representative of all the sub-themes that arose during the interviews in order to ensure that the Q set of statements represents the opinion domain (Watts and Stenner, 2005). Secondly, the statements were chosen to fit in the 4 x 4 matrix described by

Dryzek and Berejikian (1993). This matrix uses two categories, namely ‘discourse element’ and ‘type of claim’, generating 16 cells where the statements can be assigned (see Table 2). Statements are chosen so that all cells are occupied.

Table 2
Matrix for filtering the statements

Type of Claim	Discourse Element			
	Ontology	Agency	Motivation	Relationships
Definitive				
Designative				
Evaluative				
Advocative				

Source: Dryzek and Berejikian (1993)

The discourse element refers to political aspects of discourses as follows:

- Ontology → concerning a set of entities such as states, nations, individuals, classes, genes, interests
- Agency → concerning various degrees of agency attributed to these entities, i.e. some entities can act, some others can only be acted upon
- Motivation → concerning agents’ recognised or denied motivation such as self-interest, public-spiritedness, civic virtue, impartiality, survival
- Relationships → concerning natural or unnatural political relationships mainly taken for granted relationships such as hierarchies based on age, education, birth, gender, wealth, social class. For the purposes of the specific study this was extended to include relationships and hierarchies between states, or institutions not only individuals.

The type of claim refers to the classification of the various claims that can be made in arguments, which are:

Definitive	→	concerning the meaning of terms
Designative	→	concerning issues of fact
Evaluative	→	concerning expressions of the worth of something that does or could exist
Advocative	→	concerning something that should or should not exist

For instance, a designative statement concerning agency would be statement 37 in Table 3.: ‘Moral pressure is a medium solution to force countries to comply, instead of taking them to court or just apply the “laissez faire” policy’ and an advocative statement concerning motivation would be statement 6: ‘Countries should not create a regime, a Convention, based on their political benefit from it, but rather on the environmental benefit’. Finally, the statements were selected so as to represent almost equal numbers of positive and negative (opposing) arguments and neutral positions so that interviewees were able to respond to all viewpoints. This process reduced the number of statements from the initial 294 to a final list of 44.

In the fourth stage of Q methodology participants score the selected statements by how strongly they agree or disagree with them. For this study a 9-point scale was used from -4 to +4, -4 indicating the strongest disagreement and +4 indicating the strongest agreement of the participant with the statement. Some studies encourage participants to base their scorings on a forced quasi-normal distribution in which they have to place a given number of statements under each point of the scale. However, this is time consuming for the participants and is not required by the statistical technique, nor are the results significantly affected (Barry and Proops, 1999; Brown, 1980; McKeown and Thomas, 1988; Watts and Stenner, 2005) and Brown (1980: 288-289) has proved that distribution effects are practically non existent. A reason why many researchers prefer the forced distribution is because it saves time later on in the statistical analysis. It is therefore up to the researcher to decide whether to use a forced or an open distribution. In this study, the statements were gathered by elite interviews, so when the interviewees participated in the Q study, it was considered appropriate not to make the procedure time consuming. Therefore the participants

could agree or disagree with any number of statements. Each individual's ranking is then known as this individual's 'Q sort'. The number of participants or respondents to a Q study does not have to be large, in contrast with other traditional survey analysis techniques. As Barry and Proops (1999) have shown, only 12 participants responding to as few as 36 statements are enough to provide statistically valid results. For this study 25 Q sorts were completed by 25 stakeholders drawn from the list in Table 1.

The fifth step is the statistical analysis. In this study, the PQMethod software was used. Initially it correlates the Q sorts with each other. The intercorrelation matrix is then factor analysed by Centroid Analysis or, as in this study, by Principal Components Analysis. Factors are then rotated using the varimax rotation procedure and/or judgemental rotation (the latter was not applied in this study). The factors were selected based on two criteria: 1. their eigenvalues had to be greater than 1.00 in order to be statistically significant; 2. a minimum of two Q sorts had to load significantly on that factor (Brown, 1980; Watts and Stenner, 2005). According to Brown (1980) at a $P < 0.01$ significance level, a significant factor loading can be calculated by using the equation $2.58(1/\sqrt{N})$ where N equals the number of statements used. For this particular study a significant factor loading would be equal to or greater than $2.58(1/\sqrt{44}) = \pm 0.39$ (Brown, 1980). The factors extracted are 'ideal Q sorts' around which all the closest Q sorts are gathered. They establish common patterns within and across individuals, unlike standard survey analysis, which finds patterns across individual traits, such as gender, age, class (Barry and Proops, 1999).

Finally, the sixth stage in Q methodology is the interpretation of the factors extracted by the statistical process in order to present the social discourses revealed by the study. Further details about the methods of interpretation are given in the results section.

3. Results

The purpose of this Q study was to reveal distinct discourses on international environmental regime effectiveness using the Barcelona Convention / MAP as a case study. A specific discourse is the interpretation of a specific factor extracted by the statistical procedure. In this study four distinct factors were extracted. All these

factors had an eigenvalue greater than 1.00, and they had at least two participants loading significantly on them. Some areas of consensus and disagreement were identified among all the factors, and some statements were identified as distinguishing elements.

The scores of each factor extracted are listed in Table 3, ordered by the number of each statement. Below is a description of each discourse based on various elements of the analysis. Some statements gained both positive and negative extreme scores in more than one discourse in which case their relative importance is low. Other statements with rather neutral scoring e.g. 0, can provide valuable information if all the other factors ranked them extremely high or low respectively (Watts and Stenner, 2005). For this reason, the discourses are also interpreted by using the statements which distinguished the factors by being statistically significant at the 99% confidence level ($P < 0.01$), followed by those statistically significant at the 95% confidence level ($P < 0.05$). The numbers in the parentheses denote the statement number that indicates the opinion expressed. Finally, the interpretation also depends on the in-depth interviews that were conducted with the participants of the Q study beforehand in order to generate the Q statements, so as to minimise research bias as much as possible. However, bias can never be totally eliminated but is reduced by careful and rigorous selection of the Q statements and the very large number of possible statement combinations.

3.1. Areas of Consensus and Disagreement

Statements that present consensus among the participants are statements 20, 2, 10 and 21. All the stakeholder groups seem to think that the Barcelona Convention / MAP lacks either clear targets or strict timetables for the targets it does have and they believe that a mechanism is needed to monitor the achievement of goals over time (Statement 20). Moreover, there is a common notion among the stakeholder groups that environment and culture are vehicles of diplomacy, with MAP being such a vehicle (Statement 2).

Table 3
Statement scores on each factor or discourse

Statement	Factors			
	A	B	C	D
1 A country in order to want to be part of a Convention has to get benefits from it that are either political, technical or economic	1	0	1	-3
2 Environment and culture are considered vehicles of diplomacy, and MAP is one of them	2	1	0	2
3 A liability and compensation mechanism in the Barcelona Convention would make no difference for North Mediterranean countries, but for the Southern ones it could either scare them or play the role of 'the carrot and the stick'	-2	-4	1	0
4 MAP acts as a catalyst to influence national policies especially in weak countries where the environment is a very low priority	4	-2	-4	2
5 A serious problem of the Barcelona Convention is that many protocols are not in force	1	4	3	0
6 Countries should not create a regime, a Convention, based on their political benefit from it, but rather on the environmental benefit	2	-1	4	1
7 If the criterion for cost effectiveness is real action on the ground, then, no, MAP is not cost-effective	-3	0	3	-1
8 A political approach says that it is better if countries participate in a Convention even if they do not comply with it, than not to be involved in it	3	2	-2	1
9 The definition of the role and the utility of the RACs (Regional Activity Centres) is being questioned	0	1	1	-2
10 The UN (United Nations) dream - what it meant, how it inspired people –no longer exists in any part of the system, so how could it exist in MAP?	-4	-2	-3	-4
11 There should be a special office within MAP Coordinating Unit dealing with identifying funding opportunities from external donors, and bilateral or multilateral project opportunities, and transmitting this information to the countries	1	3	-1	-3
12 There are really no participatory processes concerning the implementation of Barcelona Convention within the countries	-2	1	0	-2
13 The best available science is there, however, the gap between scientifically correct and politically acceptable is huge	-1	1	2	0
14 International treaties would work better if there were sanctions	0	1	4	2
15 MAP should be under the aegis of UNEP (United Nations Environment Programme) but completely independent administratively because it would reduce bureaucracy, and it would be more flexible	-2	0	-4	2
16 There are a few countries that are 'players' in the decision-making of MAP and Greece is one of them	-1	3	-2	-2
17 A serious and complicating problem is that currently there are in force both the old and the amended Conventions and Protocols at the same time	-1	-3	0	-1
18 The effectiveness of a regime or Convention depends on the speed of adaptation of this system to the new social needs and the speed of putting into force this adaptation	1	3	0	2
19 The whole environmental community has tragically failed in disseminating the environmental message to the wider public, and MAP is no exception	-3	-2	-1	1
20 MAP needs to put clear and time-specific targets, and a mechanism to see if it achieved them	2	4	2	1
21 Some environmental data, like the specific sources of pollution, cannot be released because it could create a lot of rumour and panic	-4	-4	-3	-1
22 The question is not whether there is pollution or not, but rather how we manage this pollution, so it is a matter of governance	3	-1	-3	4
23 We can see that the Barcelona Convention has definitely been successful, if we consider the scenario where this Convention would not even exist	4	-1	-4	4
24 The national reports of the contracting parties to the Barcelona Convention are not a good measure of their compliance because countries might not lie, but they definitely hide things and present a different truth	0	2	0	3
25 MAP is the only forum in the Mediterranean region where countries sit together and talk	3	-3	2	2
26 Environmental regimes, or treaties, do not have 'teeth' but are based on the good will of the country that signed them, and the only thing they can do is put pressure to the governments	3	-1	-1	1
27 I think that there is no point for MAP to exist in its current state, we should either kill it or decide to create something much more effective and binding for the countries	-4	-3	-1	-2
28 Matters of national interest determine which Protocols of the Barcelona Convention will be signed by each party, and which ones will become national law in the country	1	4	3	0
29 NGOs and IGOs not directly but indirectly definitely influence the decision making, acting as catalysts sometimes	2	3	0	0
30 The South Mediterranean countries look at MAP with much more trust than they look at the EU	2	0	-1	2
31 The environmental state of the Mediterranean Sea keeps worsening	-1	2	0	0
32 MAP does not have a big public outreach because it is not necessarily its role	-2	-4	1	-4
33 The MCS (Mediterranean Commission on Sustainable Development) is very important for critical thinking even if its suggestions remain words and do not influence decision making	-1	0	-3	-3
34 As part of the UN and because it has become a 'fossil', MAP is not at risk of extinction, but rather at risk of marginalisation	-2	2	2	-2
35 With the amendments to Barcelona Convention in 1995 the scope has been widely enlarged without the parallel rise in the budget	0	1	1	-4
36 The EU (European Union) needs MAP to have access to the South Mediterranean countries	0	0	4	-1
37 Moral pressure is a medium solution to force countries to comply, instead of taking them to court or just applying a 'laissez faire' policy	1	-1	0	0
38 Any UN system means very laborious, very ineffective, very high administration costs, very low impact	-3	-1	-1	0
39 'If you can't beat them, join them', this is one reason for MAP's cooperation with the EU	-3	-3	1	-1
40 It doesn't really matter who takes the decisions as long as these decisions are legitimate, socially acceptable and effective	0	0	-2	2
41 There is a cultural thing about the Mediterranean countries, they have a problem in implementing legislation	-1	0	-2	3
42 The whole idea of sustainable development meaning to bring together industries, local authorities, environmental NGOs, has not succeeded as much as some would expect, both generally and particularly in the MCS	0	2	3	-1
43 The RACs would be much more effective if their personnel were all UN and not national employees	0	-2	2	-1
44 MAP creates a kind of family, countries feel they are in the same boat	4	-2	-2	-3

Furthermore all discourses disagree with statement 10, which suggests that the UN dream - what it meant, how it inspired people - no longer exists in any part of the system, including MAP. Finally all discourses disagree with statement 21, which proposes hiding environmental information when it could create rumour and panic, such as identifying the specific sources of pollution.

In contrast, statements 23 and 4 are the most controversial among the four discourses. Discourses A and D strongly agree (+4) that the Barcelona Convention has definitely been successful, in the context of a scenario where the regime would not exist. Discourse C strongly disagrees (-4) with this statement believing that the Convention has resulted in no change whatsoever. Discourse B also shares the same belief albeit not so strongly (-1). Likewise discourses A (+4) and D (+2) agree that MAP has served as a catalyst to influence national policies, especially in the weaker countries where the environment is not very high on the national agenda, such as those in the southern Mediterranean. Conversely discourses B (-2) and C (-4) disagree with that, thus doubting the catalytic character of MAP in the Mediterranean region.

3.2. The four discourses on regime effectiveness

3.2.1. Discourse A. International political cooperation

Discourse A explains 21% of the total variance. Statistically the distinguishing statements are 44, 15, 7, 38 and 27. Other important statements are those that show strongest agreement (23, 4, 25, 8, 26) or disagreement (10). It is strongly UN-oriented in the sense that it supports the dream of the United Nations to unite all the people for a better world. It still believes in the UN dream (10) and does not regard it as a giant bureaucracy (38). Therefore it acknowledges the success of the Convention, and claims that the situation is better than it would be in the absence of the regime (23). It disagrees with statement 15, which suggests that MAP, while remaining under the aegis of UNEP, should be completely independent administratively, in order to reduce bureaucracy. It strongly supports the existence and operation of MAP, refusing to accept that it is not cost effective (7) and believes that MAP should exist in its current state with no need to change anything in its operation (27). On the contrary, it emphasises the important political outcome to achieve cooperation and stability among the countries, since MAP is the only forum in the region where countries sit

together and discuss (25), and feel thus that they are a kind of family, that they are in the same boat (44). This encourages the weaker countries to develop their national environmental policies (4). For the same reason it does not question compliance of the countries with the Convention, since it focuses on bringing countries together in signing an agreement (8). This discourse might be to some extent idealistic, acknowledging that international environmental regimes do not have power and are only based on the good will of the countries (26). This 'idealistic' character might explain why it is the only discourse agreeing that MAP creates a family (44), something that also shows the moral/persuasive force of MAP. Discourse A does not suggest in any way that there is no room for improvement in the regime, however, it stresses that an effective international regime is one which can achieve cooperation and thus provide participating countries with political benefits.

3.2.2. Discourse B. Legal implementation and environmental performance

Discourse B explains 16% of the total variance. Statements 16, 31, 23, 6, 22, 25 and 21 are statistically distinguishing for this discourse, with strong agreement present in statements 5, 28 and 11. It focuses primarily on the institutional performance and procedures of an international regime and secondly on the environmental results obtained. The first criterion used to judge the operation of a regime is legal implementation, i.e. entry into force of all its protocols and legal instruments, thus recognising implementation failure, since a serious problem of the Barcelona Convention is that many protocols are not in force (5). This 'realist' view is supported by the understanding that national interests determine national implementation of the Convention (28) and also by arguing that these interests should be the basis for state decision making rather than environmental considerations (6). This 'problem-solving' discourse wants to improve the performance of MAP and is the only one which does not see it as the only forum in the Mediterranean region where countries sit together and talk (25). Additionally, the institutional role of an international regime should include activities such as identifying funding opportunities from external donors and transmitting this information to the countries (11), since it cannot provide these resources itself, showing the pragmatic character of the discourse. As far as environmental performance is concerned, discourse B is the only one of the four which suggests that the environmental state of the Mediterranean continues to deteriorate (31), characterising the discourse as 'hard-headed'. It supports public

release of environmental information and data despite the potential negative reactions (21) and denies that pollution is just a matter of governance, but rather a problem to tackle *per se* (22). On other institutional issues, this discourse is the only one suggesting that decisions in the regime are taken by only a few members (16). For all these reasons, judged in terms of institutional performance and environmental results, it considers MAP to be rather ineffective, not accepting that the situation would be very different in the absence of the regime (23). Discourse B is a pragmatic discourse which considers legal implementation, coupled with environmental performance, the main features of an effective international environmental regime.

3.2.3. *Discourse C. Practical versus political effectiveness*

Discourse C explains 9% of the total variance. Statistically, the distinguishing statements are 14, 36, 6, 7, 40, 8, 4 and 23, with strong agreement present in statements 5, 28 and 3. This discourse is somewhere between the idealistic discourse A and the realist discourse B. It shows a clear understanding of how international regimes should work, but also it has a practical sense of what actually occurs in MAP. On one hand, it agrees strongly that a country should create a regime based on environmental, rather than political, benefits (6), but on the other it admits that this is not actually occurring in MAP's operation, since national interests determine the national implementation of the Convention (28). The discourse's practical character is supported by being the only one strongly agreeing that sanctions should be imposed in order for international treaties to work better (14), thus bridging the gap between the ideal and the real; and the only one agreeing that a liability and compensation mechanism would indeed make a difference, at least for the weaker countries (3). It strongly criticises the role of national, regional and international interests implying for instance that the EU as an institution is party to the Convention out of need to have access to the South Mediterranean countries to exercise indirect control over them (36). Additionally, it argues that being part of a Convention only to participate, is not enough if compliance is not achieved (8). For all these reasons this discourse argues that it is of great importance for decisions to be taken from the right actors (40). This discourse emphasises the implementation deficits of the regime by having protocols still not in force (5) and considers it highly unsuccessful in terms of cost-effectiveness and initiation of change in the national policies of the weaker countries, consequently doubting its usefulness at all (4, 7, 23). Discourse C thus represents the need for

control and incentives such as mechanisms for sanctions, liability and compensation in order to achieve regime effectiveness in a society where actors are driven only by their interests.

3.2.4. Discourse D. Governance through participation

Discourse D explains 7% of the total variance. Statements 41, 19, 21, 1 and 35 are statistically distinguishing for this discourse. Other important statements are 22, 24, and 15, showing strong agreement, 29 being neutral, and 12, 11, 44 and 32 showing strong disagreement. Discourse D shares the pragmatic character of discourses B and C, disagreeing the most with the statement that MAP creates a kind of family in the region (44), perhaps showing its inadequateness for overcoming the aversion to rules and regulation characteristic of the Mediterranean culture (41). This character is also supported by the lack of trustworthiness of national environmental reporting, since countries might present a partial truth about their compliance with the regime (24). It does not require a fund-raising office within MAP (11) partly because, unlike the other discourses, it does not agree that the enlarged scope following the 1995 amendments was not associated with a rise in the budget (35). Not so realistic but rather idealistic, is the disagreement, unlike all the other discourses, with statement 1, that countries need some benefits - political, technical or economic - if they are to enter an agreement. Discourse D focuses to a certain extent on participatory processes and dissemination of information on the process of governance in general. In the case of environmental regimes, it suggests that pollution will always be there, so the question is not to eradicate it but rather to manage it in the right way, thus making it an issue of governance (22). It disagrees that there are really no participatory processes involved in the implementation of the Barcelona Convention within the countries (12), however it is the only discourse arguing that the whole environmental community, MAP being no exception, has failed to spread the environmental message to the wider public (19). Moreover it is indifferent to whether NGOs influence the decision making (29) perhaps because it would expect a much more active role. This discourse disagrees strongly with the statement that MAP does not have a big public outreach because it is not necessarily its role (32), implying that it should have this role even though it does not adequately perform it. Interestingly, although the discourse supports public availability of information, it is the only one suggesting that, in some cases, release of environmental data could create additional problems

rather than helping to deal with the problem (21). Finally it is the only discourse loading positively on statement 15, supporting MAP's administrative independence from UNEP, keeping only its aegis, so as to reduce bureaucracy and be more flexible. In recognising the actual problems of environmental governance in the Mediterranean, discourse D anticipates that the more participatory processes are used and the greater the dissemination of information, the more likely effective environmental governance will be achieved.

3.3. Stakeholder group loadings on each factor or discourse

The number of stakeholders from each group loading on each factor is summarised in Table 4. It is important to note that 3 out of the 25 participants belong now, or in the past, to two stakeholder groups. One participant did not clearly load on one specific factor, and the minus symbol indicates negative loadings for that factor.

Table 4
Stakeholder group loadings on each factor or discourse

Stakeholder Group	Loadings on each Factor				
	A	B	C	D	Not clear
MAP Personnel	4	2	1	2	
MAP External Consultants	1	2			
MAP National Focal Points (governmentally assigned)	1		-1		
Ministry for the Environment	1		-1		1
Non-Governmental Organisations (partners of MAP)	3				
Other Non-Governmental and Intergovernmental Organisations		1	2		
MAP Research Centres	1				
Independent Researchers		2			
Academics	2				

From Table 4 we can see that there are clear patterns in the loadings of subgroups to each discourse. For instance, discourse A is mainly supported by MAP personnel, Research Centres collaborating with MAP and NGOs classified as MAP partners. The other NGOs mostly loaded on discourses C and B. Discourse B was represented by all the independent researchers, most MAP external consultants and a smaller part of MAP personnel. Finally, discourse D was represented only by some MAP personnel.

4. Discussion

The purpose of this study was to reveal the existence of any distinct discourses on environmental effectiveness of the Mediterranean Action Plan. It is significant that, even though the participants were drawn from a very specific group all of whom were involved in some way in the regime, the application of Q methodology has revealed four distinct discourses. Interestingly, all four discourses were broadly represented by the various groups of stakeholders, thus confirming the capacity of Q methodology to reveal the patterns shared across individuals. This makes the method suitable for the study of contentious and widely debated social phenomena such as the environment (Barry and Proops, 1999).

It was evident from all four discourses that a major issue influencing effectiveness is the clarity with which the targets and goals of a regime are set and met, and the verification of this process through a suitable monitoring mechanism. This raises the issue of verification of compliance and its role in accomplishing effectiveness. Moreover, the need for access to information and to justice in environmental affairs is evident. In addition to this, an important notion coming out of all the viewpoints is that a regime may also be created for the diplomatic facilitation of co-operation among countries and not solely for tackling a specific environmental problem. Consequently, any success achieved by the regime in dealing with substantive environmental problems should also be measured against its diplomatic characteristics. In so doing, measurement of regime effectiveness may extend into other wider issues, such as environmental diplomacy and the relationship between environment and security. A common view is that the ideals and dreams of the United Nations are still important to many people and influence their view of regime effectiveness. Not surprisingly, discourse A represents this perspective and logically it is supported mainly by participants working for the United Nations as shown in Table 4. It stresses the importance of diplomacy, considering it a sufficient role for the regime. Effectiveness is thus the achievement of cooperation among the countries, and the provision of political benefits to them. This discourse comes close to the view of Haas et al. (1993) that effectiveness should be judged by the political effects of institutions. From the moment that a regime provides political benefits to its members then it is considered to have achieved its goal.

Discourse B regards effectiveness primarily as a function of institutional performance measured by legal implementation and compliance in each country. However, for its supporters it is of high importance to include the environmental result in the assessment of regime effectiveness, considering also that good institutional settings would result in a better environmental outcome. It is represented by independent researchers and most MAP external consultants. This discourse includes the environmental component as Kütting (2000a, 2000b) has suggested, but it also emphasises legal implementation, which is not the main point of focus of any of the regime theorists. Hence this discourse comprises an interesting combination of two distinct measures of effectiveness, and it is the discourse that places most importance on the integration of environmental criteria into its understanding of effectiveness.

In contrast, discourse C implies that regimes are usually interest driven, which makes them highly ineffective in the absence of control and incentives such as mechanisms for sanctions, liability and compensation. In other words, the effectiveness of a regime is measured according to how well the interests of the various actors (sovereign states, industry, environmental NGOs, the EU, etc.) are controlled. It is mainly represented by NGOs as shown in Table 4. In this sense this discourse shares with Young (1999, 2001) a common focus on the behaviour of actors. However, Young evaluates regime effectiveness primarily in terms of its success in changing the behaviour of actors, so the role of the regime is to bring about that change. By contrast, this discourse believes behavioural changes are a necessary precondition for a regime to be able to function properly and to deliver its goals, and considers the use of control and incentives as the means to this end.

Finally, according to discourse D, the effectiveness of a regime can be accomplished through successful governance which, in turn, can be achieved partly through participatory processes. The greater the public awareness of the problems in question through the dissemination of adequate and reliable information, and the more democratic and participatory the procedures of decision-making, then the more likely it is that an international regime will be effective. Surprisingly, this discourse is represented by a part of MAP personnel, and not by any NGOs. This focus on governance, participation and dissemination of information is not found in other

theories of regime effectiveness. It represents a potential new approach to the measurement of regime effectiveness that might draw profitably upon the burgeoning debate about 'global governance' (Biermann, 2006), which is characterised by a strong emphasis on participation and inclusivity.

5. Conclusions

This study clearly shows that different people view effectiveness in very different ways, even though in this case they are from a fairly narrow sample. In other words, there is no one 'right' way of defining effectiveness and identification of four discourses underlines the complexity of the concept. The study also shows that the academic debate about the definition and measurement of the effectiveness of international environmental regimes extends to practitioners, since there is also a variety of opinions concerning the way regime effectiveness is defined and measured among groups implementing the Mediterranean Action Plan.

Despite the distinct advantages of Q methodology such as the requirement of only a small sample of participants in order to generate statistically significant results, and its participant-driven nature, thus minimising research bias, there are also certain limitations that need to be accounted for. The statistical procedure might be easy to perform, but the initial stages of the research design (carrying out interviews, generating and carefully selecting the statements) are very intensive and time consuming for the researcher. Moreover, in this study, the different discourses on the effectiveness of MAP, might not be identical to discourses on effectiveness of other environmental regimes. However they demonstrate the variety of opinions, and could be used as a guide to design criteria for evaluating regime effectiveness.

Consequently, the study suggests that it might not be possible to agree on one definitive way of measuring effectiveness. Instead, those needing to use such an assessment should not restrict themselves to following one of the identified views, but rather they should use a combination of criteria. We should recognise that different methods need to be used and that any measurements will only ever provide partial evaluations of the overall effectiveness of a regime. For example, the criteria used to judge whether a regime has enhanced political and cultural cooperation between

member countries will be quite different from the criteria needed to judge the environmental impact of the regime. One consequence of this finding is that approaches such as scientific standard setting, time-limited targets or cost benefit analysis only tackle a limited component of effectiveness. This is important because of the increasing shift towards targets in international agreements, which rarely seem to be met so there seems little point in having them as measures of effectiveness. Perhaps more important is the opening of political and participatory avenues as a means of achieving effectiveness coupled with the legal and scientific measures of a cleaner environment.

Acknowledgements

The authors would like to thank all those who participated in this study by completing the Q sorts, or by providing in-depth interviews. We are also grateful to David Ockwell for his helpful advice throughout the study. Special thanks go to three anonymous reviewers for their valuable comments on earlier drafts of this manuscript. We thank the 'Firos Foundation' for funding the doctoral studies of Sofia Frantzi.

References

- Addams, H., Proops, J., 2000. *Social Discourse and Environmental Policy: An Application of Q Methodology*. Edward Elgar, Cheltenham.
- Baker, R., Thompson, C., Mannion, R., 2006. Q methodology in health economics. *Journal of Health Services Research & Policy* 11 (1), 38-45.
- Barry, J., Proops, J., 1999. Seeking sustainability discourses with Q methodology. *Ecological Economics* 28 (3), 337-345.
- Barry, J., Proops, J., 2000. *Citizenship, Sustainability and Environmental Research: Q Methodology and Local Exchange Trading Systems*. Edward Elgar, Cheltenham.

Biermann, F., 2006. Global Governance and the Environment. In: Betsill, M.M., Hochstetler, K., Stevis, D. (Eds.), *International Environmental Politics*. Palgrave, Basingstoke, pp. 237-261.

Brown, S.R., 1980. *Political Subjectivity: Applications of Q-methodology in Political Science*. Yale University Press, New Haven and London.

Dryzek, J.S., Berejikian, J., 1993. Reconstructive Democratic Theory. *The American Political Science Review* 87 (1), 48-60.

Haas, P.M., 1989. Do regimes matter? Epistemic Communities and Mediterranean Pollution Control. *International Organization* 43 (3), 337-403.

Haas, P.M., 1990. *Saving the Mediterranean: The Politics of International Environmental Cooperation*. Columbia University Press, New York.

Haas, P.M., Keohane, R.O., Levy, M.A., 1993. *Institutions for the Earth: Sources for Effective International Environmental Protection*. MIT Press, Cambridge, MA.

Helm, C., Sprinz, D.F., 2000. Measuring the effectiveness of international environmental regimes. *Journal of Conflict Resolution* 44 (5), 630-652.

Hooker-Clarke, A., 2002. Understanding sustainable development in the context of other emergent environmental perspectives. *Policy Sciences* 35 (1), 69-90.

Hovi, J., Sprinz, D.F., Underdal, A., 2003. The Oslo-Potsdam Solution to Measuring Regime Effectiveness: Critique, Response, and the Road Ahead. *Global Environmental Politics* 3 (3), 74-96.

Krasner, S.D., 1983. *International Regimes*. Cornell University Press, Ithaca, NY.

Kütting, G., 2000a. *Environment, Society and International Relations: Towards more Effective International Environmental Agreements*. Routledge, New York.

Kütting, G., 2000b. Distinguishing between Institutional and Environmental Effectiveness in International Environmental Agreements: The Case of the Mediterranean Action Plan. *The International Journal of Peace Studies* 5 (1), 15-33.

McKeown, B.F., Thomas, D.B., 1988. *Q Methodology*. Sage, Newbury Park, CA.

Miles, E.L., Underdal, A., Andresen, S., Wettestad, J., Skjaereth, J.B., Carlin, E.M., 2002. *Environmental Regime Effectiveness: Confronting Theory with Evidence*. MIT Press, Cambridge, MA.

Mitchell, R.B., Bernauer, T., 2002. *Qualitative Research Design in International Environmental Policy*. Swiss Federal Institute of Technology, Zurich. Working Paper 2-2002.

Mitchell, R.B., 2004. A quantitative approach to evaluating international environmental regimes. In: Underdal, A., Young, O.R. (Eds.), *Regime Consequences: Methodological Challenges and Research Strategies*. Kluwer Academic, Dordrecht, pp. 121-150.

Raftopoulos, E., 1993. *The Barcelona Convention and Protocols. The Mediterranean Action Plan Regime*. Simmonds and Hill, London.

Salazar, D.J., Alper, D.K., 2002. Reconciling Environmentalism and the Left: Perspectives on Democracy and Social Justice in British Columbia's Environmental Movement. *Canadian Journal of Political Science* 35 (3), 527-566.

Stephenson, W., 1953. *The study of behavior: Q-technique and its methodology*. University of Chicago Press, Chicago.

Underdal, A., 1992. The concept of regime effectiveness. *Cooperation and Conflict* 27 (3), 227-240.

Underdal, A., Young, O.R., 2004. *Regime Consequences: Methodological Challenges and Research Strategies*. Kluwer Academic, Dordrecht.

UNEP, 1978. Mediterranean Action Plan and the Final Act of the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea. United Nations, New York.

UNEP/MAP, 2005. Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols. UNEP/MAP, Athens.

Victor, D.G., Raustiala, K., Skolnikoff, E.B., 1998. The implementation and effectiveness of international environmental commitments: theory and practice. MIT Press, Cambridge, MA.

Watts, S., Stenner, P., 2005. Doing Q methodology: theory, method and interpretation. *Qualitative Research in Psychology* 2 (1), 67-91.

Wettestad, J., Andresen, S., 1991. The effectiveness of international resource cooperation: some preliminary findings. The Fridtjof Nasnen Institute, Lysaker.

Wettestad, J., 2006. The Effectiveness of Environmental Policies. In: Betsill, M.M., Hochstetler, K., Stevis, D. (Eds.), *International Environmental Politics*. Palgrave, Basingstoke, pp. 299-328.

Young, O.R., 1999. The effectiveness of international environmental regimes: causal connections and behavioral mechanisms. MIT Press, Cambridge, MA.

Young, O.R., 2001. Inferences and indices: evaluating the effectiveness of international environmental regimes. *Global Environmental Politics* 1 (1), 99-121.

Young, O.R., 2003. Determining Regime Effectiveness: A Commentary on the Oslo-Potsdam Solution. *Global Environmental Politics* 3 (3), 97-10

Chapter IV

Is science the driving force in the operation of environmental regimes?

Is science the driving force in the operation of environmental regimes? A case study of the Mediterranean Action Plan

Sofia Frantzi^{a,b,*} and Jon C. Lovett^{c,d}

^a Environment Department, University of York, Heslington, York YO10 5DD, UK

^b Department of Politics, University of York, Heslington, York YO10 5DD, UK

^c Centre for Ecology, Law and Policy, Environment Department, University of York, Heslington, York YO10 5DD, UK

^d Technology and Sustainable Development Section, Centre for Clean Technology and Environmental Policy, University of Twente, P.O. Box 217, 7500 AE Enschede, The Netherlands

* Corresponding author.

E-mail addresses: sf505@york.ac.uk, sofia.frantzi@gmail.com

Tel.: +44 1904 434059; fax: +44 1904 432998

This paper is written in the style of and has been accepted for publication in *Ocean and Coastal Management*.

Abstract

This study examines the role of science in the operation of environmental regimes using the Barcelona Convention / Mediterranean Action Plan (MAP) as a case study. The ‘epistemic communities’ theory suggests that emergence of the Mediterranean Action Plan was largely driven by scientific experts. In order to test the hypothesis that this theory also explains operation of the regime, we used three methods of analysis. Firstly, we attempted statistical analysis of environmental data available from MED POL, secondly we analysed policy documents prepared by MAP including meeting documents and scientific publications, and finally we conducted interviews with scientists. We found that the scientific epistemic community theory is appropriate to explain formation of MAP, but it cannot account for its current operation.

Keywords:

Environmental assessment, International environmental regimes, MED POL programme, Barcelona Convention, Mediterranean Action Plan

1. Introduction

1.1. Environmental regime effectiveness

The obvious way for natural scientists to examine and assess the effectiveness of environmental regimes¹, is to look at their impact on the environment, the scientific measures taken and scientific targets achieved. In contrast, political scientists in international regime theory traditionally analyse environmental regime effectiveness by focusing on the institutional performance of a regime. Even though the need to look at environmental impact is widely recognised, only a few studies try to actually measure it. For example, some regime theorists [2, 3] consider the environmental problem but still focus on institutional performance. Others ask whether quality of the environment is better because of the regime [4], but do not indicate how such change could be measured nor how much change can be assigned to the regime itself rather than external factors. Furthermore, change *per se* is not necessarily a sufficient measurement of effectiveness [5]. Recently there has been an attempt to introduce the concept of environmental effectiveness when studying environmental regimes by distinguishing effectiveness as seen in institutional terms from that of accounting for improved environmental quality [5, 6]. Our study takes the approach of assessing the environmental effectiveness of regimes from a natural science perspective. The question then arises as to how to measure this. It is rather complicated since there are many criteria. Do we measure chemical pollutants? If so, how do we distinguish natural processes from man-made problems that can be controlled by regime enforcement? Is it possible to locate the source of pollutants with sufficient accuracy to implement control measures? Are the pollutants actually harmful? Do we measure biological parameters? What are the natural ecological dynamics that might cause fluctuations in species numbers and associations? Is it possible to unequivocally correlate regime effectiveness with ecosystem quality?

¹ The best known and cited definition of regimes was given by Krasner [1] who stated that “Regimes can be defined as sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations. Principles are beliefs of fact, causation and rectitude. Norms are standards of behaviour defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice.”

This paper focuses on the measurement of environmental effectiveness using the Barcelona Convention as a case study. The convention is the legal component of the Mediterranean Action Plan (MAP). In particular we focus on the MED POL programme, which is the environmental assessment component of MAP. The first question that we will attempt to answer is whether the environmental state of the Mediterranean Sea has improved during operation of the regime. As will be clearly shown there is no obvious conclusion. Moreover, even if there was a definite positive or negative change, how much of this could actually be attributed to the regime and not to other factors, such as ecological processes, economic and industrial activities, or other policies including cleaner production techniques, is open to question. However, what can at least be examined for the environmental effectiveness of a regime is whether the regime itself performs adequate monitoring of the environmental state and whether it applies a feedback mechanism between the results and the measures taken afterwards.

1.2. Mediterranean Action Plan

The Mediterranean Action Plan (MAP) was created in 1975, under the auspices of the United Nations Environment Programme (UNEP), only three years after the Stockholm Ministerial Conference set up the latter Programme. MAP was adopted as a Regional Seas Programme under UNEP's aegis. The UNEP Regional Seas Programme is an attempt to develop treaties and soft rules and standards at the regional level, using MAP as a model for designing the other plans, since it was the first plan adopted, and successfully implemented. MAP involves 21 countries² bordering the Mediterranean Sea, as well as the European Union.

According to Raftopoulos [7] Regional Action Plans usually consist of five components: the assessment component, the management component, the legal component, the institutional component and the financial component. MAP's legal component is the Barcelona Convention and its related Protocols. The 'Convention for the Protection of the Mediterranean Sea against Pollution', was signed in 1976,

² Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Serbia and Montenegro, Slovenia, Spain, Syria, Tunisia and Turkey.

and has been in force since 1978. In 1995 it was replaced by an amended version taking into account recommendations of the 1992 Rio Conference on Environment and Development³ and it was recorded as the ‘Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean’, being in force since 2004 [9]. It includes 6 Protocols, namely, the Dumping Protocol, the Prevention and Emergency Protocol, the LBS (Land-Based Sources) Protocol, the SPA (Specially Protected Areas) and Biodiversity Protocol, the Offshore Protocol and the Hazardous Wastes Protocol. A seventh Protocol concerning Integrated Coastal Zone Management (ICZM) is currently under preparation.

The institutional component of MAP has a simple structure which gives authority to two organs, the Meetings of the Contracting Parties and the Secretariat, with the former having the leading role. The Environmental Assessment Component of MAP is the ‘Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean’ as stated in the official text of UNEP [10], but which is generally known as the MED POL programme. Finally, the Barcelona Convention is complemented by policy-planning programmes (Blue Plan and Priority Actions Programme) and financial/institutional arrangements. Moreover, following launch of the MAP II process and shift towards a ‘sustainable development’ orientation, the Mediterranean Commission on Sustainable Development (MCSD) was set up as an advisory body to MAP in 1996 as a think-tank on policies for promoting sustainable development in the Mediterranean Basin. Finally, there are six MAP Regional Activity Centres (RACs) based in six Mediterranean cities, each offering expertise in specific fields of action for facilitating the operation of MAP.

The main objectives of MAP were initially to assist the Mediterranean countries to assess and control marine pollution and to formulate their national environmental policies. However, experience showed that most environmental problems have their roots in socio-economic trends following inadequate development planning and management. Estimates by MED POL in the first ever study to assess the extent of pollution of the Mediterranean, a project call MED X, showed that up to 80% of

³ At the same time, on 10 June 1995, the Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean (MAP II) was adopted, which reflected commitment of Mediterranean States to the ideal of sustainable development [8].

marine pollution originates from land-based activities [11, 12]. Even though the first report [11] was based on a rapid assessment method and not on real data, and was later withdrawn due to certain errors, its main conclusions about the importance of land-based sources in marine pollution did alarm the UNEP and the Mediterranean governments [13-17]. Therefore, the focus of MAP has gradually shifted from pollution control to include integrated coastal zone planning and management as part of the sustainable development concept.

Effectiveness of the MAP regime has been reviewed by several academic studies, most notably the influential study by Haas on ‘epistemic communities’ [13]. In a detailed overview of the history and negotiations prior to adoption of the MAP and with various explanations of international environmental cooperation for its creation, Haas describes how a group of scientific experts raised public concern, initiated the negotiations and helped in the creation of the regime. Subsequently these experts were empowered by its creation and were able to redirect government policy [13, 14]. So, according to this theory, it was the dedicated involvement of natural scientists which gave life to the regime. However, whether science continues to be the driving force in its operation is open to question. Later, other researchers attempted to assess MAP’s effectiveness either in political terms, or in more specific aspects of its operation [5, 6, 15, 16, 18-20]. Here we assess the role of scientific data in the regime’s operation.

1.2.1. MED POL Programme

The Environmental Assessment Component of MAP, referred to in the official text of UNEP [10] as the ‘Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean’ is widely known as MED POL. It is the most straightforward technical aspect of MAP and according to Raftopoulos [7] it has played “an important cohesive role for the development of a concrete, scientifically based, regional approach to the problems of the Mediterranean pollution”. MED POL operates in phases. Its first phase, MED POL – Phase I, lasted from 1975 until 1980. At that time there was not enough scientific expertise either in the number of trained scientists or in terms of facilities established, therefore it was constructed upon pilot projects. This was considered a necessary condition, bearing in mind that full-scale regional assessments require identified pollution problems common to all the participating states [7]. Initially there were seven pilot projects approved in 1975 followed by

several others to support the programme. States had designated national research centres to participate in the pilot projects, and the planning and carrying out of necessary actions was a collaborative effort of UNEP with several international organisations (ECE, UNIDO, FAO, WHO, WMO, UNESCO, IAEA, and IOC of UNESCO). According to Raftopoulos [7] MED POL – Phase I proved largely successful in transferring technology and scientific expertise to many Mediterranean States, especially in less-developed countries since UNEP at the time followed a policy of allocating resources to those needing them most.

Phase II of MED POL lasted from 1981 until 1990 and was named the ‘Long-term Pollution Monitoring and Research Programme’. For effective implementation of its specific objectives it was divided into four distinct components, monitoring, research and study topics, data quality assurance, and assistance. Overall coordination of Phase II was in the hands of the Mediterranean Action Plan Co-ordinating Unit (the secretariat of the Barcelona Convention) acting on behalf of UNEP, even though the countries were fully responsible for monitoring activities as stated in Article 12 of the Barcelona Convention and in Article 8 of the Land-Based Sources Protocol. According to Raftopoulos [7], the necessary financial resources for the work outlined in MED POL – Phase II came from: Contracting Parties to the Barcelona Convention (cash contributions through the Mediterranean Trust Fund and contributions in kind through participation of their national institutions), UNEP (cash contributions on a project-funding basis and contributions in kind through certain services), national institutions participating in the programme (contributions in kind through services, staff time, etc.), international organisations participating in and supporting the programme (contributions in kind through services, staff time and activities related to the Mediterranean Action Plan), and voluntary contributions.

MED POL has recently finished its Phase III, which started in 1996 and lasted until 2005. Just before the end of Phase II important events at both international and regional levels took place, which guided MED POL to change its directions. These events were the adoption of Agenda 21 in Rio 1992 and the Global Programme of Action (GPA) in 1995 in Washington to address pollution from land-based sources and activities, and creation of the Mediterranean Commission for Sustainable Development (MCSD) together with the amended LBS Protocol at regional level.

Hence there was a slow change from pollution assessment to pollution control with MED POL becoming a tool for the countries to properly manage their marine and coastal areas. MED POL Phase III, adopted in 1995 and called the 'Programme for the assessment and control of pollution in the Mediterranean region', was directly concerned with implementation of the two relevant Protocols (Dumping and LBS), since it focused more on management of pollution control [21]. It included activities such as pollutant trend monitoring and assessing effects of contaminants to living organisms as well as inventory of pollution sources and loads and finally the setting up of a database. Regarding control, compliance of the countries is monitored by an annual report discussing the country's existing action plans, programmes and measures for pollution control and how well these comply with national, regional or international legislation. All the above activities have to be described in agreements between each country and MED POL.

From 2005 until 2013, a new phase of MED POL has come into operation as was put forward in the 13th Ordinary Meeting of the Contracting Parties to the Barcelona Convention [22]. However, the starting point for its objectives and goals will be those set out in Phase III, which was considered adequate for supporting the overall objectives of the Convention and the Protocols. In that respect it will continue to operate with the same tools (monitoring, compliance monitoring, assessments, capacity building, etc). However, taking into account recommendations of the evaluation of Phase III [23], it focuses more on some aspects of Control and Assessment and Public Participation and it tries to use the Ecosystem Approach more widely in all its aspects [24].

2. Methods

In this section there is a short description of the methods used in this study. First we will explain which aspects of the scientific operation of the Mediterranean Action Plan are examined in detail. As mentioned earlier, the focus of this study is the MED POL programme. MED POL operates several work programmes. Monitoring is the most important in Phases I and II. Monitoring activities are mandatory for all the Parties as required by the official legislative documents of MAP, specifically Article

12 of the Barcelona Convention⁴ and Article 8 of the Land-Based Sources Protocol⁵. The other important work programme is implementation of the LBS Protocol, and after 1997, implementation of the Strategic Action Programme to Address Pollution of the Mediterranean Sea from Land-based Activities (SAP) which is in effect, the technical arm of the Protocol. MED POL also has two more work programmes, the Dumping Protocol and the Hazardous Wastes Protocol, however they are not considered in detail here, since the main activities undertaken refer to the first two work programmes. The data gathered, the publications produced, the capacity building and other activities are investigated below in order to evaluate the role of environmental monitoring and assessment in the decision-making processes. Both qualitative and quantitative analyses were used. First we carried out statistical analysis of environmental data gathered by MED POL using the software packages Excel and Stata 9.0. Specifically, descriptive statistics were used to describe the database, and box plots were used in an attempt to analyse temporal trends in two well-known contaminants. Second we analysed various policy documents prepared by MAP including meeting documents and scientific publications collected during approximately 6 months spent in the Secretariat of UNEP/MAP. Finally we conducted in-depth interviews with scientists in the Secretariat, in the Research Centres involved in the environmental monitoring, and others associated with the Convention.

⁴ *Article 12 of the Barcelona Convention - Monitoring*

1. The Contracting Parties shall endeavour to establish, in close cooperation with the international bodies which they consider competent, complementary or joint programmes, including, as appropriate, programmes at the bilateral or multilateral levels, for pollution monitoring in the Mediterranean Sea Area and shall endeavour to establish a pollution monitoring system for that Area.

2. For this purpose, the Contracting Parties shall designate the competent authorities responsible for pollution monitoring within areas under their national jurisdiction and shall participate as far as practicable in international arrangements for pollution monitoring in areas beyond national jurisdiction.

3. The Contracting Parties undertake to cooperate in the formulation, adoption and implementation of such annexes to this Convention as may be required to prescribe common procedures and standards for pollution monitoring.

⁵ *Article 8 of the Land-Based Sources Protocol - Monitoring*

Within the framework of the provisions of, and the monitoring programmes provided for in article 12 of the Convention, and if necessary in cooperation with the competent international organizations, the Parties shall carry out at the earliest possible date monitoring activities and make access to the public of the findings in order:

(a) Systematically to assess, as far as possible, the levels of pollution along their coasts, in particular with regard to the sectors of activity and categories of substances listed in annex I, and periodically to provide information in this respect;

(b) To evaluate the effectiveness of action plans, programmes and measures implemented under this Protocol to eliminate to the fullest possible extent pollution of the marine environment.

2.1. Statistical analysis of environmental data gathered during MED POL Phases I and II

The purpose of researching the marine pollution data is to see if there has been any obvious trend in the progress of pollution in the Mediterranean Sea i.e. if it increased, decreased or remained the same. The primary source of data is that kept by the MED POL programme for estimation of the environmental state of the Mediterranean Sea. The data collected through monitoring activities in the initial two phases of MED POL were gathered and compiled in a database comprising two distinct datasets. These are the only raw data available to the public. The database is called Validated Biota Data of MED POL Phase I & II (1975 to 1993) and the two datasets are for Trace Elements and Chlorinated-Hydrocarbons. The database is accompanied by a description produced by the experts that validated the databases⁶. We ran descriptive statistics on the database using Stata 9.0 econometric and statistical software. The dataset on Trace Elements contains concentrations of 17 Trace Elements in 74 species of biota, with around 10,000 samples, and the dataset on Chlorinated-Hydrocarbons contains concentrations of 14 Chlorinated Hydrocarbons in 49 species of biota, with around 4,000 samples. The data were collected from 1975 – 1993 during the first two phases of MED POL. 16 countries submitted data, from 812 monitoring stations in total, for Trace Elements, and 14 countries, from 456 monitoring stations, for Chlorinated Hydrocarbons. Some of these also reported data from 1974. Some of the most important heavy metals and organic compounds measured are cadmium, mercury, lead, DDT, lindane and PCB.

In addition to the analytical problems described below, it should be noted that cadmium (Cd) and lead (Pb), are known for sample contamination, so they should be treated with caution [25]. Also mercury (Hg) concentrations are known to have positive correlations with size which adds significant problem in the processing of the database [26, 27].

⁶ The technicalities of the databases are described in ‘MEDPOL Databases Description’ available in http://195.97.36.231/medpol/Docs/Database_information_format.pdf official website of UNEP/MAP last accessed on 01.08.2007

Pollution from land-based sources (which is the most significant) is considered to be concentrated in coastal areas [17]. However, the samples were only acceptable when compared to others taken from species remote from pollution sources, since the experts that validated the databases made the assumption that concentrations in remote species would be uniform in the Mediterranean Sea.

Using Stata 9.0 we attempted to analyse the database in order to extract meaningful information concerning any trends of concentrations through time. However there were many problems encountered. Firstly, there are a lot of missing values (some samples have information only for one substance) and if the data are divided by species and substance there are few comparable data. The data have to be divided by species and also by tissue, because different species have different uptake of substances and also in the same species, substances are concentrated differently in various tissues [28]. Secondly, and more importantly, the data cannot be analysed as a time series since there are many years for which data do not exist. For some years there are no data at all and for others there are so many that multiple observations can be found for the same day. Thirdly, there is a matter of whether the data can be used for country-level cross-sectional analysis, since it is ambiguous whether the country of origin is relevant. We could not group the observations according to country because different monitoring stations in the same country present completely different localised environmental states.

Moreover, using box plots, which present the spread of the observations in a year and enable comparison between years, we attempted to produce graphs to show the trend of the median value. Ideally, the data should be divided by species, tissue and monitoring station. However, the data are too scattered to produce any reliable trend, and if they do, then the trend is only for a few years in a specific station, which does not allow for the formulation of conclusions for trends in the whole Mediterranean Sea. Details from this analysis are given below in the results section.

2.2. Analysis of various policy documents

Our second method of research is analysis of various policy documents. Specifically we looked at policy documents regarding the monitoring programme of MED POL

Phase III, we also examined documents regarding the implementation of the LBS Protocol, and finally we looked at the many scientific Publications of MAP / MED POL.

2.2.1. Monitoring programme in MED POL Phase III

For the 3rd phase of MED POL, after 1996, there are no raw data available to the public, but there is an online inventory for the data that exist in the MAP offices. So our analysis was limited to examination of documents to assess its implementation. Monitoring Agreements were prepared with certain objectives that also cover the general description of the National Monitoring Programmes, and they are based on certain monitoring criteria (parameters, matrices, sampling frequencies etc) including lists of pollution hot spots, coastal stations and participating institutes.

2.2.2. Implementation of the LBS Protocol

MED POL is responsible for realisation not only of the monitoring programme but also for the implementation of three protocols, namely the LBS, Dumping and Hazardous Wastes Protocols. Although there has not been much activity on the latter two protocols, significant work is taking place in implementing the LBS Protocol. In order to examine its implementation we looked at documents such as the Strategic Action Programme to Address Pollution of the Mediterranean Sea from Land-based Activities (SAP), which was elaborated in 1997 in order to implement the LBS Protocol. In the SAP the main issues addressed include specification of targets for pollution reduction on a broad range of substances. In addition to this, the SAP proposes the compilation of National Action Plans for each country with specific measures and priorities for action. For this purpose it also envisages the compilation of National Diagnostic Analyses (assessments of the national conditions and issues, including problems, contaminants, sources of degradation, significance of impacts, and areas of concern) and National Baseline Budgets of pollutants. The latter is a database of emissions of all point sources in the coastal areas, grouped by administrative region, in order to be used as reference (year 2003), for each country to start to reduce its aggregate releases. However, where there are insufficient data from actual monitoring, which is mostly the case, emission factors are used instead to calculate the releases.

2.2.3. Scientific publications of MAP/MED POL

In the framework of the MED POL programme and in cooperation sometimes with other organisations, such as the European Environment Agency, or specific research institutes, UNEP/MAP has published several reports either by producing guidelines or by evaluating the state of the environment, making use of the available data gathered. Many of them were reviewed and more details are given in the results section.

2.3. Key informant interviews

Our third method of research was interviewing key informants. We interviewed scientists from the MED POL programme, from the World Health Organisation (WHO) which collaborates with MED POL and from one of the research centres responsible for the monitoring obligations of Greece towards MAP, the Hellenic Centre for Marine Research (HCMR). A total of 25 semi-structured interviews were conducted with administrators and scientists associated with the Mediterranean Action Plan in Athens, during the period November – May 2006. During the interview, the interviewees were asked their opinion on regime effectiveness of MAP and the role of science in operation of MAP amongst other questions.

3. Results

3.1. Results from statistical analysis

As it was mentioned in the description of methods, we could not group the observations according to country because different monitoring stations in the same country present completely different localised environmental states. The specific monitoring station from which the samples were taken is more important. However, most of the monitoring stations did not have enough observations to generate conclusions (Fig. 1).

Only 20 stations had more than a 100 observations for the whole 19 years irrespective of substance, species, tissue etc. By contrast, the vast majority of them (727 out of 812 stations monitoring Trace Elements and 419 out of 456 stations monitoring Chlorinated Hydrocarbons) had less than 25 observations for all the years, all the

substances and all the species together. This means that our attempt to analyse temporal trends in concentrations had to be limited to very few stations.

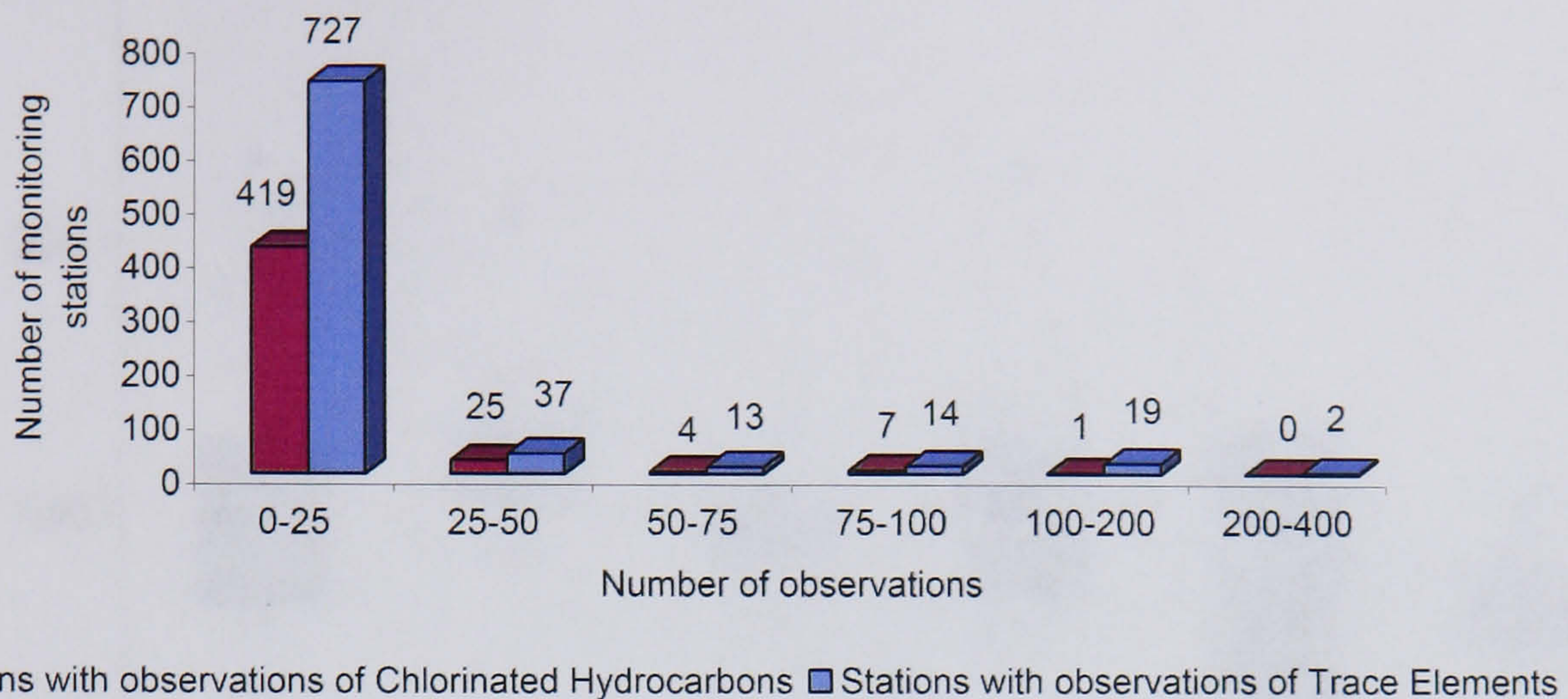


Fig. 1. Number of monitoring stations with different frequency of observations in the period 1975-1993.

Therefore we chose the two stations with the largest number of observations for the two mostly monitored substances in order to give examples of temporal trend analysis. In Figure 2, we present the concentration of mercury (Hg) in the fillet tissue of the species *Lithognathus mormyrus* as it was measured in one monitoring station (HAI1_HM1) of the research centre in Haifa, Israel. This box plot comprises 98 observations over 6 years measuring mercury (Hg) in ng/g of fresh weight (FW). The box plot summarises the observations, with the horizontal line within the box representing the median value of that year's observations, and the vertical line representing the spread of the data within a year.

As can be seen from Figure 2, even in the station with the largest number of observations for mercury (Hg), the highest number of consecutive years is only four (note that 1987 is missing). Moreover there is no obvious trend, but rather the concentrations are fairly stable.

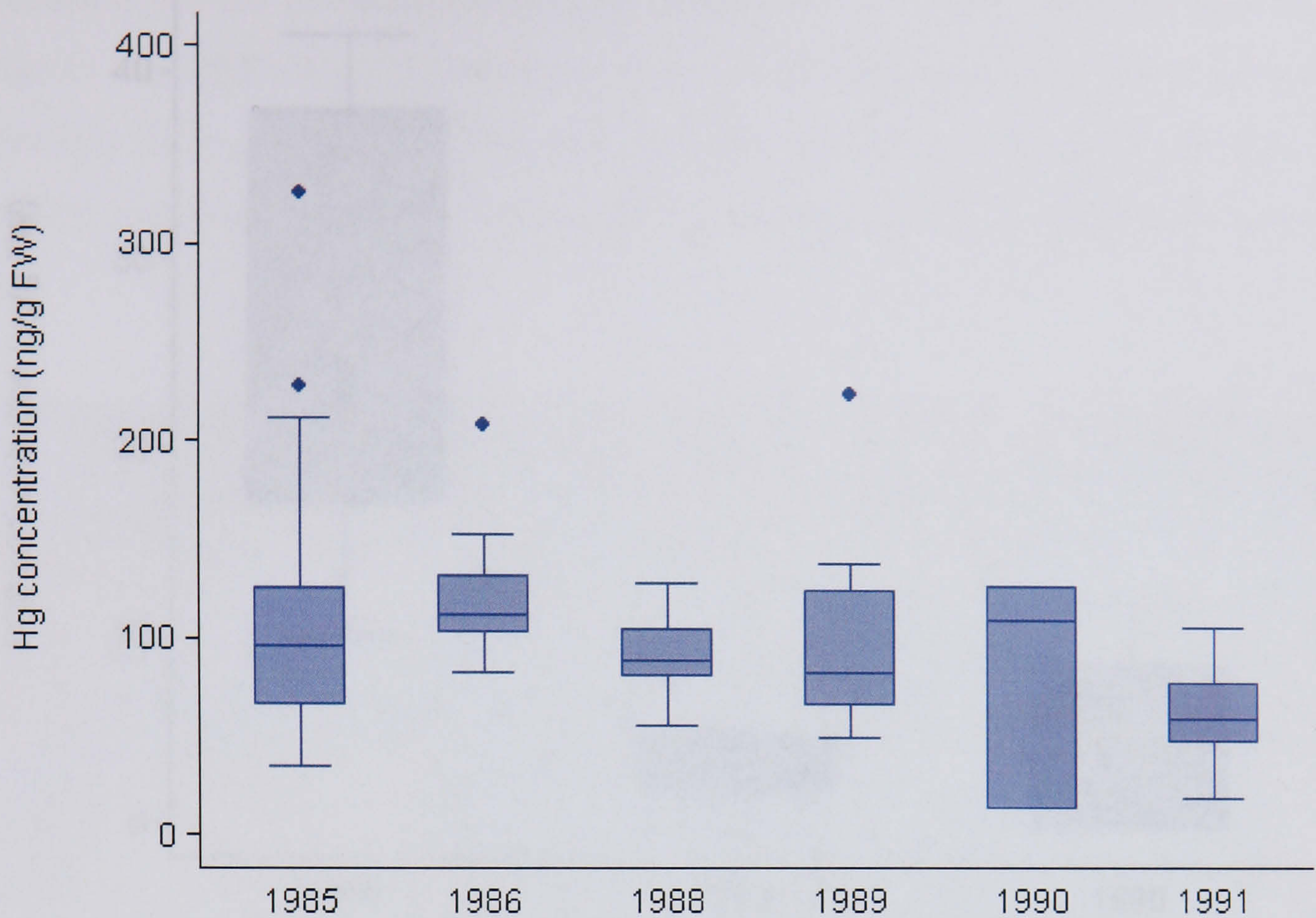


Fig. 2. Hg concentration in *Lithognathus mormyrus*. Data from the research centre in Haifa, Israel.

In the same way, in Figure 3, we present the concentration of Polychlorinated Biphenyls (as Arochlor 1254) (PCB) in the fillet tissue of the species *Mullus barbatus* as it was measured in one monitoring station (MAD1_5) of the research centre in Madrid, Spain. This box plot was constructed from 16 observations in 3 years measuring PCB in ng/g of fresh weight (FW).

We can see from Figure 3, that even in this station, which has the largest number of observations for PCB, the total number of consecutive years is only three. This does not permit extraction of meaningful conclusions for temporal trends.

The conclusion that can be drawn for the period 1975-1993, using the data available from the MED POL programme, is that a reliable picture of the overall change in the state of the biophysical environment of the Mediterranean Sea cannot be produced.

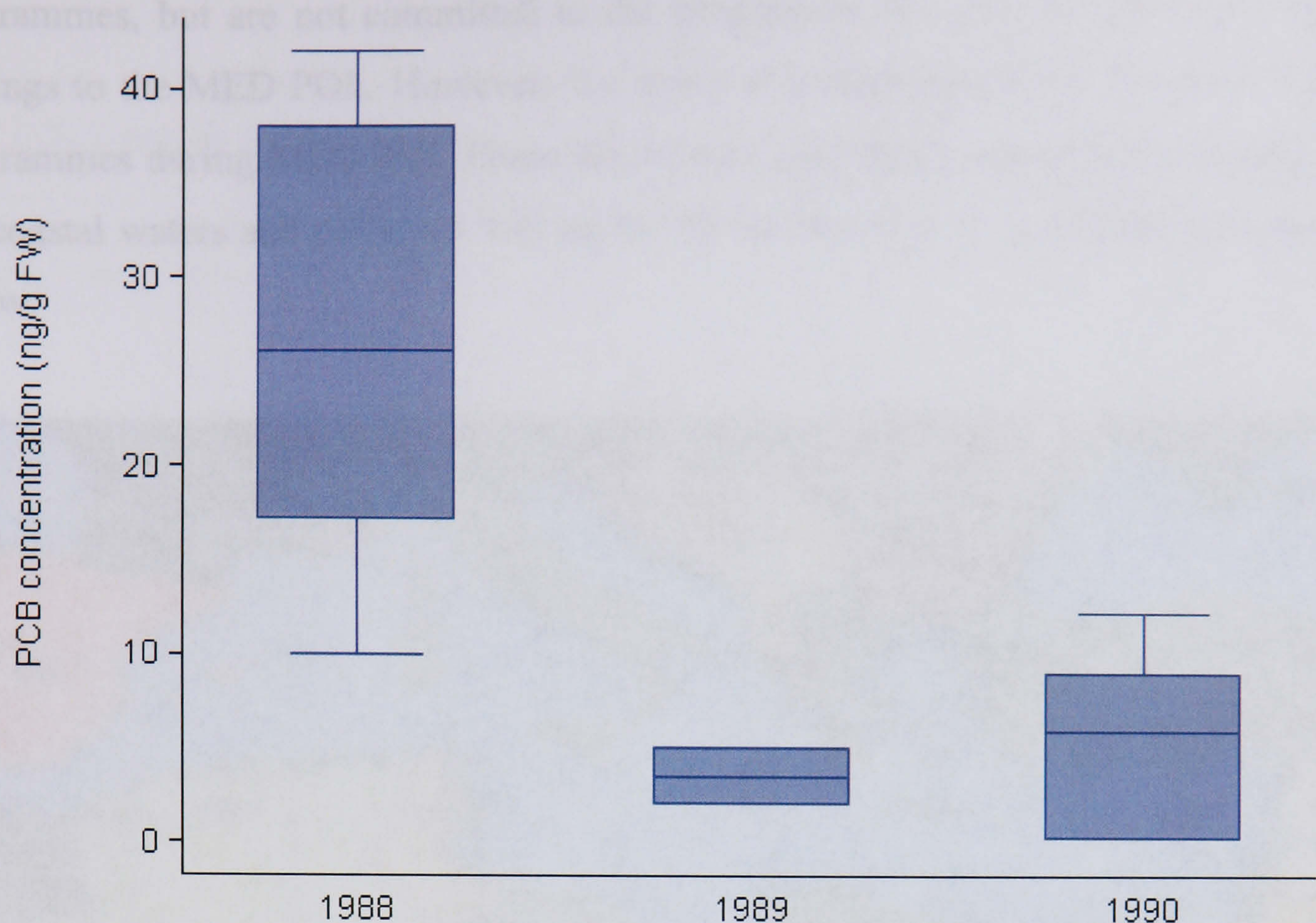


Fig. 3. PCB concentration in *Mullus barbatus*. Data from the research centre in Madrid, Spain.

3.2. Results from the analysis of various policy documents

The second method of research was analysis of various policy documents in order to assess three aspects of MED POL's operation. First, the implementation of the monitoring programme in MED POL Phase III, second the implementation of the LBS Protocol, and third the production of scientific publications by MAP in MED POL's framework.

3.2.1. Results on the monitoring programme in MED POL Phase III

Only eleven countries have signed monitoring agreements during the 1999-2004 period⁷. France, even though it has not signed an agreement, does provide some monitoring data gathered through its long term National Monitoring Programme. This means that almost 50% of the Contracting Parties to the Convention are committed to implement their obligations concerning monitoring activities. Most of the countries that did not sign the agreement comply with the obligations by running their own

⁷ Albania, Algeria, Croatia, Cyprus, Greece, Israel, Morocco, Slovenia, Syria, Tunisia and Turkey.

programmes, but are not committed to the programme and thus do not report their findings to the MED POL. However, the status of implementation of the monitoring programmes during MED POL Phase III showed a limited geographical coverage of the coastal waters and pollution ‘hot spots’⁸ of the region as it is evident in Figure 4 below.



Fig. 4. MED POL Phase III Monitoring sites

(Source: <http://195.97.36.231/medpol/> official website of UNEP/MAP last accessed on 01.08.2007)

In order to fill in this gap, countries are now asked either to provide comparable data sets for the entire period of Phase III or to complete some missing mandatory information and data [30]. Moreover, in the 14th Ordinary Meeting of the Contracting Parties to the Barcelona Convention (COP 14) held in Portoroz, Slovenia in 2005, this need was one of the recommendations to the Parties, as it was also the formulation of National Monitoring Programmes in the first place [31]. In Table 1 the statistics of data provided to MED POL for Phase III are summarised, including number of parameters measured, number of samples taken, numbers of monitoring stations where the activities took place, and number of total values provided. However the raw data are not available to the public.

As far as the specific aspects of MED POL Phase III are concerned, these are briefly described below [21]. Discussion on the availability of the data is based on the following reports [23, 30, 32] and also on personal communication with MED POL.

⁸ According to UNEP/WHO [29] ‘hot spots’ are defined as intensively polluted or high risk areas (discharge sites, harbours, estuaries etc) under the direct impacts of land based sources of pollution.

Table 1

MED POL Database from Phase III

<i>Item</i>	<i>Country</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>
Number of parameters	Albania				11	3	24	24
	Croatia		8	94	28	16	19	20
	Cyprus	2	38	20	37	32	22	
	France	5	20	16	18	18	21	
	Greece		37	10				
	Israel		10	15	22	24	25	16
	Slovenia		64	33	30	23	18	28
	Tunisia				13	17	14	
	Turkey	4	5	10	23	5	27	28
Total Number of Parameters (Only unique parameters are counted)		7	108	117	87	70	83	77
Number of samples	Albania				4	4	9	26
	Croatia		47	180	727	83	63	337
	Cyprus	4	115	52	161	149	64	
	France	69	123	109	128	86	47	
	Greece		443	17				
	Israel		330	393	296	227	322	30
	Slovenia		142	316	332	309	295	245
	Tunisia				219	446	398	
	Turkey	10	127	115	139	54	74	58
Total Number of samples		83	1327	1182	2006	1358	1272	696
Number of stations	Albania				2	2	3	2
	Croatia		27	33	106	18	17	25
	Cyprus	4	37	39	72	43	28	
	France	19	20	19	19	19	18	
	Greece		47	4				
	Israel		32	24	23	23	25	1
	Slovenia		28	23	23	20	16	19
	Tunisia				40	41	39	
	Turkey	1	15	20	22	12	10	11
Total Number of stations		24	206	162	307	178	156	58
Number of values	Albania				22	12	72	236
	Croatia		171	2273	8983	465	459	678
	Cyprus	8	597	286	669	1028	227	
	France	345	1016	756	1082	602	465	
	Greece		2342	100				
	Israel		2101	2407	1921	1559	1946	181
	Slovenia		1195	1699	3151	2438	1876	2299
	Tunisia				745	1233	1251	
	Turkey	40	508	461	737	170	880	765
Total Number of values		393	7930	7982	17310	7507	7176	4159

Source: UNEP/MAP [30]

3.2.1.1. Trend - state monitoring

Trend-monitoring aims to detect site-specific temporal trends of selected contaminants in sediment and biota at the designated pollution ‘hot spots’ in the coastal marine environment. Trends in pollutant or contaminant levels are also considered as ‘state’ indicators of pollution. A 2003 review meeting [32] identified that the sampling strategy in sediments used by all the countries actually participating to the MED POL monitoring activities was not sufficient to address trends. For this reason a new strategy was drafted and presented to the 2005 meeting [30] with the aim of being finalised in 2006. As far as the trend and state monitoring in biota is concerned, there were quite a few problems identified in more or less all the countries. Some of them were of technical nature (e.g. difficulties in sampling, instrumentation, inconsistency with agreed sampling strategies) and others had to do with the country’s organisational structure (e.g. change in participating institutions). However, as can be seen from Table 1 the span of the time series is not enough to establish temporal trends, demonstrating an inability to draw robust conclusions.

3.2.1.2. Monitoring of loads or inputs

Monitoring of loads aims to provide estimates of inputs of some major groups of pollutants (all listed in the Land Based-Sources Protocol) to the coastal marine environment via point (rivers, municipal and industrial effluents) and non-point (atmospheric) land-based sources. According to MED POL [30] most of the National Monitoring Programmes have included monitoring of inputs of urban waste water, industrial effluents and of rivers/streams. However, only a few countries provided inputs from effluents by industrial, municipal and mixed sources, so the MED POL database has data only from four countries for the years 2001-2003 (Croatia, Cyprus, Tunisia and Turkey). Rivers and streams were included in seven National Monitoring Programmes but only three countries have provided data on pollutant levels and inputs in the 2000-2004 period (Croatia, Slovenia and Turkey). For airborne pollution, there is a good coverage during the period 2000-2004 of dry and wet deposition data for trace metals and nutrients, but only for the South East Mediterranean since the data are provided by Israel. Some overall assessments were also made by UNEP in cooperation with WMO between 1994 and 2001 and published in the Technical Reports Series of MAP. These also stress the data gap, mainly in the South

Mediterranean countries. Finally, MED POL, in cooperation with other global and regional initiatives dealt with the diffuse transport of material from the Mediterranean watersheds mainly for nutrients. Even though monitoring of loads was not satisfactory, special reference will be given below in the section on the implementation of the LBS protocol about the National Baseline Budgets database which in a way substitutes the lack of original data from sources.

3.2.1.3. Compliance monitoring

Compliance monitoring covers health-related conditions in bathing and shellfish/aquaculture waters as well as on effluents, where countries compare the monitoring results with the limit values of their national, international and regional legislation. WHO has a permanent member of staff within MED POL to manage all health-related aspects of pollution monitoring, assessment and control. According to MED POL [30] compliance monitoring for bathing waters was implemented rather efficiently. On the other hand, there has only been a couple of useful reports monitoring shellfish/aquaculture waters and quality of sea food, since this was not even part of most programmes. Compliance monitoring of effluents, should include data and compliance information for municipal and industrial inputs to the sea. Very limited data were provided, especially for industrial inputs, and very few compliance reports, since again this was not part of most of the programmes. Finally only three countries (Greece, Israel and Turkey) included compliance monitoring at pollution ‘hot spots’ in their programmes, but only data were provided. Overall the compliance monitoring activity cannot supply adequate information and according to MED POL [30] this strategy has to be revised.

3.2.1.4. Biological effects’ monitoring (monitoring with biomarkers)

According to MED POL [30] “biological effects’ monitoring (monitoring with biomarkers) was a pilot activity to test the biomarker methodology and its use as an early-warning tool to detect any destructive effects of pollutants on marine organisms at the initial stage of exposure”. Biomarkers are considered to be ‘impact’ indicators used for the evaluation of toxic effects of pollutants on coastal marine life. The organisms (mussels in this case) are caged long enough for toxic chemicals to accumulate in their tissues and are assessed for changes in their physiology using a

battery of biomarkers⁹ [33, 34]. This is the only monitoring activity which can provide information on the direct impact of specific pollutants on marine living organisms. MED POL has circulated training material (a manual and video) and conducted a training course in Genoa at the Università degli Studi di Genova. In addition it organised three inter-calibration exercises¹⁰. Only four countries participated in the exercises and submitted data, however, 12 countries have asked to participate in the next biomarker inter-calibration activities in order to include them in their national monitoring programmes. So considering it was only a pilot activity, and that an increasing number of countries are interested in participating, it could be regarded as a positive outcome.

3.2.1.5. Monitoring of eutrophication

According to MED POL [30] “monitoring of eutrophication occurs in sites where eutrophication phenomena are common and, in addition, potentially risk areas under the direct impact of anthropogenic nutrient and organic material inputs”. During 2004-2005 five pilot programmes were launched, in five sites of Slovenia, Turkey, Cyprus, Morocco and Tunisia respectively. The first data and reports are expected in 2006. The draft manual on sampling and analysis for eutrophication monitoring was improved and published as guidelines in the MAP Technical Report Series [35]. Moreover two training courses were organised in 2003 and 2004, where 21 people from 18 institutes in 14 countries were trained. A data quality assurance exercise was organised by IAEA/MEL (International Atomic Energy Agency / Marine Environment Laboratory) in 2005. Moreover, efforts to obtain historical data on inputs of nutrients to the pilot sites are being made in order to complete the assessment of eutrophication in these sites. Again this is a pilot activity promising to generate valuable information in the future.

⁹ MED POL has proposed 5 biomarkers: 4 cellular biomarkers (lysosomal membrane stability (stress), micronuclei frequency (genotoxicity), metallothionein content (heavy metal exposure), EROD (exposure to organic aromatic xenobiotic compounds) and ‘stress on stress’ (a biomarker of stress at the organism level).

¹⁰ Inter-calibration exercises are blind inter-laboratory analytical comparison exercises which are essential both for checking the accuracy of the analytical results, but also for ensuring comparability between the participating laboratories in the network.

3.2.1.6. Coastal / Reference sites

According to MED POL [30] the results of monitoring of Coastal/Reference sites are not very satisfactory. Generally MED POL Phase III was designed to include monitoring activities in two types of marine sites: pollution ‘hot spots’ and coastal areas. The monitoring of these sites is considered important especially in terms of management because the outputs are supposed to contribute to local management decisions and practices. Therefore more of the countries had included monitoring stations in or near these areas. Coastal/reference sites are also important in order to assess a general level of quality and/or trends of the coastal waters of the countries. However, most of the countries have only a few stations in coastal areas. Considering the overall length of the coastline, these are insufficient to generate reliable conclusions for long term trends of the Mediterranean Sea as a whole, especially when only about half of the countries (see section 3.2.) participate in the monitoring activities.

3.2.1.7. Data Quality Assurance

Data Quality Assurance is a compulsory procedure for all monitoring programmes. MED POL data on marine pollution contaminants are provided from various countries and a range of research institutions from each country. Data quality assurance is needed to validate accuracy of the data by examining analytical techniques used and reference methods on which they were based. The assurance procedure is also required to allow for comparability of all the data from the various institutes, and extraction of general results, trends, etc. For more than 30 years the responsibility for carrying out this Data Quality Assurance Programme for MED POL has been given to the Marine Environment Laboratory of the International Atomic Energy Association (IAEA/MEL) in Monaco. IAEA/MEL has conducted training courses for laboratory personnel, has organised several inter-comparison exercises and has provided technical support in the form of expert visits and advice. Moreover, IAEA/MEL prepared and presented an overall assessment of this activity, which will be shortly published as a MAP Technical Series Report. Among other things, it noted that, in general, participation from laboratories in the Mediterranean region has been rather disappointing. Although there was a notable improvement in their capability to determine some substances, the analysis of certain substances such as organic contaminants continues to be a major analytical challenge for the laboratories in that

region [30]. With respect to the scientific components of MAP it is a positive step that this exercise is being performed, however it is obvious that more and continuous effort is needed.

3.2.1.8. Capacity Building activities

Capacity building activities are provided by MED POL in cooperation with IAEA/MEL. In addition WHO supports these activities by conducting training courses and inter-calibration exercises in the area of microbiological methodology. In the period between 1998-2004, 22 such courses were organised in 9 different languages and a total of 481 of participants were trained [23]. Generally it is an ongoing process that provides valuable expertise.

Section 3.2.1. has demonstrated that the implementation of the monitoring programme in MED POL Phase III is limited. Data are not available to the public, however all the official documents indicate that the geographical coverage of the Mediterranean Sea for monitoring purposes is inadequate for scientific assessment of the regime effectiveness. Moreover, the countries are reluctant to co-operate and to participate in various activities.

3.2.2. Results on the implementation of the LBS Protocol

The second aspect of MED POL to be examined using document analysis is the implementation of the LBS Protocol. In order to assess this, we looked at documents such as the Strategic Action Programme, the National Diagnostic Analyses, the National Baseline Budgets, and the National Action Plans.

3.2.2.1. Strategic Action Programme

Since the text of the Protocol does not specify targets and deadlines for the targets to be met, specific guidelines had to be drawn up. Therefore in 1997 the MED POL programme assisted countries to design and adopt the ‘Strategic Action Programme to Address Pollution of the Mediterranean Sea from Land-based Activities (SAP)’ [36]. This was based on the Global Programme of Actions to Address Pollution from Land-based Activities (GPA), adopted in Washington in 1995 [37] and the LBS Protocol as amended in 1996. In the SAP the main issues addressed include specification of targets for pollution reduction on a broad range of substances. In particular, 2025 is

set as a target date for reduction of pollution, whereas various other dates in between are set according to specific types of pollutants¹¹. Moreover, there has been an identification of 103 pollution ‘hot spots’ and 51 sensitive areas¹², based on reports from the countries [29]. In addition to this, the SAP proposes the compilation of National Action Plans for each country with specific measures and priorities for action. For this purpose it also envisages the compilation of National Diagnostic Analyses, and National Baseline Budgets of pollutants.

3.2.2.2. National Diagnostic Analysis

One of the major inputs to preparation of National Action Plans is the National Diagnostic Analysis (NDA). Its basic objective is to identify and assess the national conditions and issues, including problems, contaminants, sources of degradation, significance of impacts, and areas of concern. Since this is a complicated procedure, the Secretariat helped the countries with a series of progress meetings and documents. To date all the countries have completed their NDAs and submitted them to the Secretariat.

3.2.2.3. National Baseline Budgets

The approach of developing a Baseline Budget was adopted in SAP in order to facilitate the achievement of the SAP targets. What it means is that each Mediterranean country has to reduce their aggregate releases of a pollutant by a certain percentage by a specific year with a reference to a National Baseline Budget of release for that pollutant. The agreed year for calculating the budget of releases was 2003, which will be used to start the agreed reductions. Essentially it is a database of emissions of all point sources in the coastal areas, grouped by administrative region. However, where there are insufficient data from actual monitoring, which is mostly the case, emission factors are used instead, to calculate the releases. Since this is a complicated procedure MED POL prepared Guidelines for the preparation of the Baseline Budget of Releases [38] and also organised training courses in five subregions to assist the countries to formulate them. This process has been now

¹¹ e.g. the target is by the year 2025 to phase out to the fullest possible extent discharges and emissions and losses of heavy metals (mercury, cadmium and lead), whereas by the year 2005 to reduce them by 50%.

¹² According to UNEP/WHO [29] estuaries and coastal waters of natural or socio-economic value are considered sensitive if they are at higher risk to suffer negative impacts from human activities.

completed and the results from all the Mediterranean countries have formed a database kept by MED POL. This database is an inventory of all the pollution sources in the region. According to MED POL it includes valuable information and if in the future the monitoring of loads could provide enough data to replace the calculated data, then it would be an ideal outcome and a step towards the elimination of pollution in the region [30].

3.2.2.4. National Action Plans

In a meeting held in Croatia in March 2003 a set of guidelines was discussed for the formulation of National Action Plans (NAPs). Later on in March 2004 in Turkey, MED POL organised a meeting and training seminar to initiate the formulation of NAPs. To date all the countries have already completed their National Diagnostic Analyses and their National Baseline Budgets of releases, formulated also their National Action Plans and they officially endorsed them in the 14th Ordinary Meeting of the Contracting Parties to the Barcelona Convention [31]. A synopsis of all the Action Plans was later prepared and presented in a meeting in June 2006 in Albania [39].

In contrast to other aspects of the MED POL programme, section 3.2.2. proves that implementation of the LBS protocol shows an increasing degree of efficiency. This demonstrates that MAP decision-making procedures, including environmental assessment, can be implemented even without effective monitoring.

3.2.3. Results on the scientific publications of MAP / MED POL

The third aspect of MED POL's operation to be examined through the analysis of documents is the production of scientific publications by MAP in MED POL's framework. Some of the more important publications analysed are the joint UNEP/EEA publications 'State and pressures of the marine and coastal Mediterranean environment' [40], and 'Priority issues in the Mediterranean environment' [41], both published as EEA reports with major contributions from UNEP/MAP and data derived from MED POL. The first one reviews the human activities and pressures in the area, identifies the environmental state and threats, estimates the ecosystem's sensitivity and the impacts of pollution, and provides some recommendations for the future. The latter publication includes *inter alia* inputs from 17 National Diagnostic

Analyses prepared by the Mediterranean countries, and thus emphasises pollution issues country by country. Moreover it identifies the following key issues of concern and deals with them separately: natural hazards, exotic species, harmful algal blooms, ecosystem changing due to unsustainable fishing, ecosystem changing due to aquaculture development, and ecological quality status in coastal areas. It concludes with several recommendations. Another important scientific publication of UNEP/MAP/MED POL is the 'Transboundary Diagnostic Analysis for the Mediterranean Sea' published in 2005 with the financial contribution of the Global Environment Facility (GEF) [42]. The purpose of this study was to identify problems of transboundary nature i.e. concerning transboundary waters since it was also part of the GEF's International Waters programme, and propose actions and measures for remediation of these problems. Even though not all of the Mediterranean countries are GEF-eligible developing countries, the other countries also participated in this project. After identifying the problems, this study also provides a set of Environmental Quality Objectives which reflect the desired environmental state. Then, using causal chain analysis, the root causes of the problems are identified, which are the targets for intervention.

In total MED POL has produced more than 120 publications, including assessments of the state of pollution of the marine environment either general [43, 44], or by specific substances, and also guidelines for monitoring, or wastewater treatment etc. Moreover, the data derived from the MED POL database are often used to form parts of other reports produced by research institutes. For example, in 2005 the Institute of Oceanography of the Hellenic Centre for Marine Research (one of the participating institutes in the monitoring activities of MED POL) produced a very thorough study and published it under the title 'State of the Hellenic Marine Environment'[45]. In the chapter about chemistry in the marine environment (heavy metals in biota, etc.) data from the MED POL database for the Greek Seas were used in order to estimate the status of pollution. In addition to this the Greek Ministry for the Environment, Physical Planning and Public Works financed a project in 1999 carried out by a consulting company in order to produce a synthesis of the results of the MED POL Greek data for the period 1993-1997, in order to estimate the results for the Greek marine environment and plan the next phase of cooperation of the Greek government with the MED POL programme [46].

In conclusion, section 3.2.3. has shown an increased production of publications, such as reports and studies about the state of the environment of the Mediterranean Sea making use of the available data where applicable. However, it is difficult to assess the impact these publications have had on the decision-making process, though many of them are included as working documents or information documents in the Ordinary Meetings of the Contracting Parties, which take place every two years and are one of the two authoritative organs of the Barcelona Convention.

3.3. Results from interviews

Several points made in this study were also verified by the research scientists and the other interviewees. First, the inadequacy of data for scientific measures of regime effectiveness was confirmed by all the interviewees and many explanations were given. Concerning the signing of monitoring agreements a comment was made that “The environmental reporting of the countries does not always depend on the country’s capacity, but rather on their willingness”. Many countries do not sign monitoring agreements, even though they run their own national programmes, because they do not need MAP for these already established activities. Marine pollution monitoring is an expensive activity and requires national funding. If funding is not allocated, then the activity can cease for years so countries prefer not to operate monitoring programmes under the obligation of an agreement. A remark was made that “For many years national problems and funding problems, resulted in not giving reliable data to MED POL, or not giving data at all”. Even from those countries with monitoring programmes the data are currently insufficient to generate overall conclusions, unless these are on a very local basis. MED POL scientists confirmed this view, though it is hoped pilot activities will generate more information in the future. Additionally it has been reported that the MED POL monitoring strategy is not always in line with EU requirements. This prevents the EU countries from making additional efforts and submitting data to MED POL when they have to do it anyway in another format for the EU.

Second the lack of interaction between science and policy was especially noted. MED POL scientists and researchers from participating institutes commented that there is

not a permanent mechanism for policy and science interaction in the form of a scientific advisory board, as exists for example in HELCOM and OSPAR Conventions. There is also no routine evaluation of the programme's results in order to fill in gaps. All the interviewees that commented on this issue, also agreed that such a mechanism should exist in Barcelona Convention in order to help bridge the gap between science and policy. After capacity building activities, there is no follow up to the training activities, e.g. to see if the trained personnel still work there, and the laboratories also claim shortage of material resources. Concerning dissemination of information, the interviewees from MED POL confirmed that there is no clear policy for public distribution of scientific results. Apart from administrative difficulties, ignoring scientific results in decision-making extends to other reasons as well. One of the interviewees summarised this succinctly "The best available science is there, however the gap between scientifically correct and politically acceptable is huge". That means that in reality each country is divided into decision-makers and scientists, but there is a lack of effective cooperation.

4. Discussion

Origins of the Barcelona Convention lie in concern expressed by the scientific 'epistemic community' over pollution in the Mediterranean Sea [13]. Content of the convention reflects these origins in that it is primarily focused on scientific monitoring and reduction of chemical pollution, as opposed to, for example, socio-economic development which might lead to a cleaner environment. This paper aims to assess environmental effectiveness of the Barcelona Convention after nearly 30 years of being in force. This can be broken down to three different questions. Are there sufficient reliable scientific data available to assess the environmental state? If so, are they taken into consideration by policy makers? If not, what is taken into account instead?

Regarding availability of reliable scientific information, analysis of the database from MED POL Phases I and II clearly shows that for the period 1975-1993 the data gathered cannot, on their own, produce a reliable picture of overall change in the state of the Mediterranean Sea biophysical environment. This was taken into account when designing Phase III under which the strategy became simpler. Under Phase III, even

though almost all of the signatory countries have their own National Monitoring Programmes up and running, only about 50% of them have signed monitoring agreements with MED POL to provide the data acquired, and even these send data insufficient to generate overall conclusions. Coastal/reference sites are poorly covered, leading to recommendations repeatedly being given to the countries in order to fill in gaps and cover more areas. Accuracy of the data provided is also an issue and additional capacity building activities are needed, as there are numerous different laboratories participating in the monitoring activities even though there is a Data Quality Assurance process. In spite of the low percentage of countries participating in the monitoring activities it is undeniable that a lot of improvement has been made in both national infrastructures and in developing new monitoring programmes especially for developing countries. Historically MED POL has had an important impact on availability of reliable scientific data. Following its inception MED POL introduced the concept of marine environment monitoring to national governments thus bringing the environment into the political agenda of countries that previously did not have a Ministry of the Environment, and introduced quality assurance at a time when little was known about it.

Do policy makers take the data gathered into consideration when designing and implementing policy? As demonstrated both by the analysis of documents, and by the interviews, data might be gathered and publications might be produced, but these can be neglected if they do not correspond with politically acceptable goals. Moreover the intended purpose of the database is in question, whether or not this purpose was served and if it was used to generate public awareness, even though there is no clear policy on dissemination of information by the Mediterranean Action Plan. This is not necessarily a drawback, if those that are aware of them use the data for their intended purpose. Despite the lack of continuous and sufficient data, MED POL has produced a large range of scientific publications including assessments and guidelines, either on its own or in cooperation with other organisations. Therefore, the information gathered has been used in that sense. However, the fate of all these publications afterwards is not clear. They are available on the MAP website and perhaps reach relevant offices, but are they used within the MAP decision-making process?

As far as the actual decision making process is concerned, the study has shown that the countries following the requirements of the Strategic Action Programme effectively produced National Diagnostic Analyses, National Baseline Budgets and finally National Action Plans. These required a lot of information and assessments that were not directly taken from the monitoring activities, but rather from other scientific assessments. For example there was an assessment of major 'hot spots' and sensitive areas in the SAP. The National Baseline Budget was based on emission factors rather than actual monitoring and constitutes a major source of information on inventory of all the pollution sources in the region. There is also a general question about the implementation of the National Action Plans since an appropriate mechanism for this has not been foreseen. The lack of a permanent scientific advisory board and a circular feedback mechanism impede the closer contact between MED POL and the scientific community. So, even if the monitoring data produced under the auspices of MED POL are insufficient, there is clear indication that other sources of scientific assessments are used, at least in the last few years, in order to formulate policies. However the extent of this could not be adequately assessed and a science policy interaction could not be demonstrated.

5. Conclusion

Measuring environmental effectiveness of a regime is difficult. Gaining a reliable picture of the state of the marine environment is a complicated if not impossible task. Specifically concerning the Mediterranean Sea, news reports suggest that the Mediterranean Sea is in a far more 'clean' condition compared to other Seas such as the North Sea or the Baltic Sea and its pollution is gathered mainly in coastal areas. Nevertheless, even if in the 70s, when the Barcelona Convention was signed, pollution was regarded only as the concentration of highly toxic chemicals or other substances, nowadays the focus has been broadened to include coastal pressure, destruction of habitats and other forms of environmental degradation. Even over exploitation of fish stocks can now be considered an environmental threat, something that unfortunately is not addressed in the Barcelona Convention, since fisheries are an economic resource, and are managed by the FAO (Food and Agriculture Organization of the United Nations). From the data available it is not possible to measure if the Mediterranean Sea is cleaner than prior to the Convention. Even if it could be proved

that it is cleaner, it is ambiguous whether this change can be attributed to the Convention or to other factors such as physical processes, introduction of cleaner technologies etc.

Although it is not clear how scientific data have contributed to environmental effectiveness, we can at least examine the environmental component and its interaction with the decision making process. According to the current study, the environmental information attained by MED POL cannot be considered adequate for measuring effective operation of the regime. However it is a huge ongoing effort and in the absence of this programme, not even this information would be gathered especially in the developing countries. Moreover a lot of resources go into the creation of relevant publications irrespective of their fate afterwards. Furthermore, the effective implementation of the LBS Protocol demonstrates that MAP decision-making procedures, including environmental assessment, can occur even without effective monitoring. This suggests that institutional, rather than scientific, dimensions are driving the operation of MAP. However, there is no established mechanism in the Barcelona Convention for a science-policy interaction, even though there are isolated efforts for this purpose. Nonetheless, environmental monitoring and assessment is important for the adoption of appropriate measures and enhancement of sustainable development. Even though it does not currently play the desired role in MAP and the Barcelona Convention, this is the direction towards which this international environmental regime should be moving.

The conclusions show that Haas's theory about scientific 'epistemic communities' [13] was probably an adequate explanation for the formation of the Mediterranean Action Plan, but it can not be considered appropriate to describe its current operation. Science might have been a driving force in its creation, but plays a rather different role today in the operation of MAP. Even though the legal texts of the Barcelona Convention and its related Protocols are highly technical in that they set scientific targets and do not directly address socio-economic issues, it is difficult to estimate the overall environmental effectiveness of the Convention. This is important bearing in mind that many international environmental agreements now address their respective problems by setting scientific targets and then trying to meet them without considering other aspects of a regime's operation, such as institutional performance.

In the case of the Mediterranean Action Plan it is perhaps sufficient to consider the regime effective if the coastal Mediterranean countries are brought together despite their many political differences. Environmental effectiveness of international regimes is a rather complicated issue, noted also by other studies that acknowledge scarcity of time series in environmental quality and other factors affecting environmental quality as obstacles in assessing it, as in the case of the 1985 Helsinki Protocol [47]. Even so, it is a necessary measure of their overall performance, however the above study demonstrates that there is a lot more to be researched and explored in various disciplines, in order for academics, practitioners and policy makers to be able to cooperate towards effective environmental regimes and policies.

Acknowledgements

The authors would like to thank the scientific personnel of MED POL, HCMR (Hellenic Centre for Marine Research), WHO and other interviewees for providing information and relevant literature. Special thanks go to Neil Carter and two anonymous reviewers for their valuable comments on earlier drafts of this manuscript. For financial support we would like to thank the 'Firos Foundation' who funded the doctoral studies of Sofia Frantzi. An earlier version of this paper was presented at the Conference on the Human Dimensions of Global Environmental Change, Berlin, 17-18 November 2006.

References

- [1] Krasner SD. International Regimes. Ithaca, NY: Cornell University Press, 1983.
- [2] Underdal A. The concept of regime effectiveness. *Cooperation and Conflict* 1992; 27 (3):227-240.
- [3] Wettestad J, Andresen S. The effectiveness of international resource cooperation: some preliminary findings. Lysaker: The Fridtjof Nasnen Institute, 1991.

- [4] Haas PM, Keohane RO, Levy MA. *Institutions for the Earth: Sources for Effective International Environmental Protection*. Cambridge, MA: MIT Press, 1993.
- [5] Kütting G. Distinguishing between Institutional and Environmental Effectiveness in International Environmental Agreements: The Case of the Mediterranean Action Plan. *The International Journal of Peace Studies* 2000; 5 (1):15-33.
- [6] Kütting G. *Environment, Society and International Relations: Towards more Effective International Environmental Agreements*. New York: Routledge, 2000.
- [7] Raftopoulos E. *The Barcelona Convention and Protocols. The Mediterranean Action Plan Regime*. London: Simmonds and Hill, 1993.
- [8] UNEP. Report of the Ninth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(OCA)/MED IG.5/16. Athens: UNEP, 1995.
- [9] UNEP/MAP. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. Athens: UNEP/MAP, 2005.
- [10] UNEP. *Mediterranean Action Plan and the Final Act of the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea*. New York: United Nations, 1978.
- [11] UNEP/ECE/UNIDO/FAO/UNESCO/WHO/IAEA. *Pollutants from Land-Based Sources in the Mediterranean*, UNEP/IG.11/INF.5. Geneva: UNEP, 1978.
- [12] UNEP/ECE/UNIDO/FAO/UNESCO/WHO/IAEA. *Pollutants from Land-Based Sources in the Mediterranean*, UNEP Regional Seas Reports and Studies No 32. Geneva: UNEP, 1984.

- [13] Haas PM. Do regimes matter? Epistemic Communities and Mediterranean Pollution Control. *International Organization* 1989; 43 (3):337-403.
- [14] Haas PM. *Saving the Mediterranean: The Politics of International Environmental Cooperation*. New York: Columbia University Press, 1990.
- [15] Skjaereth JB. The 20th Anniversary of the Mediterranean Action Plan: Reason to Celebrate? In: Bergesen HO, Parmann G, editors. *Green Globe Yearbook* 1996. Oxford: Oxford University Press, 1996. p. 47-54.
- [16] Jetic L. Integrated coastal and marine areas management (ICAM) in the Mediterranean Action Plan of UNEP. *Ocean & Coastal Management* 1996; 30 (2-3):89-113.
- [17] Gabrielidis GP. Pollution of the Mediterranean Sea. *Water Science and Technology* 1995; 32 (9-10):1-10.
- [18] Vallega A. Geographical coverage and effectiveness of the UNEP Convention on the Mediterranean. *Ocean & Coastal Management* 1996; 31 (2-3):199-218.
- [19] Massoud MA, Scrimshaw MD, Lester JN. Qualitative assessment of the effectiveness of the Mediterranean action plan: wastewater management in the Mediterranean region. *Ocean & Coastal Management* 2003; 46 (9-10):875-899.
- [20] Pavasovic A. The Mediterranean Action Plan phase II and the revised Barcelona Convention: New prospective for integrated coastal management in the Mediterranean region. *Ocean & Coastal Management* 1996; 31 (2-3):133-182.
- [21] UNEP. *MED POL - Phase III, Programme for the Assessment and Control of Pollution in the Mediterranean Region*, MAP Technical Reports Series No 120. Athens: UNEP, 1999.

- [22] UNEP/MAP. Report of the Thirteenth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(DEC)/MED IG.15/11. Athens: UNEP/MAP, 2003.
- [23] UNEP/MAP. Evaluation of MED POL Phase III Programme (1996 - 2005), UNEP(DEC)/MED WG.270/Inf.10. Athens: UNEP/MAP, 2005.
- [24] UNEP/MAP. Recommendations for 2006-2007, UNEP(DEC)/MED IG.16/5. Athens: UNEP/MAP, 2005.
- [25] Wiener JG. Method for detecting trace-element contamination of fish samples from handling. *Environmental Science & Technology* 1982; 16 (2):90-93.
- [26] Monteiro LR, Isidro EJ, Lopes HD. Mercury Content in Relation to Sex, Size, Age and Growth in 2 Scorpionfish (*Helicolenus-Dactylopterus* and *Pontinus-Kuhlii*) from Azorean Waters. *Water Air and Soil Pollution* 1991; 56:359-367.
- [27] Monteiro LR, Lopes HD. Mercury Content of Swordfish, *Xiphias-Gladius*, in Relation to Length, Weight, Age, and Sex. *Marine Pollution Bulletin* 1990; 21 (6):293-296.
- [28] Kress N, Herut B, Shefer E, Hornung H. Trace element levels in fish from clean and polluted coastal marine sites in the Mediterranean Sea, Red Sea and North Sea. *Helgoland Marine Research* 1999; 53 (3-4):163-170.
- [29] UNEP/WHO. Identification of priority pollution hot spots and sensitive areas in the Mediterranean, MAP Technical Reports Series No 124. Athens: UNEP, 1999.
- [30] UNEP/MAP. Review and Analysis of MED POL Phase III Monitoring Activities, UNEP(DEC)/MED WG.282/3. Athens: UNEP, 2005.

- [31] UNEP/MAP. Report of the 14th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols, UNEP(DEPI)/MED IG.16/13. Athens: UNEP/MAP, 2005.
- [32] UNEP/MAP. Report of the Review Meeting of MED POL-Phase III Monitoring Activities, UNEP(DEC)/MED WG.243/4. Athens: UNEP/MAP, 2004.
- [33] Depledge MH, Fossi MC. The Role of Biomarkers in Environmental Assessment .2. Invertebrates. *Ecotoxicology* 1994; 3 (3):161-172.
- [34] Narbonne JF, Aarab N, Clerandau C, Daubeze M, Narbonne J, Champeau O, Garrigues P. Scale of classification based on biochemical markers in mussels: application to pollution monitoring in Mediterranean coasts and temporal trends. *Biomarkers* 2005; 10 (1):58-71.
- [35] UNEP/MAP. Sampling and Analysis Techniques for the Eutrophication Monitoring Strategy of MED POL, MAP Technical Reports Series No 163. Athens: UNEP/MAP, 2005.
- [36] UNEP. Strategic Action Programme to Address Pollution from Land-based Activities, MAP Technical Reports Series No 119. Athens: UNEP, 1999.
- [37] UNEP. Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, UNEP(OCA)/LBA/IG.2/7. Washington, D.C.: UNEP, 1995.
- [38] UNEP/MAP. Strategic Action Programme (SAP). Guidelines. Preparation of the Baseline Budget of pollutants releases for the Mediterranean Region, UNEP(DEC)/MED WG.231/Inf.3. Athens: UNEP/MAP, 2003.
- [39] UNEP/MAP. Implementation of the Strategic Action Programme to address Pollution from Land-Based Activities. National Action Plans. Synopsis, UNEP(DEPI)/MED WG.289/inf.3. Athens: UNEP/MAP, 2006.

- [40] EEA. State and pressures of the marine and coastal Mediterranean environment, Environmental issues series No 5. Luxemburg: European Communities, 1999.
- [41] EEA. Priority issues in the Mediterranean environment, EEA Report No 4/2006. Copenhagen: European Environment Agency, 2006.
- [42] UNEP/MAP/MED POL. Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea, Athens: UNEP/MAP, 2005.
- [43] UNEP. State of the Marine and Coastal Environment in the Mediterranean Region, MAP Technical Reports Series No 100. Athens: UNEP, 1996.
- [44] Jeftic L, Bernhard M, Demetropoulos A, Fernex F, Gabrielidis GP, Gasparovic F, Halim Y, Orhon D, Saliba LJ. State of the marine environment in the Mediterranean Region, UNEP Regional Seas Reports and Studies No 132, MAP Technical Report Series No 28. Nairobi: UNEP, 1990.
- [45] HCMR. State of the Hellenic Marine Environment, Athens: HCMR, 2005.
- [46] NAMA Co. MED-POL project. A synthesis of the results 1993-1997, Report for the Ministry for the Environment, Physical Planning and Public Works. Athens: NAMA Co, Consulting Engineers, 1999.
- [47] Ringquist EJ, Kostadinova T. Assessing the Effectiveness of International Environmental Agreements: The Case of the 1985 Helsinki Protocol. *American Journal of Political Science* 2005; 49 (1):86-102.

Chapter V

What determines the institutional performance of environmental regimes?

What determines the institutional performance of environmental regimes? A case study of the Mediterranean Action Plan

Sofia Frantzi^{a,b,*}

^aEnvironment Department, University of York, Heslington, York YO10 5DD, UK

^bDepartment of Politics, University of York, Heslington, York YO10 5DD, UK

*E-mail addresses: sf505@york.ac.uk, sofia.frantzi@gmail.com

Tel.: +44 1904 434059; fax: +44 1904 432998

This paper is written in the style of and has been accepted for publication subject to minor revision in *Marine Policy*.

Abstract

Although there is fierce debate about how best to evaluate the effectiveness of international regimes, most writers regard institutional effectiveness as the best measure. This article examines the institutional effectiveness of one regime – the Barcelona Convention (or the Mediterranean Action Plan) – where there are sharply contrasting views of its institutional effectiveness. The study finds that the regime was indeed successful when created, but its contemporary institutional performance is inadequate. The article demonstrates that there is no simple answer as to whether a regime is effective; instead, in most cases it depends on the specific criteria each approach employs.

Keywords

International environmental regimes, Barcelona Convention, Mediterranean Action Plan, Regime effectiveness

1. Introduction

Traditionally, in international relations, there has been extensive research on the negotiation of international treaties or regimes, paying relatively little attention to the effectiveness of these regimes after they come into force. A major problem is that there is disagreement in the literature over important concepts such as the definition and measurement of regime 'effectiveness'. The debate focuses on two elements: institutional and environmental effectiveness. This study does not focus directly on this debate, but examines only one aspect, namely the institutional effectiveness of an international environmental regime. The case study used is the Barcelona Convention, commonly known as the Mediterranean Action Plan (MAP), established in 1975 under the aegis of the United Nations Environment Programme. The study briefly reviews literature on regime effectiveness followed by an overview of the Mediterranean Action Plan. The means of the research are described in the methods section and the main findings are presented in the results. It is argued that the evidence presented in this paper demonstrates that there is no simple answer as to whether a regime is institutionally effective, but rather in most cases it may succeed in some aspects and fail in others.

1.1. Regime effectiveness

Since the mid-1990s a series of studies have addressed the previously neglected area of regime implementation [1-3 *inter alia*]. However, addressing regime effectiveness is a difficult task so the literature has been characterised by a debate over its definition and measurement [4-8]. One of the main problems is the difficulty in anticipating the hypothetical situation in the absence of the regime so as to compare them, and the establishment of a certain relationship between the regime and the change in the situation itself. Given that difficulty of establishing a causal chain, most studies have analysed effectiveness primarily in terms of institutional performance, rather than environmental improvement. Haas et al. [9] ask the question whether the quality of the environment is better because of the regime, but do not indicate how such change could be measured or how much of it can be assigned to the regime and not external factors, emphasising thus the political effects of institutions rather than their environmental impact. Young [2, 7, 8] identifies key mechanisms by which regimes

might influence actors and contexts, so he focuses on the behavioural dimension of regime effectiveness. Although there have been approaches that regard environmental improvement as the fundamental purpose of a regime, they still see institutional performance as the best proxy indicator of effectiveness [10, 11]. Recently Kütting [12, 13] has stressed that change *per se* is not a sufficient measurement of effectiveness, and she tried to measure environmental impact more directly, but qualitatively. She makes a distinction between institutional and environmental effectiveness, noting though that they are closely interlinked.

Ideally, a holistic approach examining both institutional and environmental performance would provide the most complete assessment of the overall effectiveness of an environmental regime. However, the current article focuses only on institutional performance¹.

The variety in approaches is evident also in the choice of the method employed to measure effectiveness. In most studies, various types of qualitative approach have been employed, including descriptive, predictive, normative and explanatory methods [14] in most studies. Recently, however, there have been several attempts to develop a quantitative method of measuring effectiveness [3, 4, 15]. For instance, Helm and Sprinz [4] use game theory to establish an empirical upper and lower bound of performance, and then relate actual performance to both of them to produce a simple coefficient. Mitchell [15] applies regression analysis to yearly country level performance. The quantitative approaches do not intend to substitute for the qualitative ones, but rather aim to allow for a more systematic and robust analysis of patterns across cases.

Given that various approaches exist concerning both the definition and measurement of effectiveness, a question then arises as to the validity of studies assessing a particular regime with different criteria. In these cases are they all valid from different perspectives, or is it perhaps the regime performance itself that has changed through time? This controversy of views is precisely the reason for the choice of the case study, since the Mediterranean Action Plan has attracted sharply opposing views. In

¹ The environmental effectiveness of MAP has been addressed in an article currently under consideration with another journal.

short, Haas [16, 17], considered it a success, whereas Kütting [12, 13] and Skjaereth [18, 19] were less convinced by its performance, as demonstrated in the following section.

1.2. The Barcelona Convention / Mediterranean Action Plan

The Mediterranean Action Plan (MAP) was created in 1975, under the auspices of the United Nations Environment Programme (UNEP), only three years after the Stockholm Ministerial Conference set up the latter Programme². MAP was the first plan adopted as a Regional Seas Programme under UNEP's aegis. It now involves all 21 countries bordering the Mediterranean Sea as well as the European Union. The Barcelona Convention – officially the ‘Convention for the Protection of the Mediterranean Sea against Pollution’ – was signed in 1976, entered into force in 1978 to form the legal part of MAP. It includes 6 Protocols, namely, the Dumping Protocol, the Prevention and Emergency Protocol, the LBS (Land-Based Sources) Protocol, the SPA (Specially Protected Areas) and Biodiversity Protocol, the Offshore Protocol and the Hazardous Wastes Protocol. The last two Protocols are not yet in force even though they were signed in 1994 and 1996 respectively. A seventh protocol concerning Integrated Coastal Zone Management (ICZM) is currently under preparation.

Following the 1992 UN Conference on Environment and Development (‘Earth Summit’) in Rio and the requirements of the Rio Declaration on Environment and Development (Agenda 21), MAP attempted to translate the results of the summit onto the regional Mediterranean level, and adapted Agenda 21 to the Mediterranean context by setting up Agenda MED 21. This led to the adoption of the Action Plan for the Protection of the Marine Environment and Sustainable Development of the Coastal Areas of the Mediterranean (MAP II) on 10 June 1995 [20]. MAP II reflected both increasing concern for the pressures exerted on the Mediterranean environment and commitment of Mediterranean States to the ideal of sustainable development. Moreover, the Barcelona Convention was replaced in 1995 by an amended version taking into account recommendations of the 1992 Rio Conference on Environment

² See Haas [17] for a detailed overview of MAP's history and negotiations.

and Development and it was recorded as the ‘Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean’, being in force since 2004. The amended version of Barcelona Convention introduces new principles such as Environmental Impact Assessment (EIA), the polluter pays principle and the precautionary principle and also suggests time limits for environmental regulations [21].

According to Raftopoulos [22], Regional Action Plans usually consist of five components: assessment, management, legal, institutional and financial. MAP seeks to achieve all its objectives through its legal component, the Barcelona Convention and its related Protocols. As the institutional component of MAP is formed within the framework of Barcelona Convention, it is structured in a simple way giving authority to two organs: the Meetings of the Contracting Parties and the Secretariat. The Environmental Assessment Component of MAP, as stated in the official text of UNEP [23], is the Co-ordinated Pollution Monitoring and Research Programme in the Mediterranean, which is widely known as MED POL. Finally, the Barcelona Convention is complemented by policy-planning programmes (Blue Plan and Priority Actions Programme) and financial/institutional arrangements.

Moreover, following the launch of the MAP II process and a shift towards a ‘sustainable development’ orientation, the Mediterranean Commission on Sustainable Development (MCSD) was set up as an advisory body to MAP in 1996 as a think-tank on policies for promoting sustainable development in the Mediterranean Basin. Additionally, the operation of MAP is supported through six Regional Activity Centres, (RACs) in six Mediterranean cities, which under the supervision of the Secretariat help in a more decentralised way of operation, each offering expertise in specific fields of action for facilitating the operation of MAP.

The effectiveness of the Mediterranean Action Plan is an interesting issue since there are quite opposed views on it. Haas [16, 17] brought MAP to the attention of the academic community by praising it as a great success while some others like Skjaereth [18, 19] and Kütting [12, 13] were more critical about it. Other studies were carried out that only discuss certain aspects of MAP or try to assess specific features (e.g. legal perspective) of its operation [22, 24-31] *inter alia*.

Haas's study of 'epistemic communities' [16, 17] suggested that MAP derived its effectiveness from the influence of 'epistemic communities' and their direct impact on the behaviour of actors (states). It was considered an exceptional case of interstate cooperation because of the difficult negotiations due to political conflicts and economic differences (the North polluted much more than the South) in the region. However, Haas notes that even more surprising is the fact that states complied after the regime was negotiated, underlying the role of 'epistemic communities' in changing the state interests, promoting the creation of environmental ministries which then had the political clout to push for compliance. So governmental learning was increased both in foreign and domestic policy. He concluded that MAP might signal the emergence of an entirely new international political order for the environment, stressing the role of 'epistemic communities' in promoting stronger national pollution controls [17]. Nevertheless, more than fifteen years after Haas's study, this enthusiasm is missing from other researchers of MAP.

Skjaerseth [18, 19] was unconvinced about MAP's success 20 years after its creation. He notes that the reasons for its creation did not always have much to do with environmental concern, but were related to political benefits and, for the developed countries, the opportunity to receive training and equipment for monitoring pollution. Moreover, the goals of the Barcelona Convention were vague, which, coupled with an unwillingness to provide adequate reporting on national implementation, renders it difficult to estimate whether there has been behavioural change among target groups, especially when for many countries, much environmental national legislation was also required by other organisations such as the European Union. Skjaerseth also considers the MAP resources to be very limited compared to the wide scope of its demands, and the transparency increased with the allowance of NGOs to access. It is more difficult to assess environmental impact due to the lack of reliable and continuous pollution and water quality data and difficulty in excluding other factors such as general socioeconomic and technological change or natural environmental variation from being responsible for any change. Skjaerseth concludes that MAP is considered a collaborative political success since it produced a complete plan for de-polluting the Mediterranean Sea and furthermore because it increased the general environmental

awareness and preparedness through regional cooperation and transfer of knowledge. However, its impact on behavioural change among target groups is less clear [18, 19].

Kütting [12, 13] is also critical of MAP. Her approach distinguishes institutional from environmental effectiveness and looks at four areas of effectiveness, which describe the relationship of an environmental problem to the particular regime established for its abatement, and the social structures within which they are found. These four determinants are economic structures, time, science and regulatory structures. Concerning regulatory structures, she thinks there is an institutional framework, which, however, does not offer environmental benefit. As for economic structures and the economic organisation of the society, MAP is underpinned by the principles of sustainable development, which allows for economic growth together with environmental protection. However, she argues that these two goals can not always be reconciled in practice, and in MAP's case the regular flow of positive recommendations is not always matched by effective policy implementation. Moreover, science does not inform policy in the particular regime, thus it does not interact adequately with its formulation. As for time, one of the major problems of MAP is that its policy makers do not demonstrate any awareness of the irreversibility of environmental degradation. Hence, even though admitting that the regime has been politically successful in starting and maintaining a cooperation process for a significant period of time in a region traditionally characterised by many political conflicts, she finds that overall it can not be considered as successful either in terms of institutional or environmental effectiveness [12, 13].

Thus MAP's effectiveness is highly contested. Furthermore, 30 years have passed since its creation, during which many changes have occurred in its institutional settings, the most recent being the entry into force of the amended Barcelona Convention in 2004. The question is whether all the contrasting views can be valid especially in light of the time that has gone by. Special attention is paid to the institutional performance of the Mediterranean Action Plan while trying to address this issue.

2. Methods

The framework used to analyse the data is based on a set of key elements in the operation of MAP which emerge from the academic literature and the interviews. First, a common belief of the three aforementioned studies on MAP is that it had significant political impacts, which is an aspect many regime theorists focus on [9]. However, the political impact is also measured by changes in the behaviour of the actors, mostly shaped by the political influence of the regime, which in turn are largely influenced by MAP's institutional settings, i.e. its decision making process. This strong influence was evident in the initial phases of the regime, but it has to be re-examined. Additionally, the political impact of regimes is largely associated with international relations theories, so the synergies between them and other institutions or actors in the international arena [2, 9], can initiate behavioural change accordingly. Second, Haas noted the exceptional compliance of the countries with the regime after its creation, and many researchers look primarily at the legal implementation of, and compliance with, agreements [2, 32-34] so this issue is of great importance when looking at institutional performance. Third, the importance of economic performance of institutions [2, 35], is identified by the theory of institutional economics, since transaction costs affect the operation of regimes. According to rational choice approaches, reduced transaction costs, as well as adequate information, together with political benefits, urge countries to comply. Finally, according to domestic politics analyses, public opinion can exert pressure and significantly affect the formulation of domestic or foreign policy (e.g. with regard to environmental agreements) [9, 36, 37], and in this era of global governance public awareness and participation [32, 38, 39] are crucial to a regime's institutional performance. Each of the above issues is explored, in order to assess the institutional performance of MAP, especially with regard to its present status and operation.

For this study, the primary source of data is a set of interviews with key actors, supplemented by documentary evidence from official documents available in the library of the MAP Secretariat.

3. Results

3.1. Political impact

3.1.1. Political benefits

Each environmental regime, apart from its specific targets, also serves as a means for international cooperation, offering thus political benefits to the countries that participate in it. A common belief of all the studies and all the interviewees, is that MAP has achieved these benefits through its long term operation to bring together various countries, with various religions, some of them traditionally in conflict, in order to discuss and decide their shared interests in the environment. It has been the first regime of its kind in the Mediterranean region which has suffered from serious political conflicts most notably the Arab-Israeli relations and the Greek-Turkish dispute over the delimitation of the continental shelf and over Northern Cyprus. As Weinthal and Parag [40] note, in MAP negotiations, it was one of the first occasions that Israel participated in an international forum with its Arab neighbours, and even though MAP did not resolve the larger political tensions it has legitimised a minimum amount of Israeli-Arab scientific and technical cooperation, which otherwise would not have occurred. It is in fact the only forum in the region, in which absolutely all of the Mediterranean countries participate, and agree common future actions. Pavasovic [27] notes that it was the only international legal document at the Mediterranean scale, which allowed for cooperation at government level of all the Mediterranean states. Some say that it has also built a communication bridge between the European Union and the North African countries, opening and maintaining a dialogue between them. In a sense it could be thought of as a peacemaking agency for that particularly diverse region of the world.

Moreover, one common opinion is that “*MAP acts as a catalyst to influence national policies, especially in weaker countries where environment is a very low priority*”³, since the countries have taken more responsibility for their national environmental policy by participating in it. Pridham and Konstadakopulos [41] mention that previously environmental policy was a low priority in the EU Mediterranean countries

³ Personal communication with a former MAP National Focal Point for Greece, Athens, 3 February 2006.

compared to the Northern European ones, particularly in the weaker countries where development needs nearly always come first. In the mid-1970s most countries did not have a relevant ministry to deal with environmental issues, and some did not apply environmental legislation before the Barcelona Convention was in force. Haas [16] gives more details on dates that environmental authorities and regulations were introduced in the Mediterranean countries and attributes this change primarily to the regime. However, 30 years on, Haas's observations are no longer valid, since the point of entry of the Convention to the countries is not usually the Ministry of Foreign Affairs as in the case of most international treaties and MAP issues are rarely dealt with at the highest level (minister or deputy minister)⁴, hence the political clout of the regime has diminished.

In terms of capacity building, opinions vary greatly. In the early years there was considerable transfer of technical know-how and environmental policy-making tools [17, 40]. There is a lot of work still to be done to achieve capacity building in the Southern Mediterranean. According to some, MAP concentrates on technical training and does not provide any administrative guidance to the countries. Indeed, numerous training activities take place each year, especially via MED POL [43]. These training activities create capable groups of staff, yet there is no guarantee that the same people will continue to work in the relevant authorities, in which case the impact of these activities is ambiguous. For instance there are few activities especially for ministry personnel or for others specialised in the environmental sector. Another view suggests that training activities do take place but several countries show little interest in participating, since in many such activities researchers from no more than half of the countries participate [43].

Thus, the opinions vary. There is a view that MAP has not registered as a major player, as a basic actor of change, and that developed countries (especially the EU member states) are part of it only for matters of prestige. Even though it holds a historical value, there is a risk of political isolation, as the involvement of high level officials is gradually fading. Overall, though, the political benefits received by countries in the past and the maintenance of the only Mediterranean forum so far,

⁴ In the last Meeting of the Contracting Parties to the Barcelona Convention held in 2005, only 3 Ministers for the Environment were representing their countries in their respective delegations [42].

must be valued positively. There is consensus on this point amongst all the interviewees and the three key academic studies of MAP [12, 13, 16-19].

3.1.2. Decision making process

The decision making process and the overall institutional settings of a regime reflect upon its political influence, which was identified as significant by Haas, but seems less so in recent times. As described above, MAP's institutional component is designed in a simple way giving authority to two organs, the Meetings of the Contracting Parties occurring every two years and the Secretariat (or else MAP Coordinating Unit, based in Athens). A rotating Bureau of six representatives of the Contracting Parties, meeting twice a year, guides and advises the MAP Secretariat in the interim period between Meetings. Moreover its operation is supplemented by the Regional Activity Centres and more recently the Mediterranean Commission on Sustainable Development. All these arrangements coupled with the role of the National Focal Points (senior officials appointed by the countries to be responsible for the coordination of MAP activities both at the regional and the national level) determine the overall smooth operation of the regime.

MAP was established under the aegis of the United Nations Environment Programme, and is still administered by it, belonging thus to the broader United Nations family. According to some *“Any UN system means... very laborious, very ineffective, very high administration costs, very low impact”*⁵. Like many other UN institutions, MAP suffers from cumbersome bureaucratic mechanisms. UNEP does not play as an important role as it did in the first years in the decision making process, however MAP's autonomy has not included its administrative tasks. Thus, its operation is not flexible and with the short two year interval between the Meetings of the Contracting Parties [42, 44], typically by the time a meeting has finished, the next one has to be prepared. The recommendations sometimes are carried over to the next Meeting because there was insufficient time to implement them. Moreover, there are also numerous other intermediate thematic or regional meetings of various kinds, taking

⁵ Personal communication with the director of a Greek NGO. Athens, 28 March 2006.

place continuously⁶. However, several interviewees argued that these are necessary in order to ensure the democratic process so that everyone has a chance to express their opinion. Anyway, flexible or not, there is little choice in changing these arrangements. If, for instance the MAP Secretariat could involve the NGOs more than the national governments, its procedures could be facilitated with the quick response and up to date reports that NGOs can provide, since MAP is prisoner also of the national bureaucracies. Another option would be for MAP to become completely autonomous from UNEP, keeping only its aegis as a framework guidance and operating as an autonomous Convention. Lastly, the institutional workings are severely hindered because, as noted above, the point of entry of the Convention to member countries is not usually the Ministry of Foreign Affairs, and MAP issues are not dealt with at a high level (minister or deputy).

The decision making process is based on 'equal footing', meaning that all the countries having equal say, irrespective of their power. Some interviewees expressed worries that the most powerful parties (in terms of their financial contribution) are listened to more closely when decisions are made. According to Haas, when MAP was created France had this power to influence since, for instance, it could block funding for specific studies. However, this situation is not true anymore. After long-term service of an Italian and a French coordinator of MAP, currently this position belongs to a Maltese citizen, avoiding thus any potential rumour or misconception that a strong country can influence the regime through its coordination. As in all forums and organisations, some parties might indeed have a louder voice and take a more proactive stand. There might be a few players in the process, however, these players are the most active countries, the most interested in MAP affairs, and not the most powerful. This stand is greatly determined by the choice of the National Focal Points, who when possessing strong personalities can really influence processes. Unfortunately these are rarely high level officials, making the process more difficult when trying to convince either the other parties or their own governments of the importance of certain decisions.

⁶ For an annual plan of upcoming meetings within the framework of MAP, see <http://195.97.36.231/dbases/webdocs/UNEP/UNEP/CalendarOfMeetings.doc> official website of UNEP/MAP last accessed on 3.8.2007.

As part of a decentralisation process, the establishment of six Regional Activity Centres (RACs), each one specialised in a specific area of expertise, took place to assist the smooth operation of the MAP Coordination Unit. Nevertheless, their role and utility is in question. These are national centres administered by the respective governments that host them, and their personnel are locally recruited. The only exception is the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), administered by the International Maritime Organisation, and regarded by the interviewees as the most productive of all. Some RACs do not have a specific work plan and use considerable resources without producing any tangible results. Being nationally administered implies also frequent changes in personnel and directors. They are important as nodes of expertise in a specific area, as long as they do not try to be involved in other areas as well, requiring thus a kind of autonomy. However, Vallega [28] points out that MAP has gained in complexity since the RACs were established, especially when some of them deal with a multi-sectoral objective such as coastal area management. There is not a clear relationship between them and the Coordination Unit, something which should be clarified. Views are expressed that they are just a drain in MAP's resources, and external evaluations have been conducted for each one of them pointing out the problems. For instance the Blue Plan Regional Activity Centre based in Sophia-Antipolis, France, in 2001 had alone at its disposal 10% of all MAP resources [45]. Even though the Blue Plan mobilises resources from external sources like the EU, and it has to deal with a voluminous workload and amount of publications, it still uses a remarkably large share of the MAP budget.

Furthermore, in 1995 MAP and the Barcelona Convention and related Protocols were amended, taking into account the concept of sustainable development. Therefore the Mediterranean Commission on Sustainable Development (MCSD) was formed to bring closer together industries, local authorities and environmental NGOs in the region. Critiques of this Commission have not been very positive, mentioning that it is more words than action, since during the ten years of its operation, its only concrete product was the Mediterranean Strategy for Sustainable Development [46]. The latter has been also endorsed by the European Union, which might ascribe to it a different dynamic. Theoretically the Commission is an interesting idea with the purpose to serve as a think tank to address emerging issues, but in practice it is criticised for

being distant from MAP. Additionally, its membership does not represent equally the three sectors, partly because there are no Mediterranean networks for economic actors, as there is as yet no established common Mediterranean market as envisaged in the Euro-Mediterranean partnership. Even so the idea of sustainable development is always difficult to implement in terms of reaching out to all three sectors. Nevertheless, the Commission's existence is important even if only for critical thinking. Its potential should be developed to the greatest extent, having as an example the role of the UN Commission on Sustainable Development.

The institutional setting and decision making process of MAP does not reflect at the moment a sufficiently strong or flexible system to exercise serious political influence in order to achieve behavioural change.

3.1.3. Synergies with other institutions

International institutions are established through cooperation among countries with shared interests in a particular issue or sector. In order to fulfil their goals they seek to get support from important actors with similar interests. The more the institutions cooperate with each other, and the less controversy or unnecessary overlap they face, the more effective they become in achieving their own goals. In the Mediterranean region the main political actor is the European Union. Suárez de Vivero and Rodríguez Mateos [31] note that the geo-political area formed since the 1990s presents a powerful European Union which wants to intervene in the region, also through its role in Barcelona Convention, together with other political interventions or dialogue in the Middle East and the Balkans. Having some of its members in the region and being itself a signatory and party to Barcelona Convention and its Protocols, it shows a particular interest in cooperating in order to achieve common goals.

Going back to 1995, the Euro-Mediterranean Ministerial Conference of Ministers of Foreign Affairs has adopted an agreement and initiated a process of official cooperation known as the Euro-Mediterranean Partnership or Barcelona Process (not to be confused with Barcelona Convention) [47], aiming at regional peace and stability, economic cooperation including the establishment of a free-trade area, and

social and cultural rapprochement⁷. In the 10th anniversary of the Partnership, the Euro-Med Summit launched the 'Horizon 2020' initiative to de-pollute the Mediterranean Sea by 2020. In the framework of this initiative, the European Union acknowledges the role of MAP. Belfiore [48] notes that from 1995 the European Council adopted conclusions on the Euro-Mediterranean cooperation on the environment, detailing a series of objectives and fully endorsing the role of MAP and the Barcelona Convention. More recently, the EU established an official cooperation at the 2nd Euro-Mediterranean Ministerial Conference held in 2002, adopting the so-called Athens declaration, which provides for a joint policy for the environment of the region. Following this MAP has agreed and signed joint administrative work-programmes with the European Commission and the European Environment Agency [49].

From the previous paragraph, it seems that this cooperation between MAP and the EU is working smoothly. Nonetheless, in some cases there is overlapping and duplication of effort, or confusion concerning targets and deadlines to reach them. For instance the goals of the 2000/60/EC Water Framework Directive are not overlapping with those set out in Barcelona Convention; they are different, presenting many mismatching points.

Additionally, the motives of each side are ambiguous, as the environment might not always come first. For MAP, someone might think that since it cannot 'beat' the EU, it might as well join forces with it. The countries have started to approach other institutions which can provide substantial support, weakening thus MAP's importance and influence in the region. The EU provides financial assistance in order to achieve its environmental goals, and helps through programmes the Mediterranean neighbours. Although MAP is not vital for the environmental policy and performance of the EU Mediterranean countries, they have no strong reason to withdraw from it.

On the other hand, possible incentives of the EU for this cooperation vary. Even in the framework of the Euro-Mediterranean Partnership, the EU uses its economic power

⁷ The partnership includes the 25 EU member states and ten Mediterranean partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Syria, Tunisia and Turkey). Libya has observer status since 1999.

through the trade agreements in order to create peace and stability in its borders. The overpopulation of the South might alter enormously the population balance in Northern – Southern Mediterranean coasts. Jones [50] notes that the EU wants through this process to enhance the prosperity of the Southern Mediterranean region, in order also to tackle the roots of legal and illegal immigration, hence it tries to ‘buy’ its security. Additionally, the EU plays a direct role in the Middle East peace process, being the largest single aid donor to the Palestinians, and using the Euro-Mediterranean Partnership as Hollis [51] suggests. It has interests in energy supplies, and even with no military power like the US, uses its economic power to enhance the peace process. Therefore, the EU’s incentives to cooperate with MAP are the economy, peace and stability in the region, all of which encourage it to try to bring the countries into its sphere of influence. MAP could be an access bridge to the Southern Mediterranean, since the latter has notably more trust in it than it does in the EU. However, the future of this synergy is challenging, requiring MAP to prove its necessity, and demanding negotiations from both sides. However “*Environment and culture are considered vehicles of diplomacy... MAP is such a vehicle...*”⁸, so hopefully such a danger would not be realistic. And as the Coordinator of MAP noted “*...the EU is much stronger. But we have this advantage, this added value of having credibility in the region... So, there is scope to work together. It is in the interest of both parts.*”⁹

Hence, in the international arena MAP acknowledges the need for synergy with the EU and *vice versa*, but this synergy has yet to prove a reality in the long term and has achieved few concrete results.

3.2. Legal implementation and compliance

An obvious measure of institutional performance is the legal implementation of and compliance with any given agreement. Compliance with the MAP regime was considered surprising at the beginning. In an unusual order, the Mediterranean Action Plan was first designed and later on its legal component, the Barcelona Convention

⁸ Personal communication with a former representative of the European Commission for Mediterranean issues and current high official of the Greek Environment Ministry, Athens. 10 February 2006.

⁹ Personal communication with the MAP Coordinator, Athens, 16 February 2006.

was signed. Thus, legally MAP does not exist. When looking at its legal effectiveness, only the Convention is examined.

A general drawback of international law is the voluntary basis on which countries abide by it. Even though Conventions are absolutely legally binding, countries are not forced to be party in a Convention, thus they are not obliged to implement it. Hence, international Conventions are effective to the extent that countries respect them, depending sometimes on the national interests. This is also the case in Barcelona Convention, where all the Mediterranean countries have ratified it, but not all the Protocols as well, since two of them, namely the Offshore and the Hazardous Wastes Protocols, are still not in force after more than ten years of their adoption. The former is related to the claims of the countries according to the Convention on the Law of the Sea. Moreover, after the 1995 amendments to the Convention and the Protocols, the Barcelona Convention has failed to put in force all the amended versions, which are substantially different than the previous ones. Behind the scenes, some countries do not ratify the amended Dumping Protocol because of conflicts of interests with some mining industries. Admittedly *“A serious and legally complicating problem is that currently there are in force, at the same time, both the original and the amended versions of the Barcelona Convention and of two of its Protocols, as well as the original and the replacing versions of other two of its Protocols.”*¹⁰ This means that the new instruments that entered into force coexist with the older ones, binding in each case only the countries that have ratified them respectively. Hence there are three types of legal document, Protocols that have never been in force, Protocols that are in force but not yet their amendments, and Protocols that are in force simultaneously in the older and amended versions, causing confusion and impeding the compliance¹¹. Moreover, views are expressed that even the Protocols that are in force, are not in fact implemented and regulations for fishing, missing completely from the legal texts, could be an important factor in the protection of the marine environment.

Looking at the issue from a political angle, according to some interviewees, countries should participate in an international agreement, irrespective of whether they abide by

¹⁰ Personal communication with the legal adviser of MAP, Athens, 3 April 2006.

¹¹ For the current status of signatures and ratifications of the Barcelona Convention and its Protocols see <http://195.97.36.231/acrobatfiles/BCPweb/StatusOfSignaturesAndRatifications.doc> official website of UNEP/MAP last accessed on 3.8.2007.

it. On the other hand, non-complying members might impede the effectiveness of the agreement in question. The Barcelona Convention is implemented more strictly by the EU parties, mainly because its requirements often coincide with the EU regulations and directives. However, this is not always the case, as many times they might ignore all rules, irrespective of their origin. In other cases, when the two institutions have substantially different requirements they might choose to implement primarily the EU law. After all, the countries do not comply with Barcelona Convention any less than they do with their other national policies. The Southern Mediterranean countries often do not have the necessary financial resources to comply with strict regulations. Even though the Barcelona system is absolutely binding from a legal perspective, the absence of any sanction mechanisms leaves the parties quite free in the implementation, and enables them to agree to measures they do not intend to take. Unlike the EU, which can impose serious fines, since it provides also financial help to its members, the Barcelona Convention has no such authority. Recently though, a case in the European Court of Justice has established that since the EU has ratified the Barcelona Convention, EU Mediterranean countries are automatically bound by the Convention under European Law thus giving the right to appeal¹². The introduction of sanctions would have ambiguous results, since it could also deter the parties from participating in the first place. Hence the legal obligation of the countries is a constructive process, not based on punishment. Moral pressure is a medium solution to force members to comply, and perhaps smaller and informal mechanisms could identify and help weaknesses, that the countries would be embarrassed to admit publicly.

As far as liability and compensation is concerned such a mechanism does not exist in the framework of Barcelona Convention. Belfiore [48] finds that this is one of the reasons that it cannot ensure implementation. Potentially it could facilitate its implementation, and more importantly it would initiate a process of reinstatement of the environmental damage. Nonetheless, such mechanisms require complex procedures, which are still not clear in other more homogenous institutions such as the EU, and as in the case of sanctions might deter countries from participating. A first

¹² For details see cases C-239/03 *Commission of the European Communities v French Republic* [2004] ECR I-09325 and C-213/03 *Syndicat professionnel coordination des pêcheurs de l'étang de Berre et de la région v Électricité de France (EDF)* [2004] ECR I-07357, concerning the pollution of the Étang de Berre by violation of the Barcelona Convention and the LBS Protocol.

meeting took place in 1997 to start the preparation of appropriate rules and procedures in the Barcelona Convention but little progress has been made since [52].

Furthermore, the lack of a system of control over the compliance deprives Barcelona Convention of an internationally reliable status. This deficiency is another reason that the Convention does not have the power to ensure implementation [48]. The national reporting system is unreliable, since the controller is the same as the one who is being checked, presenting thus an in house situation. The contracting parties might not lie, but they definitely hide and distort the truth. An attempt to organise the national reporting has been only recently established [53] with the first reports of the countries being completed in the years 2002-2003. Information contained in these reports is confidential and could not be provided to the author. However, their findings were summarised at a regional level, not by country, noting that only 18 reports had been received, with some blank fields as well, even in cases where the data had been previously provided from the country to other programmes of MAP such as MED POL, showing clearly lack of coordination within the country [54]. This system of control over the compliance would not aim to punish the countries, but rather to identify the problems in order to help them in implementation. As in some other international conventions, NGOs should have the role of reporting against the national reports, which provides for a more transparent procedure.

Apart from all the aforementioned problems of achieving compliance with the regime, there have been cases where despite the apparent formal compliance of a country with the Barcelona Convention, in practice the law was severely violated. Weinthal and Parag [40] show that in Israel, even though the country was ranked very high regarding the adoption of relevant legislation, it continues to violate these laws by contaminating the main rivers flowing into the sea.

Finally, comments were made by interviewees that legal compliance in general in the Mediterranean is not an indispensable rule, commonly attributed to the culture, and the more relaxed way of thinking in the region. The influence of the Mediterranean region in all aspects of life of the relative countries is evident. This is described according to La Spina and Sciortino [55] as a 'Mediterranean Syndrome', including *inter alia* the non obedience of the law unless there is reason to fear some punishment.

Kurth [56] notes that politics in the Mediterranean Europe moved parallel among these countries, but on another path and at another pace compared to Northern Europe. Moreover, these countries have a very bad record at implementing EU legislation according to Pridham and Konstadakopulos [41]. This influence extends also to external relations of the countries, since the ‘Mediterraneanity’ is defined by Suárez de Vivero and Rodríguez Mateos [31] as “...the relationships between countries situated within a certain area when these relationships are intensified by the limitations of said area.”

As demonstrated above, the legal implementation of MAP and the compliance with the regime is an ambiguously successful aspect of its operation.

3.3. Economic performance

Institutional economics account for transaction costs and overall economic performance as main reasons or obstacles in the effectiveness of institutions. In the early years of MAP’s operation UNEP had an important role both administratively and also making a large financial contribution. Gradually, as MAP became more autonomous, its budget originates mostly from its members, which contribute proportionally to the Mediterranean Trust Fund. Extra income is the counterpart contribution of the host country (Greece), the voluntary contribution of the EC on top of its member contribution, and various cash/in kind contributions of the countries that host the Regional Activity Centres. As approved in the 14th Ordinary Meeting of the Contracting Parties in 2005 the total budget annually is around €7 million [57], with France, Italy, Spain, Greece and the EC together providing more than 75% of it, whereas UNEP only gives the symbolic amount of less than €20,000. This distribution, according to the UN development index, logically places more burden to the North than the South.

Obviously, the MAP budget is very small compared to environmental programmes of other institutions such as the EU, the World Bank or the Global Environment Facility (GEF), which can provide external funding. Also, the European Commission, together with the World Bank, the European Investment Bank, and the UNDP support the Environmental Programme for the Mediterranean (EMP), founded in 1990 and

include the Mediterranean Technical Assistance Programme (METAP) [48]. Thus it can provide a less developed country with a few thousand euros for an environmental project, whereas GEF, for instance, could provide millions. Massoud et al. [30] while assessing the wastewater management in the Mediterranean region as required by MAP and the Land-Based Sources Protocol, note that still more than 48% of the largest coastal cities have no sewage treatment systems, since less developed countries can rarely afford the sophisticated technology required for advanced wastewater treatment. So countries are left with the task of finding resources from international banks and bilateral agreements, since no regional financial mechanism is there. However, MAP's original purpose is not to be a donor to the countries, but rather a catalyst, a facilitator towards improving their environmental performance. Apart from policy guidance and capacity building, MAP countries need to mobilise important financial resources to implement plans and projects. So far MAP does not have a resource mobilisation guiding role, however it has cooperated with GEF in a couple of projects [58, 59]. It was expressed that "*MAP should play a catalytic role in channelling financial resources from external donors towards the countries that most need them*"¹³ and this concept of external funding in the region should be taken more seriously, holding great potential for the future operation of the regime. This potential might depend on the successful completion of the second GEF project (2007 – 2012), and the publicity of its results.

According to the opinion of many interviewees this small budget is partially responsible for the poor implementation of MAP and the Barcelona Convention. According to Skjaereth [18] and Dardis and Smith [60], in the early 1990s MAP was close to collapse since major European contributors were failing to pay their dues, with the deficit in April 1994 amounting to \$ 3.7 million, equal to 7 months of MAP budget. Especially after the 1995 amendments to the Convention and the Protocols, their scope has been extensively enlarged without any parallel rise to the funds envisaged. In comparison the legal requirements with the financial provisions are unequal, rendering more difficult their translation into actions, hence funding was one of the main problems of MAP Phase II [18, 27, 28].

¹³ Personal communication with an external consultant to MAP, Athens, 15 February 2006.

An issue that raises questions of cost-effectiveness is the internal allocation of funds between the different programmes, activities and Regional Activity Centres. In fact the previously described bureaucratic operation of the institution requires not only time but also money for the documents' preparation and travel expenses of the numerous meetings. Personnel and administration costs are also relatively high, leaving just a small budget for activities. The unclear work plan of the RACs, and their relationship with the national governments of the host countries generates doubts about their cost-effectiveness as well. So far there is no external auditing presumably for political reasons. On the other hand, with such a small budget, one might say that even these activities, workshops, training seminars, working meetings, are utilising to the fullest extent the resources available. Actions with multiplying results, as for instance pilot projects, might boost the overall cost-effectiveness.

Therefore the economic performance of MAP is debatable, since its wide scope and the costly administration increase both transaction and implementation costs. It does achieve a lot given its limited resources, but do these actions / meetings result in achieving the goals?

3.4. Public awareness and participation

Effective global governance requires institutions with transparency, openness, public awareness and participation. With regard to public awareness, MAP and the Barcelona Convention unfortunately are not widely known to the wider public. As many interviewees revealed, sometimes even within the competent authorities, there is ignorance of the regime. Moreover citizens of the host country of the Secretariat are not aware of its existence. The responsibility for its public outreach currently lies only in the regime itself, whereas perhaps it should be equally tried by the national governments, or at least by that of the host country. UNEP might be more efficient, however as noted it has gradually detached itself from any activities in MAP other than administrative.

So far MAP has not operated a clear communication strategy, as it is mainly based on the organisation's website and its quarterly magazine MedWaves. These might contain sufficient and up to date information, which has however to be widely spread.

The dissemination of information has only recently become the thematic area of expertise of one of the Regional Activity Centres, which has changed its name and scope (officially at the 14th Ordinary Meeting of the Contracting Parties, held in 2005), from Environment Remote Sensing Regional Activity Centre (ERS/RAC) to Information and Communication Regional Activity Centre (INFO/RAC). This reveals a shift in MAP's communication approach which might be unnecessary according to some opinions. It may not have a big public outreach perhaps due to the fact that this is not necessarily its role, but rather an obligation of other actors, such as the NGOs or the national governments.

Similarly the NGOs take the responsibility for environmental public awareness, when governments fail to do so. Weinthal and Parag [40] describe how although Israel managed to formally comply with the Barcelona Convention through transfer of technical know-how, institutional mechanisms and financial resources, nonetheless it has not achieved full enforcement and full implementation due to the absence of a strong indigenous environmental NGO movement with transnational linkages and / or ties to the state. Recently, and only where environmental NGOs have been active, they have managed to influence Israel's coastal management, relying especially to the court system. Moreover Jetic [26] explains that Integrated Coastal Area Management is too ambitious a goal to be able to be achieved by MAP on its own, and thus considers imperative the cooperation with all the societal actors. In fact MAP is one of the few international instruments that goes beyond governments by involving civil society. Originally the MAP and Barcelona Convention documents did not allow for any NGOs or other stakeholders involvement [27]. However, in 1989 a change in the rule of procedures allowed many NGOs to participate by registering also as MAP partners [61]. Skjaerseth [18] finds that immediately after, there was indeed high participation in the meetings with some important contributions as well. However, recently the question is whether they do make a difference by participating in the Meetings of the Contracting Parties, or whether they just want to be involved in these affairs for reasons of prestige. Moreover, their involvement should carry on continuously through the interval between meetings. In the long list of MAP partners, a few of them are active and interested, the same few each time, and some go very easily with the flow of the countries. Perhaps the Barcelona Convention is bureaucratically 'cumbersome', not inspiring thus the civil society for involvement

and action, entrapping them in one more forum around the globe. Nevertheless NGOs and IGOs indirectly influence the decision making procedure, acting as catalysts sometimes. In the case of MAP they have in the past contributed directly in its operation sometimes by producing substantial work like preparation of important documents, proving that there can be a successful cooperation.

Nevertheless there is a need for a whole new communication strategy for environmental information since some argue that *“The whole environmental community has tragically failed in disseminating the environmental message to the wider public”*¹⁴.

Overall, MAP seems to enhance public participation, but it has not yet acquired wide recognition. There is the will, but in reality not much is achieved, which renders difficult the influence of domestic or foreign policy.

4. Discussion

There are sharply contrasting views of the institutional effectiveness of the Mediterranean Action Plan. Haas described a regime in the late 1980s with strong political influence and high levels of compliance. Skjaerseth was more critical; while acknowledging the political benefits and the general environmental awareness it entailed, he could not find evidence of the behavioural change of actors. Similarly Kütting, distinguishing between institutional and environmental effectiveness, thought that MAP was not successful in either of the two, with its only achievement being the initiation and continuation of a difficult cooperation effort.

This study focused on key aspects of the institutional performance of the Mediterranean Action Plan in order to give an idea of its effectiveness to date. Starting from its political impact, this can be seen from three different angles. Regarding political benefits to the countries, the overall argument is that it has achieved an enormously important role, that of facilitating cooperation in a traditionally hostile region and overcoming long term political conflicts among

¹⁴ Personal communication with the coordinator of an Intergovernmental Organisation, Athens, 8 February 2006.

countries. It has also influenced national policies, especially those of the weaker countries, at a time when the environment was not very high on the political agenda. Even though circumstances have now changed and the capacity building efforts are less obvious, the political benefits are still considered important, so this success is commonly acknowledged by all the researchers. The institutional setting and the decision making process, which largely shape the political influence of the regime, are more problematic. Although the 'equal footing' regime is very democratic, MAP operates under a highly bureaucratic United Nations system, which makes most initiatives slow and costly. In addition, the operation of the Mediterranean Commission on Sustainable Development and the Regional Activity Centres raises concerns over the overall coordination of the regime. More importantly, the involvement of higher officials, especially at the ministerial level, is considerably diminished, and currently the regime does not have a strong and flexible enough system to exert political influence. Lastly, in relation to the synergy of MAP with the European Union, as the most important political actor in the region, there is an ongoing official process of cooperation. Questions are raised concerning the incentives behind this process, and also its future outcome. Moreover the political and economic power of the European Union totally outweighs that of MAP, posing a threat to its important role as a sole regional actor. Hence in the international arena, MAP realises the need for interaction with powerful actors, but these international relations need to be established through time. Overall, the political impact of MAP on the countries has changed since the 1970s; formerly strong, recently it has lost its influence.

Legally speaking, it is very important to see a complete legally binding regional system for the environment of the Mediterranean. It is an important tool which covered a gap at the time of its creation. However, there are important issues on its legal implementation, since some of the Protocols and the amendments are still not in force, or in cases two different versions of the same legal document are in force simultaneously causing confusion. Furthermore an assessment of the compliance of the countries in terms of national implementation is not yet totally feasible. Compliance thus is rather ambiguous, and the interest of countries in doing so is not as evident as in the first years of MAP's operation.

Institutional economics look at the economic performance of the institution. In that respect, MAP's cost-effectiveness cannot be readily assessed. Its wide scope and costly administration increase both transaction and implementation costs. However, admittedly it achieves to coordinate a significant effort, despite operating under a very strict budget. There is room for improvement, especially in terms of channelling of resources from external donors, since international Conventions are only effective when there is also the financial backing for their implementation. A rational choice approach thus would consider uncertain the institutional performance of MAP.

Finally, as mentioned, global governance requires participation, transparency and public awareness. The issue of public awareness and participation is a difficult subject for each environmental regime, since it may be hard to ensure that the environmental message reaches the layperson. Indeed, MAP has not acquired wide recognition, even though it tries to involve the civil society in its operation. In that respect, there is no ability to influence domestic policy or even foreign, without the support of involved pressure groups. Nonetheless there are good intentions both by the NGOs and the regime itself to cooperate effectively but these intentions have to be turned into practical actions.

5. Conclusion

The effectiveness of international regimes is an issue of fierce debate, with various approaches used to define and measure it. Even for the same regime, opinions vary over its actual performance. This study of the Mediterranean Action Plan, which represents such a case, has shown that all the contrasting opinions have some validity according to their own criteria, and at the time they were written. Hence MAP was indeed successful when created, but its institutional performance nowadays is not adequate. It did and does offer political benefits, but other than that little action can be attributed to it today. So, according to this study's criteria, MAP has changed so much that it cannot be considered successful currently.

It has been demonstrated there is no simple 'yes' or 'no' answer to the question whether an international regime is effective. This study has shown that political impact, legal implementation and compliance, economic performance, and public

awareness and participation are key factors influencing a regime's effectiveness. What is certain is that there is a long way to go in understanding and improving the institutional performance of international environmental regimes, taking into account especially the complex changes that occur throughout their life and existence.

Acknowledgements

The author is very grateful to Neil Carter for his valuable comments on earlier drafts of this study. Special thanks go to all the people who devoted their time on the in-depth interviews. Thanks also go to Margaret Watts for providing the official documents of UNEP/MAP and a friendly working environment. The 'Firos Foundation' is gratefully acknowledged for funding the author's doctoral studies.

References

- [1] Victor DG, Raustiala K, Skolnikoff EB. The implementation and effectiveness of international environmental commitments: theory and practice. Cambridge, MA: MIT Press, 1998.
- [2] Young OR. The effectiveness of international environmental regimes: causal connections and behavioral mechanisms. Cambridge, MA: MIT Press, 1999.
- [3] Miles EL, Underdal A, Andresen S, Wettestad J, Skjaerseth JB, Carlin EM. Environmental Regime Effectiveness: Confronting Theory with Evidence. Cambridge, MA: MIT Press, 2002.
- [4] Helm C, Sprinz DF. Measuring the effectiveness of international environmental regimes. *Journal of Conflict Resolution* 2000; 44 (5):630-652.
- [5] Hovi J, Sprinz DF, Underdal A. The Oslo-Potsdam Solution to Measuring Regime Effectiveness: Critique, Response, and the Road Ahead. *Global Environmental Politics* 2003; 3 (3):74-96.

- [6] Underdal A, Young OR. Regime Consequences: Methodological Challenges and Research Strategies. Dordrecht: Kluwer Academic, 2004.
- [7] Young OR. Inferences and indices: evaluating the effectiveness of international environmental regimes. *Global Environmental Politics* 2001; 1 (1):99-121.
- [8] Young OR. Determining Regime Effectiveness: A Commentary on the Oslo-Potsdam Solution. *Global Environmental Politics* 2003; 3 (3):97-104.
- [9] Haas PM, Keohane RO, Levy MA. *Institutions for the Earth: Sources for Effective International Environmental Protection*. Cambridge, MA: MIT Press, 1993.
- [10] Underdal A. The concept of regime effectiveness. *Cooperation and Conflict* 1992; 27 (3):227-240.
- [11] Wettestad J, Andresen S. *The effectiveness of international resource cooperation: some preliminary findings*. Lysaker: The Fridtjof Nasnen Institute, 1991.
- [12] Kütting G. *Environment, Society and International Relations: Towards more Effective International Environmental Agreements*. New York: Routledge, 2000.
- [13] Kütting G. Distinguishing between Institutional and Environmental Effectiveness in International Environmental Agreements: The Case of the Mediterranean Action Plan. *The International Journal of Peace Studies* 2000; 5 (1):15-33.
- [14] Mitchell RB, Bernauer T. *Qualitative Research Design in International Environmental Policy*, Working Paper 2-2002. Zurich: Swiss Federal Institute of Technology, 2002.

- [15] Mitchell RB. A quantitative approach to evaluating international environmental regimes. In: Underdal A, Young OR, editors. *Regime Consequences: Methodological Challenges and Research Strategies*. Dordrecht: Kluwer Academic, 2004. p. 121-150.
- [16] Haas PM. Do regimes matter? Epistemic Communities and Mediterranean Pollution Control. *International Organization* 1989; 43 (3):337-403.
- [17] Haas PM. *Saving the Mediterranean: The Politics of International Environmental Cooperation*. New York: Columbia University Press, 1990.
- [18] Skjaereth JB. The 20th Anniversary of the Mediterranean Action Plan: Reason to Celebrate? In: Bergesen HO, Parmann G, editors. *Green Globe Yearbook 1996*. Oxford: Oxford University Press, 1996. p. 47-54.
- [19] Skjaereth JB. The Effectiveness of the Mediterranean Action Plan. In: Miles EL, Underdal A, Andresen S, Wettstad J, Skjaereth JB, Carlin EM, editors. *Environmental Regime Effectiveness: Confronting Theory with Evidence*. Cambridge, MA: MIT Press, 2002. p. 311-330.
- [20] UNEP. Report of the Ninth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(OCA)/MED IG.5/16. Athens: UNEP, 1995.
- [21] UNEP/MAP. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. Athens: UNEP/MAP, 2005.
- [22] Raftopoulos E. *The Barcelona Convention and Protocols. The Mediterranean Action Plan Regime*. London: Simmonds and Hill, 1993.
- [23] UNEP. *Mediterranean Action Plan and the Final Act of the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region for the Protection of the Mediterranean Sea*. New York: United Nations, 1978.

- [24] Boxer B. Mediterranean Action Plan: An Interim Evaluation. *Science* 1978; 202 (4368):585-590.
- [25] Raftopoulos E. Studies on the implementation of the Barcelona Convention: the development of an international trust regime. Athens: Ant. N. Sakkoulas, 1997.
- [26] Jeftic L. Integrated coastal and marine areas management (ICAM) in the Mediterranean Action Plan of UNEP. *Ocean & Coastal Management* 1996; 30 (2-3):89-113.
- [27] Pavasovic A. The Mediterranean Action Plan phase II and the revised Barcelona Convention: New prospective for integrated coastal management in the Mediterranean region. *Ocean & Coastal Management* 1996; 31 (2-3):133-182.
- [28] Vallega A. Towards the sustainable management of the Mediterranean Sea. *Marine Policy* 1995; 19 (1):47-64.
- [29] Vallega A. Geographical coverage and effectiveness of the UNEP Convention on the Mediterranean. *Ocean & Coastal Management* 1996; 31 (2-3):199-218.
- [30] Massoud MA, Scrimshaw MD, Lester JN. Qualitative assessment of the effectiveness of the Mediterranean action plan: wastewater management in the Mediterranean region. *Ocean & Coastal Management* 2003; 46 (9-10):875-899.
- [31] Suárez de Vivero JL, Rodríguez Mateos JC. The Mediterranean and Black Sea: regional integration and maritime nationalism. *Marine Policy* 2002; 26 (5):383-401.
- [32] Ausubel JH, Victor DG. Verification of International Environmental Agreements. *Annual Review of Energy and Environment* 1992; 17:1-43.

- [33] Barrett S, Stavins R. Increasing Participation and Compliance in International Climate Change Agreements. *International Environmental Agreements: Politics, Law and Economics* 2003; 3 (4):349-376.
- [34] Victor DG. International Agreements and the Struggle to Tame Carbon. In: Griffin JM, editor. *Global Climate Change: The Science, Economics and Politics*. Cheltenham: Edward Elgar, 2003. p. 204-229.
- [35] North DC. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press, 1990.
- [36] Carter NT. *The Politics of the Environment: Ideas, Activism, Policy*. Cambridge: Cambridge University Press, 2001.
- [37] Weale A. *The new politics of pollution*. Manchester: Manchester University Press, 1992.
- [38] von Moltke K. *Research on the Effectiveness of International Environmental Agreements: Lessons for Policy Makers?* The Fridtjof Nasnen Institute, 2000.
- [39] Biermann F. Global Governance and the Environment. In: Betsill MM, Hochstetler K, Stevis D, editors. *International Environmental Politics*. Basingstoke: Palgrave, 2006. p. 237-261.
- [40] Weinthal E, Parag Y. Two Steps Forward, One Step Backward: Societal Capacity and Israel's Implementation of the Barcelona Convention and the Mediterranean Action Plan. *Global Environmental Politics* 2003; 3 (1):51-71.
- [41] Pridham G, Konstadakopoulos D. Sustainable development in Mediterranean Europe? Interactions between European, national and sub-national levels. In: Baker S, Kousis M, Richardson D, Young S, editors. *The politics of sustainable development. Theory, policy and practice within the European Union*. London: Routledge, 1997. p. 127-151.

- [42] UNEP/MAP. Report of the 14th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols, UNEP(DEPI)/MED IG.16/13. Athens: UNEP/MAP, 2005.
- [43] UNEP/MAP. Evaluation of MED POL Phase III Programme (1996 - 2005), UNEP(DEC)/MED WG.270/Inf.10. Athens: UNEP/MAP, 2005.
- [44] UNEP/MAP. Report of the Thirteenth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols, UNEP(DEC)/MED IG.15/11. Athens: UNEP/MAP, 2003.
- [45] UNEP. Evaluation of the Blue Plan Regional Activity Centre, UNEP(DEC)/MED IG.13/Inf.7. Athens: UNEP, 2001.
- [46] UNEP/MAP. Mediterranean Strategy for Sustainable development: a framework for environmental sustainability and shared prosperity. Athens: UNEP/MAP, 2006.
- [47] Commission of the European Communities. Communication from the Commission to the Council and the European Parliament. Strengthening the Mediterranean Policy of the European Union: Establishing a Euro-Mediterranean Partnership, COM(94) 427 final. Brussels, 1994.
- [48] Belfiore S. The role of the European Community in the Mediterranean coastal zone management. *Ocean & Coastal Management* 1996; 31 (2-3):219-258.
- [49] Commission of the European Communities. Communication from the Commission to the Council and the European Parliament. Establishing an Environment Strategy for the Mediterranean, COM(2006) 475 final. Brussels, 2006.

- [50] Jones A. The European Union's Mediterranean Policy: From Pragmatism to Partnership. In: King R, Proudfoot L, Smith B, editors. *The Mediterranean. Environment and Society*. London: Arnold, 1997. p. 155-163.
- [51] Hollis R. Europe and the Middle East: Power by stealth? *International Affairs* 1997; 73 (1):15-29.
- [52] UNEP. First meeting of Government-designated legal and technical experts on the preparation of appropriate rules and procedures for the determination of liability and compensation for damage resulting from pollution of the marine environment in the Mediterranean Sea Area, UNEP(OCA)/MED WG.117/4. Athens: UNEP, 1997.
- [53] UNEP/MAP. Report of the Meeting on the new Reporting System of MAP, UNEP(DEC)/MED WG.206/2. Athens: UNEP/MAP, 2002.
- [54] UNEP/MAP. Report on the implementation of the Convention for the Protection of the Mediterranean Environment and the Coastal Region of the Mediterranean, and its related Protocols, 2002 - 2003, UNEP(DEC)/MED WG.270/6. Athens: UNEP/MAP, 2005.
- [55] La Spina A, Sciortino G. Common agenda, southern rules: European integration and environmental change in the Mediterranean states. In: Liefferink JD, Lowe PD, Mol APJ, editors. *European Integration and Environmental Policy*. London and New York: Belhaven Press, 1993. p. 217-236.
- [56] Kurth J. A Tale of Four Countries: Parallel Politics in Southern Europe, 1815-1990. In: Kurth J, Petras J, editors. *Mediterranean Paradoxes. Politics and Social Structure in Southern Europe*. Providence: Berg, 1993. p. 27-66.
- [57] UNEP/MAP. Programme Budget for 2006 - 2007, UNEP(DEC)/MED IG.16/6. Athens: UNEP/MAP, 2005.

- [58] GEF. Partnership for Mediterranean Sustainability: GEF Mediterranean SAP MED Project: activities and outputs. Athens: UNEP/MAP, 2005.
- [59] GEF / UNEP/MAP / World Bank. A new partnership for the Mediterranean: reducing pollution impacts on environment and human health, reaching sustainable fisheries, protecting coastal - marine biodiversity and communities. Athens: UNEP/MAP, 2006.
- [60] Dardis G, Smith B. Coastal Zone Management. In: King R, Proudfoot L, Smith B, editors. The Mediterranean. Environment and Society. London: Arnold, 1997. p. 273-299.
- [61] UNEP/MAP. Directory of MAP Partners, UNEP(DEC)/MED WG.270/Inf.15. Athens: UNEP/MAP, 2005.
-

Chapter VI

Conclusion

Conclusion

Research findings

This thesis has examined the problem of assessing the effectiveness of international environmental regimes by looking at how effectiveness is defined, and how it is evaluated in a particular case. In order to do this, specific research questions were set out in the introduction, and an international agreement, namely the Mediterranean Action Plan / Barcelona Convention, was selected as a case study. This conclusion returns to the research questions in the light of the main research findings of each individual chapter.

Theoretical perspectives – Chapter II

The main research question was ‘What is environmental regime effectiveness and how is it evaluated?’ To answer it, this chapter provided a detailed review of the academic literature on the effectiveness of international environmental regimes. It revealed a plethora of different approaches to defining and measuring the effectiveness of international regimes and the use of numerous methods, both qualitative and quantitative. One major issue that emerged was the debate over institutional and environmental effectiveness of regimes, and whether these should be separated and evaluated individually. Other issues include what criteria should be used for this evaluation and whether qualitative or quantitative methods are the most appropriate in each case.

A review of the academic literature on the Mediterranean Action Plan revealed the divergence of views regarding its effectiveness, and the need for a re-examination of the regime.

Finally, this chapter whilst addressing the question posed above, added to the existing knowledge on environmental regime effectiveness by suggesting a new approach to examining effectiveness. Effectiveness is a complex issue since an agreement which is considered institutionally effective cannot guarantee an environmental result.

Likewise, an improvement in the environmental problem might not be directly related to the workings of an institution / agreement. Hence, institutional and environmental effectiveness are indeed two different issues, which nevertheless should be examined both individually and in relation to each other. Scientific performance and results, and political decision-making should be achieving their goals and also interact and largely influence each other within a regime. Moreover, an agreement should have realistic targets and goals in order to be practically able to be implemented, and it should have a dynamic character, so as to be ready to change at any given time and adapt to new realities, especially in cases of long-life regimes. This theoretical framework on effectiveness would require a regime to use a *Holistic approach* based on science, policy and their interaction, have a *Pragmatic vision* for its ultimate goals and be of a *Dynamic nature* to evolve through time. Effective regimes should fulfil the three criteria explained above, which will be used later in this chapter to evaluate the Mediterranean Action Plan.

Exploring discourses – Chapter III

The purpose of this chapter was to answer the question ‘Is there one or various discourses on environmental regime effectiveness among practitioners?’ In order to do that it explored distinct discourses on the effectiveness of the Mediterranean Action Plan by applying Q methodology. It is significant that, even though the participants were drawn from a very specific group all of whom were involved in some way in the regime, the application of Q methodology has revealed four distinct discourses. Interestingly, all four discourses were broadly represented by the various groups of stakeholders, thus confirming the capacity of Q methodology to reveal the patterns shared across individuals. This makes the method suitable for the study of contentious and widely debated social phenomena such as the environment (Barry and Proops 1999).

This study clearly showed that different people view effectiveness in very different ways, even though in this case they are from a fairly narrow sample. In other words, there is no one ‘right’ way of defining effectiveness and identification of four discourses underlines the complexity of the concept. The study also shows that the academic debate about the definition and measurement of the effectiveness of

international environmental regimes extends to practitioners, since there is also a variety of opinions concerning the way regime effectiveness is defined and measured among groups implementing the Mediterranean Action Plan.

Despite the distinct advantages of Q methodology, such as the requirement of only a small sample of participants in order to generate statistically significant results, and its participant-driven nature, thus minimising research bias, there are also certain limitations that need to be accounted for. The statistical procedure might be easy to perform, but the initial stages of the research design (carrying out interviews, generation and careful selection of statements) are very intensive and time consuming for the researcher. Moreover, in this study, the different discourses on the effectiveness of MAP, might not be identical to discourses on effectiveness of other environmental regimes. However, they demonstrate the variety of opinions, and could be used as a guide to design criteria for evaluating regime effectiveness.

Consequently, the study suggests that it might not be possible to agree on one definitive way of measuring effectiveness. Instead, those needing to use such an assessment should not restrict themselves to following one of the identified views, but rather they should use a combination of criteria. Therefore, different methods need to be used and any measurements will only ever provide partial evaluations of the overall effectiveness of a regime. For example, the criteria used to judge whether a regime has enhanced political and cultural cooperation between member countries will be quite different from the criteria needed to judge the environmental impact of the regime.

Environmental effectiveness – Chapter IV

This chapter tried to address the question ‘Can the environmental impact of regimes be measured? What is the role of science in regime operation?’ To do this, someone should first evaluate the state of the environmental problem that the regime tackles. Measuring the environmental effectiveness of a regime is difficult. Gaining a reliable picture of the state of the marine environment is an even more complicated if not impossible task. Specifically concerning the Mediterranean Sea, news reports suggest that the Mediterranean Sea is in a far more ‘clean’ condition compared to other Seas

such as the North Sea or the Baltic Sea and its pollution is gathered mainly in coastal areas. Nevertheless, even if in the 1970s, when the Barcelona Convention was signed, pollution was regarded only as the concentration of highly toxic chemicals or other substances, nowadays the focus has been broadened to include coastal pressure, destruction of habitats and other forms of environmental degradation. Even over-exploitation of fish stocks can now be considered an environmental threat, something that unfortunately is not addressed in the Barcelona Convention, since fisheries are an economic resource. From the environmental data available in MAP, it is not possible to measure if the Mediterranean Sea is cleaner. Even if it could be proved that it is cleaner, it is ambiguous whether this change can be attributed to the Convention or to other factors such as physical processes, or the introduction of cleaner technologies.

Although it is not clear how scientific data have contributed to environmental effectiveness, at least the environmental component of MAP and its interaction with the decision making process, was open to examination. According to the current study, the environmental information attained by MED POL cannot be considered adequate for measuring the effective operation of the regime. However, it is a huge ongoing effort and in the absence of this programme, not even this inadequate information would be gathered especially in the less developed countries of the Southern Mediterranean. Moreover a lot of time and energy is spent in the creation of relevant publications irrespective of their fate afterwards, showing that there is considerable interest in scientific performance. Overall there is no established mechanism in the Barcelona Convention for a science-policy interaction, even though there are isolated efforts for this purpose. This is also partially due to the reason that the decisions that are scientifically correct might not always be politically acceptable, as for instance the closure of factories that severely pollute, for fear of increasing unemployment. Nonetheless, environmental monitoring and assessment is important for the adoption of appropriate measures and the enhancement of sustainable development. Even though science does not currently play the desirable role in the regime in question, this is the direction towards which it should be moving.

These conclusions show that Haas's theory about 'epistemic communities' (Haas 1989) was probably an adequate explanation for the formation of the Mediterranean Action Plan, but it can not be considered appropriate to describe its current operation.

Science might have been a driving force in its creation, but it plays a rather different role today in the operation of MAP. Even though the legal texts of the Barcelona Convention and its related Protocols are purely technical in that they set scientific targets and do not directly address socio-economic issues, the overall environmental effectiveness of the Convention cannot be accurately estimated. This is important bearing in mind that many international environmental agreements now address their respective problems by setting scientific targets and then trying to meet them without considering other aspects of a regime's operation, such as institutional performance. The environmental effectiveness of international regimes is a necessary measure of their overall performance, however this study demonstrates that there is a lot more to be researched and explored in various disciplines, in order for academics, practitioners and policy makers to be able to cooperate towards effective environmental regimes and policies. Hence the environmental impact of regimes is really difficult to measure, but the role of science in regime operation, and its interaction with the decision-making process, should be measured instead, to account for the environmental performance of regimes.

Institutional effectiveness – Chapter V

The last research question posed in the introduction was 'What determines the institutional performance of environmental regimes?' This chapter addressed that issue by suggesting a combination of qualitative criteria to evaluate institutional performance and examined the Mediterranean Action Plan on the basis of these criteria.

The first criterion of importance, commonly acknowledged by many researchers, regards the political impact of a regime. This impact can be measured by the political benefits generated for the member states. In that respect the Mediterranean Action Plan has achieved an enormously important role, that of facilitating cooperation in a traditionally hostile region and overcoming long term political conflicts among countries, and also provided enormous capacity building to the less developed countries. The political impact can also be measured by changes in the behaviour of the actors, mostly shaped by the political influence of the regime, which in turn is largely influenced by its institutional settings, i.e. its decision making process. This

process appears to be more problematic in the case of MAP, since even though a very democratic regime, it operates under a highly bureaucratic United Nations system, with time and money consuming procedures. Also, it does not involve higher officials, e.g. at the level of Ministers as in its early years. Additionally, the political impact of regimes and the behavioural change they initiate, is largely associated with the synergies between them and other institutions or actors in the international arena. MAP realises the need for interaction with the European Union, the most powerful actor in the region, and establishes official cooperation initiatives, but since the incentives of both sides are ambiguous these relations need to be established through time. Overall, the political impact of MAP on the countries has changed since the 1970s; formerly strong, recently it has lost its influence. However, it is this aspect of it that has been praised by all the relevant studies, even those that were critical of its other achievements. Yet it is one that has lost its significance today. Hence, it is recognized as one of the most important criteria of institutional effectiveness of regimes.

Second, a necessary requirement for an agreement to operate effectively, is its fullest possible legal implementation and the compliance of the member states with the agreement in question. Legally speaking, it is very important to see a complete legally binding regional system for the environment of the Mediterranean. The Barcelona Convention, MAP's legal component, is an important tool which covered a gap at the time of its creation. However, there are important issues regarding its legal implementation, since some of the Protocols and the amendments are still not in force, or in cases two different versions of the same legal document are in force simultaneously causing confusion. Furthermore an assessment of the compliance of the countries in terms of national implementation is not yet totally feasible. Compliance thus is rather ambiguous, and the interest of countries in complying is not as evident as in the first years of MAP's operation. Thus, this chapter showed the importance of legal implementation and compliance, since their absence can seriously impede the effectiveness of agreements.

Third, the importance of the economic performance of institutions is identified by the theory of institutional economics, since transaction costs affect the operation of regimes. In that respect, MAP's cost-effectiveness cannot be readily assessed. Its wide

scope and costly administration increase both transaction and implementation costs. However, admittedly it manages to coordinate a significant effort, despite operating under a very strict budget. There is room for improvement, especially in terms of channelling of resources from external donors, and this should be the direction to look into, since international Conventions are only effective when there is also the financial backing for their implementation. A rational choice approach thus would consider uncertain the institutional performance of MAP, and of any agreement that does not meet the financial requirements for its implementation. Especially in the case of global or regional agreements where less developed countries participate, the importance of institutional economics acquires greater importance.

Finally, according to domestic political analyses, public opinion can exert pressure and significantly affect the formulation of domestic or foreign policy (e.g. with regard to environmental agreements), and in this era of global governance public awareness and participation are crucial to a regime's institutional performance. This issue is a difficult task for each environmental regime, since the environmental message is difficult to communicate to the layperson. Indeed MAP has not acquired wide recognition within the population of its member states, even though it tries to involve the civil society in its operation. In that respect, there is no ability to influence domestic policy or even foreign, without the support of involved pressure groups. This study suggested that both MAP and other environmental regimes can improve their institutional performance by allowing for increased dissemination of information, awareness of the public and consequently participation of all stakeholders of the environmental legacy. Therefore, political impact, legal implementation and compliance, economic performance, and public awareness and participation are the most important aspects in evaluating a regime's institutional effectiveness.

Holistic approach

So far, the research questions posed in the introduction of this thesis have been addressed one by one, according to the research findings of each of the four main chapters. Hence, the discussion focused on the definition and evaluation of effectiveness, the revealing of different discourses on the subject, the role of science

in regime operation and their environmental effectiveness, and the criteria used in evaluating institutional performance, and thus institutional effectiveness of regimes. Drawing partially on the results of the previous discussion, in this part of the concluding chapter an overall evaluation of the Mediterranean Action Plan is provided based on the theoretical framework set out in Chapter II. This theoretical framework on effectiveness would require a regime to use a *Holistic approach* based on science, policy and their interaction, have a *Pragmatic vision* for its ultimate goals and be of a *Dynamic nature* to evolve through time. For the first prerequisite, a regime should be effective both in terms of environmental and institutional effectiveness, and also allow for sufficient interaction between its scientific component and its decision-making process. Hence these two aspects should be examined both individually and in relation to each other. The individual examinations for MAP were presented in Chapter IV and V respectively.

Following the conclusions of Chapter IV, the assessment of the state of the environment is a difficult if not impossible task. In that case what is examined instead is the environmental performance of the Mediterranean Action Plan. A huge effort has taken place, and has achieved considerable results especially in the first years of MAP's operation, by providing environmental capacity building in the less developed countries, and by setting up the first programmes of monitoring of the Mediterranean Sea. Therefore the MED POL programme is widely considered as the most successful part of the regime. However, today the role of science in the operation of MAP is quite ambiguous; whilst Haas's theory on 'epistemic communities' might have explained the creation of the regime, it does not apply to its current operation. Thus, MAP could not be considered or proved to be, at least currently, a success story in environmental improvement.

Similarly, following the conclusions of Chapter V, the institutional performance of MAP deserves some critical consideration. It has undoubtedly offered a lot in the region in terms of political benefits for the countries, and political stability and cooperation in a traditionally hostile region with many social and economic inequalities. In terms though of its overall decision making process and institutional workings, MAP is a rather slow, rigid and weak regime, without an evident, at least today, ability to act as a major player in the region. Historically its initial

achievements were valuable, but it does not qualify as an institutionally successful regime today.

With regard to the interaction between science and policy, a permanent mechanism such as a scientific advisory board, as for instance in HELCOM and OSPAR Conventions, does not operate in MAP. Also there is no routine evaluation of the environmental results in order to fill in gaps, i.e. no circular feedback mechanism. The results of scientific efforts as the National Action Plans still lack an appropriate mechanism for their implementation. In general the decisions that are scientifically correct might not always be politically acceptable, without that justifying a lack of science-policy interaction.

Overall MAP and the Barcelona Convention cannot be considered very successful either in terms of environmental or institutional performance. What is more, irrespective of the extent to which the regime succeeds in each of the two aspects, there is no established interaction between them. Therefore MAP does not use a *Holistic approach* in tackling the environmental problem, since it is not environmentally effective, it is not institutionally effective and it does not allow for established and sufficient interaction between scientific workings and results, and policy making. To follow that approach, it should achieve significant results both in terms of institutional workings and environmental improvement, but most importantly it should demonstrate a constant and vigorous science-policy interaction.

Pragmatic vision

The second prerequisite for a regime to be effective, according to the theoretical framework suggested in Chapter II, is that it should have a *Pragmatic vision* for its ultimate goals. Poorly expressed targets do not lead to full implementation. Likewise, an over ambitious agreement with high expectations from the member states, can only impede its operation. Therefore, a realistic regime means not only setting clear targets and deadlines for their implementation, but also giving incentives to the countries to implement them, taking into account economic considerations and social needs.

As far as targets and deadlines are concerned, the Barcelona Convention and its Protocols have not been very specific from the start. The official texts did not include details on what measures should be taken and by which date they should be implemented. There were provisions that these should be adopted by the countries in the form of guidelines or common measures gradually. However, this gradual progress has proved very slow.

Only in 1985 were the first criteria and measures drafted specifically for the LBS (Land-Based Sources) Protocol, and only for one group of substances at a time. By 1990, there were measures proposed to control pollution from mercury, cadmium, used lubricating oils, organotin and organohalogen compounds (UNEP 1990), but not initially adopted. Since only few concrete measures were proposed, in 1995 the Barcelona Resolution (UNEP 1995: Annex XI) proposed that measures should be taken by 2005 to reduce harmful substances in the marine environment. Indeed, in 1997 the MED POL programme helped countries to design and adopt the ‘Strategic Action Programme to Address Pollution of the Mediterranean sea from Land-based Activities (SAP)’ (UNEP 1999). In the SAP the main issues addressed include specification of targets for pollution reduction on a broad range of substances. In particular, 2025 is set as a target date for reduction of pollution, whereas various other dates in between are set according to specific types of pollutants. In addition, the SAP proposes the compilation of National Action Plans for each country with specific measures and priorities for action. All the National Action Plans of the countries were formulated and officially endorsed in the 14th Ordinary Meeting of the Contracting Parties to the Barcelona Convention just in 2005 (UNEP/MAP 2005e, 2006).

Regarding the Dumping Protocol, the ‘Guidelines for the Dumping of Inert Uncontaminated Geological Materials’ were only adopted in 2005 in the 14th Ordinary Meeting of the Contracting Parties (UNEP/MAP 2005b). Similarly a ‘Regional Strategy for Prevention of and Response to Marine Pollution from Ships’ with regard to the implementation of the Prevention and Emergency Protocol was adopted in the same meeting in 2005 (UNEP/MAP 2005d). Finally, following the SAP or SAP MED programme, another SAP was adopted concerning the implementation of the SPA (Specially Protected Areas) and Biodiversity Protocol, in 2003 called ‘Strategic Action programme for the Conservation of Biological Diversity

(SAP BIO) in the Mediterranean Region' (UNEP / MAP / RAC/SPA 2003). All these guidelines, strategies and measures have a binding character for the countries after their adoption, but their practical implementation is another issue.

Likewise, many other texts have been adopted as policy recommendations but they were not translated into legal actions such as the 1985 Genoa Declaration on coastal management targets for the decade 1985-1995 (UNEP 1985), or the Nicosia Charter on Euro-Mediterranean cooperation with the involvement also of external donors. Moreover, with the 1995 amendments to the Barcelona Convention and its Protocols, and the Barcelona Resolution, when a shift towards sustainable development goals was made, the official text of the Mediterranean Action Plan or MAP Phase II, became more of a general descriptive document of the needs of the time, rather than a specific Action Plan itself (UNEP 1995: Annex IX). It tries to cover too many environment and development aspects, which may cause confusion as to the nature and purpose of an Action Plan.

Regarding the economic considerations of the Convention, these seem to be rather problematic as well. Concerns are expressed from countries that the inadequate implementation of some Protocols, especially the LBS and the Prevention and Emergency Protocol, are largely due to the very high costs involved in practically applying their provisions. In 2005 the total budget of the Mediterranean Trust Fund was annually around 7 million Euros (UNEP/MAP 2005c), obviously a very small budget compared to environmental programmes of other institutions such as the EU, the World Bank or the Global Environment Facility (GEF). However, since MAP's original purpose is not to be a donor to the countries, the mobilisation of external financial resources would be the solution. Thus far it has cooperated with GEF in two projects for the implementation of the SAP MED and the SAP BIO provisions (GEF 2005; GEF / UNEP/MAP / World Bank 2006), but there are only a few other external donors.

Economic and social needs have not always been taken into consideration. For instance the 1995 amendments to the Dumping Protocol are not yet in force, since not enough countries have ratified them. Behind the scenes though the explanation of this attitude for some countries, lies in conflicts of interests with big mining industries,

and potential unemployment problems as a result of their closure. Moreover, the Offshore Protocol, signed in 1994 is still not in force and it might never be, because of conflicts with the oil industry, and other disputes of the countries concerning matters of territorial waters as set out in the UN Convention on the Law of the Sea. Furthermore, the 1996 Hazardous Wastes Protocol, has not and will not enter into force, since all of the countries are parties to the global Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, with which actually there have been noted some inconsistencies anyway.

Having acknowledged the economic limitations of MAP, and the power of specific producer economic interest groups – the mining industry in preventing ratification of the Dumping Protocol and the oil industry in preventing ratification of the Offshore Protocol – another view on MAP's 30-year life could be worth mentioning. The historical materialist explanation, even though dismissed for explaining the creation of the regime, could perhaps be used to justify failure of a regime, with limited budget and hindrances from powerful economic interests groups.

Another example where MAP does not act realistically is the Mediterranean Commission on Sustainable Development. A debate goes on concerning its primary role, since some of the countries consider it purely as a think tank, having only an advisory role, while some others would like to see it having a more operational role in the region. In any case though, for such a Commission to operate it should achieve equal representation of the three sectors of sustainable development; environment, society and economy. This is clearly not the case since it consists of 22 representatives of the Contracting Parties (usually National Focal Points, hence addressing environmental concerns), and 15 representatives of each of the three sectors ideally. There were times though that the economic sector was not involved, substituted by NGOs (10 representatives instead of 5), and only 5 representatives of local authorities. This is clearly not a sustainable development forum, since it is largely addressing environmental concerns at the expense of economic and social needs.

Finally, concerning incentives given to the countries to comply with the regime, since these are not financial, suggestions include the imposition of a sanctions or a liability

and compensation mechanism in order to ‘force’ the countries to comply with the Convention. However, a sanctions mechanism is neither a wise nor a feasible measure for regional voluntary agreements. The member states would not agree to being punished for not complying, especially since the agreement does not provide financial support for implementation of its provisions. Only then, it would have the right to impose sanctions, as for instance, in the case of the European Union, where providing financial assistance to its members, gives the right to take them to court in case they do not fulfil their obligations accordingly. Hence the only incentive would be the avoidance of extra costs by the countries in case they were liable and had to compensate for the environmental damage caused. A liability and compensation mechanism as such, is under consideration in Barcelona Convention, with a first meeting in 1997, the next one in 2003, and no progress since. Obviously there is a long way still to go in this issue as well.

Overall, MAP does not seem to be exactly tuned with the real environmental, social and economic needs of the Mediterranean region or if it is, it does not have yet a way to put the ideas into action. Its targets are not clear, and they are poorly implemented, because of financial or social realistic impediments. Therefore MAP does not have a *Pragmatic vision* for its ultimate goals. To take on such a vision, it should re-examine its goals and priorities, making sure that they take account of various impediments, and then proceed to pursue them in a timely manner.

Dynamic nature

The third prerequisite for a regime to be effective is that it should be of a *Dynamic nature* so that it is able to change through time. This characteristic would mean that the regime does not have slow, time consuming procedures and that it takes into account the constant changes in the international arena, being ready to adapt properly and quickly to new needs, definitions and realities.

Unfortunately, the existing slow and time consuming procedures is an undeniable truth for MAP and the Barcelona Convention. MAP was established under the aegis of the United Nations Environment Programme, and is still administered by it, belonging thus to the broader United Nations family. Typical of the United Nations,

MAP is no exception in maintaining a huge bureaucracy. Thus, its operation is not flexible and the recommendations sometimes are carried on to the next meeting, and then the next meeting because there was no time to implement them. But MAP is also prisoner of the national bureaucracies. In any case, the issues targeted by the Convention are too demanding to have to wait a long time for a solution.

As far as adaptation to new needs is concerned, following the 1992 requirements of the Rio Declaration on Environment and Development (Agenda 21), MAP attempted to translate the results of the summit onto the regional Mediterranean level, and adapted Agenda 21 to the Mediterranean context by setting up Agenda MED 21. This led to the adoption of the second phase of MAP (UNEP 1995: Annex IX) in 1995 and the amended version of Barcelona Convention, which entered into force in 2004. Similar changes occurred regarding the Protocols where the SPA and the Emergency Protocols were replaced by new ones, in force since 1999 and 2004 respectively, and the Dumping and LBS Protocols were amended, but the amendments are still not in force. These new and amended Protocols, as also the amended Convention and MAP Phase II, reflected both increasing concern for the pressures exerted on the Mediterranean environment and commitment of Mediterranean States to the ideal of sustainable development, introducing new principles such as Environmental Impact Assessment (EIA), the polluter pays principle and the precautionary principle (UNEP/MAP 2005a). The seventh Protocol concerning Integrated Coastal Zone Management (ICZM) has been under negotiation for many years now but it is not yet adopted.

Bearing in mind that two of the six Protocols, namely the Offshore and the Hazardous Wastes Protocols, have never entered into force, and that the substantial amendments to the Dumping and LBS Protocols are still not in force, ten years after their adoption, shows clearly that the Barcelona Convention has failed to adapt to the new needs of the times.

Moreover, following the shift towards a 'sustainable development' orientation, the Mediterranean Commission on Sustainable Development (MCSD) was set up in 1996 for promoting sustainable development in the Mediterranean Basin. As described earlier though, this initiative, although promising in theory, has not succeeded in

practice. Irrespective of why and how, it did not bring together the three sectors of sustainable development. In that case there was good intention to respond to an emerging need, but practically this has not been the case.

Even in more specific matters, the rhythm of change is not sufficiently quick. Apart from the late adoption of specific guidelines discussed earlier, other important processes show the same rigidity. The necessary control over the compliance mechanism mentioned in the 1995 Convention had its first results only in 2002-2003 when the first national reports were submitted to the Secretariat. Moreover the liability and compensation mechanism, has been first discussed in 1997, then again in 2003, with no apparent plan for its completion. Institutionally speaking, there is not enough renewal in the Focal Points over the years, not in the MCSD memberships, and not even in the NGOs which cooperate with MAP and participate in the Meetings of the Contracting Parties.

Efforts like the Blue Plan studies are noteworthy for trying to assess future trends in the Mediterranean region as a whole, in terms of socio-economic development and environmental degradation, and future risks that the region might face. However reaction to a situation requires action, and cannot be limited to study, no matter how good the latter is.

Finally, the existing efforts of cooperation of MAP with the European Union signal an emerging interplay with the most important political actor in the region. Even though concerns are expressed regarding the incentives behind this process, this in itself is recognition of the changing powers and interrelations in the region and of the need for adaptation.

Overall, MAP has shown a rhetorical willingness to adapt to the major global and regional changes in the sphere of environmental politics. Nevertheless, so far it has clearly failed to do that, either because its internal structure does not allow for rapid moves, or because whilst attempting to endorse new concepts as 'sustainable development', in theory it widened its scope, but in practice it risks to lose its original focus. Hence MAP is not of a *Dynamic nature*, requiring considerable effort to alter its inner character. Perhaps in the early years of the regime's operation the 'epistemic

communities' gave life to it. After several years during which MAP seems to have struggled to sustain its early progress, a similar catalytic force is probably needed to reinvigorate it – and a renewed scientific epistemic community would be the most likely candidate to play this galvanising role.

Concluding remarks

The effectiveness of international environmental regimes is an issue that is as complex as it is important. The following figure shows the main concept of the thesis for defining and measuring effectiveness.

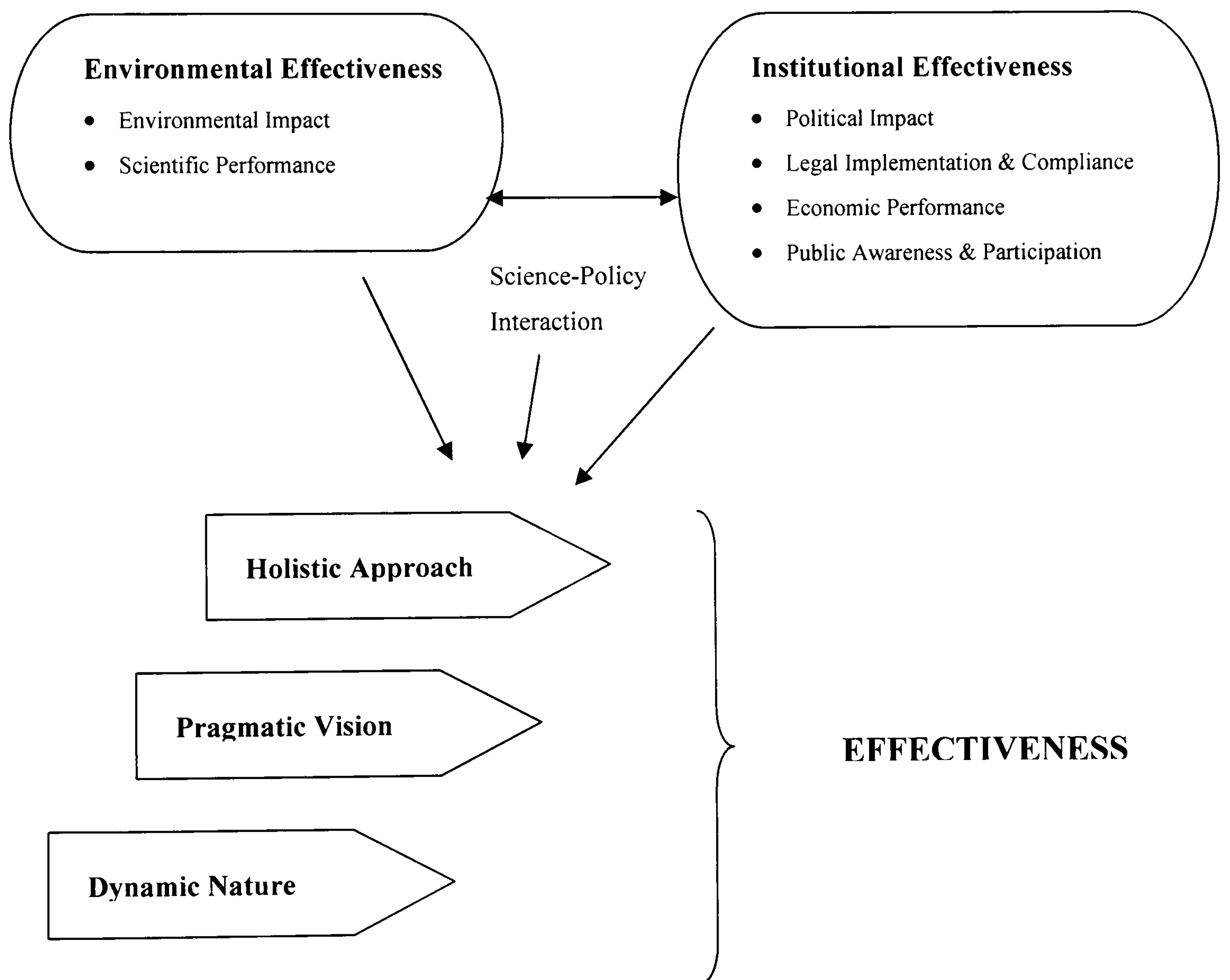


Figure 1. Effectiveness of International Environmental Regimes

After introducing the research questions in Chapter I, Chapter II discussed various theories on effectiveness in the academic literature, and tried to address the issue of defining it by proposing another theoretical framework to evaluate it. The study described in Chapter III, demonstrated that even among practitioners, there is no ‘right’ way of seeing effectiveness, but rather different discourses exist using various criteria to assess a regime’s performance. In Chapter IV the environmental effectiveness of regimes was examined showing that environmental impact cannot be easily measured, and that the role of science in regime operation should be addressed instead. The institutional effectiveness of agreements was then addressed in Chapter V, where a combination of qualitative criteria was suggested as determinants of institutional performance. Finally, in this concluding chapter, MAP was evaluated according to the theoretical framework proposed as shown in Table 1.

Table 1. Effectiveness of the Mediterranean Action Plan

Criteria	Prerequisites	Mediterranean Action Plan
<i>Holistic approach</i>	Environmental effectiveness &	Cannot be adequately estimated
	Institutional effectiveness &	Weak in recent years
	Science – Policy interaction	No established mechanism
<i>Pragmatic vision</i>	Realistic goals accounting for economic and social needs with clear and specific targets and deadlines	Vaguely expressed goals, poor implementation, lack of enforcement mechanism
<i>Dynamic nature</i>	Flexibility and eagerness to adapt quickly to new changes in the international arena and new needs	Extremely slow procedures, failure to put new and amended protocols into force

MAP has not demonstrated effectiveness in its operation. In its long - more than 30 years - life though, it has achieved a lot, especially during its first decade, in terms of cooperation in the region, environmental awareness and capacity building. Even if only for that, it has the right to remain in the political arena of the region. Perhaps in recent years its political influence has been weakened, but as a unique forum it is still needed in the region. This turning point where it stands now, confused between its

traditional environmental pollution focus and a new sustainable development orientation, should be seen as a chance for MAP to evolve to something effective and important again, and not as a risk of its extinction.

To conclude, in this thesis there are several limitations that need to be noted and there are several ideas for future research. One limitation is that the discourses revealed by Q methodology might not be generalisable to other regimes as well. Moreover, the combination of qualitative and quantitative methods used was not as balanced as hoped, due to the lack of available data necessary for quantitative techniques, which led to a greater emphasis on qualitative assessments. In addition, several components of the Mediterranean Action Plan were not thoroughly examined during the six month field research in its Secretariat. In particular the Regional Activity Centres are established all in different Mediterranean countries, and the time limits of a PhD did not allow for additional field research. Perhaps new discourses on effectiveness would be identified, or the overall evaluation of MAP might differ.

Therefore, further research is needed first in order to specify in more detail the techniques used to assess the effectiveness criteria, such as the environmental performance of a regime and its environmental impact. Second, specific components of the regime, such as the Regional Activity Centres should be looked at so as to evaluate in the same way their effectiveness and investigate their actual relation to the operation of the Secretariat and their contribution to the regime in general.

As far as new research ideas are concerned, an issue previously neglected, which emerged through the interviews, is the interplay between the Mediterranean Action Plan and the European Union, regarding the environmental management of the Mediterranean Sea on one hand and the political aspirations of the Euro-Mediterranean Partnership. Moreover, the contribution of the 1998 Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters in relation to the centrality of transparency and openness of MAP should be further explored. Initially there were no provisions for NGOs participation in decision-making, until a change in the rule of procedures in 1989 allowed for their involvement. It would be of interest to see how this change affected the decisions taken by MAP after 1989. In addition to this,

despite the broader framework of a cooperating effort between MAP and the European Union, in certain aspects of legislation there is a notable mismatch. For instance the goals of the 2000/60/EC Water Framework Directive are not overlapping with those set out in Barcelona Convention. Hence, it would be worth examining in more detail the main differences of these legal documents, as well as possible reasons for this confusion.

Finally, the theoretical framework suggested in Chapter II of the thesis, could be further elaborated and applied to other environmental agreements. All the above issues are certainly worth exploring.

References

Barry, J., and J. Proops. 1999. Seeking sustainability discourses with Q methodology. *Ecological Economics* 28 (3): 337-345.

GEF. 2005. *Partnership for Mediterranean Sustainability: GEF Mediterranean SAP MED Project: activities and outputs*. Athens: UNEP/MAP.

GEF / UNEP/MAP / World Bank. 2006. *A new partnership for the Mediterranean: reducing pollution impacts on environment and human health, reaching sustainable fisheries, protecting coastal - marine biodiversity and communities*. Athens: UNEP/MAP.

Haas, P.M. 1989. Do regimes matter? Epistemic Communities and Mediterranean Pollution Control. *International Organization* 43 (3): 337-403.

UNEP. 1985. Report of the Fourth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Related Protocols. UNEP/IG.56/5. Genoa: UNEP.

UNEP. 1990. Common Measures adopted by the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution. MAP Technical Reports Series No 38. Athens: UNEP.

UNEP. 1995. Report of the Ninth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols. UNEP(OCA)/MED IG.5/16. Athens: UNEP.

UNEP. 1999. Strategic Action Programme to Address Pollution from Land-based Activities. MAP Technical Reports Series No 119. Athens: UNEP.

UNEP / MAP / RAC/SPA. 2003. *Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region*. Tunis: UNEP / MAP / RAC/SPA.

UNEP/MAP. 2005a. *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols*. Athens: UNEP/MAP.

UNEP/MAP. 2005b. Guidelines for the Dumping of Inert Uncontaminated Geological Materials. UNEP(DEC)/MED IG.16/9. Athens: UNEP/MAP.

UNEP/MAP. 2005c. Programme Budget for 2006 - 2007. UNEP(DEC)/MED IG.16/6. Athens: UNEP/MAP.

UNEP/MAP. 2005d. Regional Strategy for Prevention of and Response to Marine Pollution from Ships. UNEP(DEC)/MED IG.16/10. Athens: UNEP/MAP.

UNEP/MAP. 2005e. Report of the 14th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols. UNEP(DEPI)/MED IG.16/13. Athens: UNEP/MAP.

UNEP/MAP. 2006. Implementation of the Strategic Action Programme to address Pollution from Land-Based Activities. National Action Plans. Synopsis. UNEP(DEPI)/MED WG.289/inf.3. Athens: UNEP/MAP.