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# The 20th Anniversary of the Mediterranean Action Plan:

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## Reason to Celebrate?

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### Introduction

In the early 1970s the Mediterranean states requested the United Nations Environment Programme (UNEP) to develop a programme aimed at identifying the extent of Mediterranean pollution, its sources, and relevant measures. In 1975 the Mediterranean Action Plan (MAP) was approved by sixteen Mediterranean states plus the European Community (EC).<sup>1</sup> One year later the Barcelona Framework Convention was signed. In addition to this legal component, MAP includes scientific assessment and integrated management. A great many activities have been carried out under these three MAP components over the past two decades. On the basis of an evaluation of achievements under the legal component, this article concludes that it would be better to set priorities and improve co-ordination among the various activities so as to trigger more substantial action in the future, rather than merely to celebrate the achievements of the past.

### Perception of the Problem: From Environment to Development

Between 1964 and 1974 the population of the Mediterranean littoral states increased by 50 million, correspondingly increasing the pressure on the marine environment. In 1972 the Stockholm Conference identified the Mediterranean as among the 'particularly threatened bodies of water'.<sup>2</sup> Despite strong visible indications of a 'sick' sea, such as tar balls on beaches from tanker spills, no reliable information was available concerning the extent of pollution. However, since the time Aristotle puzzled over the strange currents in the strait between the island of Euboea and the mainland north of Athens, our scientific understanding of the Mediterranean has increased significantly.<sup>3</sup> In 1977 UNEP issued a report on land-based pollutants, the first study to provide specific data. Even though this was a study based on secondary sources, experts have stated that it reduced the degree of uncertainty concerning the Mediterranean pollution situation from three orders of magnitude to one.<sup>4</sup> This study, as well as subsequent ones, seemed to reject the Mediterranean collapse hypothesis. The main pollution problems were seen

as local, and consequently an important threat to the beaches and to tourism. The industrialized countries in the north-western basin, which includes Italy, France, and Spain, were singled out as the major polluters and their coastal waters as most polluted. After land-based pollution was placed on the agenda, high costs were calculated for cleaning up the Mediterranean. Identifying rivers as a major pollution source implied the need for action covering the entire territory of participating states.

Although the initial focus of MAP was on the control of marine pollution, the focus gradually shifted to socio-economic trends and development planning. From 1976 to 1990 population growth has been substantial on the Mediterranean coast, especially in the eastern and southern parts. According to one projection, population in the Mediterranean area can be expected to increase from 323 million in 1980 to 433 million in the year 2000 and 547 million by 2045.<sup>5</sup> This general population expansion has led to increased urbanization, which in turn has meant greater pressure from household and industrial effluents. The Mediterranean is also the world's major tourist destination; 70 per cent of all tourists choose Mediterranean beaches, approximately 80 million a year.<sup>6</sup> Moreover, tourism is still increasing; figures are expected to soar to somewhere between 268 million and 409 million by the year 2000.<sup>7</sup> This will involve not only an increase in solid and liquid waste but also growing pressure on habitats. In addition to the rise of tourism, there has been a shift from traditional agriculture to modern farming with greater productivity and increased use of fertilizers, insecticides, and pesticides, all of which drain into the Mediterranean.

By 1995 UNEP had issued a total of ninety-two scientific and technical reports covering a wide range of sources and effects of pollutants entering the Mediterranean.<sup>8</sup> Hence, at a general level, lack of knowledge can no longer explain lack of action. As early as 1977 the UNEP study on land-based pollution concluded that over 80 per cent of all municipal sewage entering the Mediterranean was untreated. Thus, the Parties knew what they should do; effective sewage treatment technology has been available for decades. On the other hand, considerable doubt remains concerning the

sources and effects of specific pollutants entering the Mediterranean. Assessment publications issued by UNEP are full of conclusions emphasizing 'lack of data' and 'uncertainty'.

Another problem is inadequate marine scientific capacity as well as uneven distribution of scientific capacity between the developed countries (DCs) in the north and the less-developed countries (LDCs) in the south. In 1974 the total number of marine scientists in the Mediterranean area was less than 700.<sup>9</sup> By comparison, the UK bordering on the North Sea had 1,046 marine scientists in 1983.<sup>10</sup> Moreover, most of the scientific capabilities were concentrated in the north of the region. For instance, Italy had thirty-one marine research centres in 1974—Syria had only one. These disparities have created problems in establishing a collective Mediterranean awareness of the need to progress towards a better environment.

### International Responses: Towards a Complex Institutional Framework

The main purpose of the 1976 Barcelona Framework Convention may be summed up as an effort to prevent, abate, and combat pollution, and to protect and enhance the marine environment (Art. 4). The field of application for the Barcelona Convention and its related protocols is the Mediterranean beyond the internal waters of the littoral states, excluding the Black Sea. Up until 1980 MAP was supported almost entirely by UNEP, which was given the main secretariat functions according to Article 13 of the Convention. In recent years UNEP has sought to transfer more responsibility to the Parties.<sup>11</sup> The Mediterranean Action Plan's management component includes ambitions of *integrated planning*, or economic development compatible with environmental sustainability, known as the Blue Plan and the Priority Actions Programme. An assessment component called Med Pol was designed to conduct *monitoring and research*. Med Pol was divided into two separate phases: Phase I, 1976–81, was to ascertain the degree of pollution in the Mediterranean, while Phase II, 1981–95, aimed at evaluating the effects of Med Plan measures and setting standards for the control of land-based sources. Another important goal of Med Pol has been to promote scientific capacity, most notably among the LDCs. According to UNEP, Med Pol and the other MAP components have indeed succeeded in creating a collective awareness.<sup>12</sup>

To fulfil the goal of the Barcelona Convention, a complex legal and institutional structure was set up, and two Protocols were adopted in 1976. The first prohibits *dumping* of dangerous substances (the 'black' list); less noxious substances are placed under precise controls (the 'grey' list).<sup>13</sup>

The second Protocol deals with accidents or other *emergencies* resulting from discharges of oil or other discharges of other harmful substances into the sea. In 1980 twelve states and the EC signed the Protocol on *Land-Based Sources* (LBS) of Pollution, which also includes a 'black' and a 'grey' list of substances. Two years later the Mediterranean states approved a Protocol aimed at creating a network of specially *protected areas* to safeguard natural resources.

In addition, a Protocol for the Protection of the Mediterranean against Pollution resulting from *Seabed Activities* was adopted in 1994. At the Barcelona Conference of Plenipotentiaries in 1995, MAP members approved amendments to the Barcelona Convention and the Dumping Protocol. A new protocol concerning Specially Protected Areas and Biodiversity was also adopted. These amendments take into consideration the UNCED process, in particular by introducing the concept of sustainable development. It is also expected that a new Protocol on transboundary movements of hazardous waste as well as amendments to the Protocol on Land-Based Sources will soon be adopted.

After the Barcelona Convention entered into force in 1978, the Parties also developed a complex organizational structure to co-ordinate Med Plan operations. In 1980 the Co-ordinating Unit for the entire Med Plan was established, and transferred to its permanent headquarters in Athens in 1982. Further specialized units are situated around the Mediterranean. The centre for the Priority Action Programme is located in former Yugoslavia, the Blue Plan centre in France, the centre dealing with specially protected areas in Tunis, and in 1976 a Regional Oil Combating Centre was set up in Malta.<sup>14</sup> Italy took the initiative to establish the latest Regional Activity Centre on remote sensing in 1993.

### *Specificity of Goals*

The goals of the Barcelona Convention and its related Protocols are vague, in the sense that it is difficult to assess whether there has been behavioural change among target groups according to official goals. One reason for this is a widespread lack of effective and precise decision-making at the biennial meetings of the Parties. In order to translate most of the general legal texts into action, common decisions are required within the framework of the Protocols on specific goals and measures, as the first step. Some improvement occurred at the fifth meeting of the Parties (1987), where an implementation plan for the LBS Protocol was developed, aimed at promoting common measures. However, the thirteen common measures actually adopted to date have been quite general, with few fixed time-limits related to concrete reduction goals. An important step towards greater precision was taken in the Barcelona Resolution adopted in 1995. Under Article 6, The Parties agreed 'to the reduction

by the year 2005 of discharges and emissions which could reach the marine environment, of substances which are toxic, persistent and liable to bioaccumulate, in particular organohalogens, to levels that are not harmful to man or nature, with a view to their gradual elimination'.<sup>15</sup> Closer examination, however, shows that this goal is not easy to use as a benchmark. First, actual reductions can hardly be evaluated without a baseline year. Second, the specific substances covered by the goal were not identified, though it was decided to commence work on this in 1996.

### *Reporting, Outsiders' Access, and Resources*

The Parties are obliged to report on their follow-up actions. Under Article 20 of the Barcelona Convention, they shall report on measures taken for implementing the Convention and its related Protocols—a general duty also spelled out in the various Protocols. For example, according to Article 7 of the Dumping Protocol, the organization (that is, the Co-ordinating Unit) is to receive records of dumping permits. The LBS Protocol states in Article 13 that the Parties shall inform one another, through the Co-ordinating Unit, of measures taken and results achieved.

In practice, however, the Parties have shown great reluctance in following up the reporting procedures required. According to Articles 4, 5, and 6 of the Dumping Protocol, dumping into the Mediterranean requires a permit from competent national authorities. Even though all Parties have ratified this Protocol, only three states have actually been reporting annually to the Co-ordinating Unit.<sup>16</sup> The situation is no more encouraging with regard to the LBS Protocol. In 1989 a questionnaire on land-based sources of pollution was sent from the Co-ordinating Unit to the Contracting Parties. By the fall of 1992 only seven of the Parties had sent complete or partial replies. Moreover, no answers were received from the Contracting Parties to a letter sent in July 1990 asking for information on the implementation of existing or new legislation related to the pollution measures adopted by the Parties since 1985. Furthermore, only four countries sent annual reports on measures adopted to implement the Barcelona Convention and its related Protocols, as required under Article 20 of the Barcelona Convention.<sup>17</sup> This situation had not improved significantly by 1993.<sup>18</sup>

While many of the Parties seem to resist increased transparency in practice, their policy on outsiders shows no fear of embarrassment due to poor reporting. The breakthrough with regard to access for non-governmental organizations (NGOs) came with an amendment of the rules of procedure in 1989. Rule 8 states that the Executive Director shall, with the tacit consent of the Contracting Parties, offer to send NGO representatives to observe any public setting of any meeting or conference, including the meetings of the

technical committees. Recently, the MAP took an even more positive stand towards NGOs. Selected NGOs were divided into 'MAP partners' and 'MAP associates'. 'MAP partners' participate with observer status, but according to the new procedures they have rights almost equal to those of states, except as regards voting. For example, at the biennial meeting in 1995, the Greenpeace observer contributed by including organohalogens in the second paragraph of the 2005 target referred to above.<sup>19</sup> An increasing number of NGOs have actually been participating at the biennial meetings, representing both industry and green organizations. At the seventh ordinary meeting in 1991, 18 NGO representatives were present, whereas at the ninth ordinary meeting in 1995 there were 46 NGO representatives and 95 state delegates. Two of the NGO representatives came from the World Wide Fund for Nature International (WWF), which operates a \$US10 million budget for Mediterranean conservation in 1995–96, outstripping MAP's 1996 budget of \$US6.75 million.<sup>20</sup>

The MAP budget is modest, but not unproblematic. Mostafa K. Tolba, Executive Director of UNEP, stated in 1991: 'Delays in payment, especially by the major contributors, are very disturbing. They are persistently crippling the implementation of the programme. . . If the Contracting Parties to the Barcelona Convention sincerely want to have a co-ordinated effort to help protect the Mediterranean environment, the sum required—less than 6.7 million U.S. dollars per year—is extremely low. It is the price of three battle tanks.'<sup>21</sup> Unpaid pledges for 1991 and prior years had then exceeded \$US4 million. Tolba's request obviously failed to make an immediate impression, however: unpaid pledges for 1993 had risen to \$US4.5 million.<sup>22</sup> On the other hand, unpaid pledges as of 31 December 1995 were estimated to approximately \$US1.5 million, indicating an expected decrease of considerable proportions. In addition to the Parties' contribution, MAP receives contributions from UNEP and the EU.

### **National Implementation: Hard to Assess**

Due to lack of reporting and vague goals, national implementation is extremely hard to assess precisely. However, starting at the top, the Parties agreed within the framework of the Barcelona Convention to co-operate in the formulation and adoption of Protocols, to take measures to prevent pollution caused by dumping (Art. 5), ship discharges (Art. 6), exploration and exploitation of the continental shelf and seabed and its subsoil (Art. 7), land-based sources (Art. 8), and to co-operate in dealing with pollution emergencies (Art. 9). In addition, the Convention requires co-operation in the field of monitoring (Art. 10) and science and technology (Art. 11). Protocols or other

measures are adopted for all these items. To what extent, then, have these Protocols triggered common decisions that have been implemented by the Parties?

The most important Protocol to be adopted is the Land-Based Protocol. This Protocol was adopted in 1980 and entered into force in 1983. Six Parties had still not ratified the Protocol by 1989, but as of 1993 all Parties except Lebanon and Syria had ratified it. The LBS Protocol states in Article 5 that the Contracting Parties within the Protocol area are to eliminate pollution from land-based sources of substances listed in Annex I. To this end, the Parties shall elaborate and implement, jointly or individually, necessary programmes and measures—including, in particular, *common emission standards* and standards of use. Article 6 stipulates that the Parties shall restrict pollution of substances listed in Annex II. Altogether, twenty-eight groups of substances are to be covered by common measures.

Following a ministerial meeting in 1985, the Parties developed an implementation plan in 1987 which seeks to develop common measures for all Annex I and II substances. According to the plan, twenty-eight measures should have been adopted by 1995: to date, however, the Parties have adopted thirteen common measures which mainly cover Annex I substances.<sup>23</sup> Due to recent approval of the common measures, it is difficult to assess precisely how many of these thirteen common measures have actually been implemented, but some scattered data exist. The Parties adopted common measures on organohalogen compounds in 1989. By 1995 eleven countries had adopted legal provisions on these substances, five of them due to EU directives.<sup>24</sup> With regard to the common measures on radioactive substances adopted in 1991, the countries that intentionally release radio-nuclides into the environment follow the principles and guide-lines of the International Commission on Radiological Protection (ICRP) and the International Atomic Energy Agency (IAEA).<sup>25</sup> The Parties also adopted measures on organophosphorus substances in 1991. At that time, the only countries with legislation on effluent standards or water quality were Italy and Yugoslavia, though some other countries had general legislation in this field.<sup>26</sup> There is an increasing tendency among the Mediterranean countries to install waste-water treatment plants along the coastal zone.<sup>27</sup>

With regard to the Dumping Protocol, common guide-lines are in preparation for dumping sewage sludge and dredged materials. Lack of guide-lines and poor reporting make it extremely difficult to assess the actions taken by the Parties. Here it should be noted that, in some areas, hazardous residues like solvents, organic chemicals, acids, and alkalis are disposed of through open dumping.<sup>28</sup> At a general level, it is somewhat easier to assess the Emergency Protocol. According to Article 3 in this Protocol the Parties shall

endeavour to maintain and promote their contingency plans and means for combating pollution of the seas by oil and other harmful substances. As of 1993 seven states still had no national contingency plans, which are a prerequisite for handling any form of intentional or accidental spill.<sup>29</sup> Data from the Regional Oil Combating Centre show great variations from 1978 to 1987 in relation to accidents and operation discharges. Total reports show that 11 accidents and operating discharges were reported in 1978, 22 in 1981, and 12 in 1987.<sup>30</sup> Two states had not ratified the Protocol on Specially Protected Areas as of 1993. The Protocol entered into force in 1986 and a Regional Activity Centre began operation in Tunis in 1985. The Protocol seeks to encourage the creation of marine parks to preserve regionally endangered species. Approximately 100 areas have been selected as specially protected areas and fifty more are under preparation. In 1989 it was decided to create a network for 100 historic sites in the Mediterranean. In addition, action plans for the conservation of marine turtles, monc seals, and cetaceans have been approved by the Contracting Parties. I do not have sufficient information to judge the extent to which these species and areas are protected in practice.

### Impact on the Problem: Even Harder to Assess

It is even more difficult to assess the impact of policy-coordinating activities from 1976 on the state of the marine environment. One major problem is the lack of reliable time-series data for input and water quality, although some scattered data exist. This problem is reinforced by the general methodological problems of separating the effect of intended environmental measures from general socio-economic and technological change, as well as natural environmental variations.

The best overall estimates of Mediterranean pollution are probably found in the UNEP publication *State of the Mediterranean Marine Environment*, from 1989.<sup>31</sup> Eutrophication is a local rather than a regional problem in the Mediterranean, frequent wherever the rate of input of domestic-industrial waste water exceeds that of the exchange with the open sea. We do not know whether this problem has increased or decreased over time. The general situation indicates an upward trend in the number of beaches of acceptable standard. It must be borne in mind, however, that some of the results are published by national authorities, which naturally fear negative publicity.<sup>32</sup> Public health problems in connection with the consumption of raw shellfish still occur regularly, though no major epidemic has been reported for a number of years.<sup>33</sup> The situation regarding microbiological contamination of shellfish has improved. Mercury poisoning can still be described as the major hazard originating almost exclusively from contaminated seafood.

Less clear is the situation regarding adverse health effects from consumption of seafood polluted by chemicals other than mercury. The 1989 report states: 'All confined or semi-confined Mediterranean localities adjacent to large urban centres appear to be the site of progressive build-up, as a result of continued uncontrolled anthropogenic release.'<sup>34</sup> Although considerable uncertainty surrounds such an assessment, from this fragmented picture of the state of the Mediterranean environment it is evident that the data are inadequate and uncertainty is high. Some indications of improvement exist—as do some indications of degradation. The European Commission has stated: 'It is now time to move from the pilot and preparatory phase to the action phase,' which indicates that little has actually been done.<sup>35</sup> Statements like 'Yet, since the Barcelona Convention was implemented in 1976, pollution has shown little sign of improvement'<sup>36</sup> are frequent, while others claim that 'The Med is Cleaner'.<sup>37</sup>

### **Barriers and Achievements**

Lack of substantial action within MAP on marine pollution is evident. A growing population and general socio-economic progress have further increased the pressure on the Mediterranean Sea over the past two decades. On the other hand, there is little evidence that the Mediterranean Sea has degraded significantly overall. This would indicate that steps have been taken mainly outside the framework of MAP. Both national vulnerability and international co-operation have been important for the actions actually taken by the Parties. Some particularly vulnerable countries have established their own national programmes independent of MAP. Important here is the fact that heavily polluted beaches may result in decline in tourist revenues—which constitute an average of 6.5 per cent of the region's GNP. Significant contributions have come from other conventions and institutions than those which are integrated parts of the Med Plan, especially the European Union. As we have seen, the EU is the main reason why some of the Parties have taken action on organohalogen compounds. Spain, France, Italy, and Greece are EU members and thus obliged to follow the EU common environmental legislation on the marine environment. Given a very simplified assumption that the biggest coastal cities are those that pollute most, we can say that the EU and the EU countries control most of the polluting point sources in the Mediterranean: 70 per cent of the 539 Mediterranean coastal cities with a population exceeding 10,000 are in EU countries. This represents 59 per cent of the total population in the coastal cities.<sup>38</sup> Furthermore, the EU, together with the World Bank, the European Investment Bank, and UNEP, has initiated projects aimed at cleaning up the Mediterranean. These institutions will commit

financial and practical resources in order to achieve, 'for the year 2025 at the latest, an environment in the Mediterranean Basin compatible with sustainable development'. The EU and the two banks are to allocate approximately \$US1,500 million towards achieving this goal.<sup>39</sup>

The Mediterranean Action Plan has probably had greatest impact outside the area of marine pollution control. Its legal component, the assessment component as well as the ambitions of integrated planning have stimulated a collective awareness of the Mediterranean as a common heritage. We should bear in mind that many of the Parties are less-developed countries lacking financial, technological, administrative, and scientific resources in the area of marine pollution control. Moreover, the Mediterranean area is politically explosive.<sup>40</sup> The 1995 Barcelona Conference was marked by time-consuming bickering in the plenary sessions between Greece and Turkey over their historical territorial disputes in the Mediterranean. The biennial meetings of the Parties and ad-hoc conferences have been the only regional forums where representatives from disputing countries could meet face-to-face. The states had probably had mixed motives for participating in the MAP; it is reasonable to assume that a large degree of non-environmental motivation has significantly increased the distance between symbol and substance.

### **The Future: Time for Setting Priorities and Co-ordination**

Lack of resources combined with many high political conflicts have significantly hampered implementation of MAP. Possible solutions to these barriers lie largely outside the competence and scope of MAP. Here I shall focus on improvements for the future that seem politically feasible.

A collective awareness has been created. MAP operates with a minor budget and the Parties only meet every second year. Thus it is, after twenty years, time to sit down and make realistic plans in order to transform rhetoric into action. From recognition of the fact that everything is interlinked it does not follow that a little must be done about everything. Although population and tourist growth as well as uncontrolled socio-economic development are the main forces behind pollution in the Mediterranean, it is by no means obvious that MAP is the proper body for coping with such large-scale problems. Similarly, preserving the cultural heritage by creating a network of 100 historic sites is undoubtedly important—but is MAP the most appropriate body for the task? A major problem is that MAP seems to have had a too large scope at the expense of stringency of measures, compared to resources actually available. Related to this are the large-scale plans launched by the international banks and the involvement of the EU. Since MAP itself

aims at including almost everything related to the environment and development there is obviously a danger of overlap between the various initiatives. Its future effectiveness will depend heavily on the Parties' ability to co-ordinate their activities with other projects and give priority to the truly transnational problems among MAP activities. In addition, it is clear that the Parties should improve their reporting procedures as well as comply with their financial obligations.

MAP is now entering Phase II, and a new Action Plan has been adopted.<sup>41</sup> Strongly inspired by *Agenda 21*, it is in fact not an action plan, but a description of the pressing environmental needs that should be addressed in an ideal world. There are no priorities or timetables in the various sections which, among many other things, include general economic activities, agriculture, industry, energy, tourism, transport, water resources, soil, living marine resources, forest and plant coverage, and integrated coastal area management. The main objectives are to ensure sustainable development, to protect marine environment and coastal zones, to protect nature and landscapes, as well as strengthening solidarity between Mediterranean states in managing their common heritage and resources for the benefit of present and future generations.

As we have seen, the Barcelona Resolution includes the very sensible goal of substantially reducing emissions of hazardous substances, in particular organohalogenes, by the year 2005. Such substances are truly transnational, and they require common action. If this goal is to be taken seriously, it is likely to occupy most of the attention, energy, and resources of MAP for the next ten years, to identify and address the problems of the major hazardous substances and sources. Regrettably, this will have to be done at the expense of other sensible, but less crucial, activities within the Mediterranean Action Plan.

## Notes and References

- Spain, France, Italy, Yugoslavia, Libya, Israel, Greece, Cyprus, Malta, Algeria, Turkey, Tunisia, Syria, Morocco, Egypt, and Lebanon were the original members. Today, the MAP also includes Albania, Bosnia and Herzegovina, Croatia, Monaco, and Slovenia.
- Conference on the Human Environment, Stockholm, 5–6 June 1972, identification and controls of pollutants of broad international significance (*Subject Area III, A/CONF.48/8 7, Jan. 1972, 25*). Other seas that were regarded as threatened included the Baltic, the Black, and the Caspian seas.
- Legend has it that he finally threw himself into the strait to explain the current pattern.
- The Med X study produced the following major findings: (a) industrial and municipal wastes exceeded oil pollution problems; (b) 85% of all pollutants in the Mediterranean were found to originate on land; (c) 80–5% of land-based pollutants were emitted to the Mediterranean by rivers; and (d) over 80% of all municipal sewage entering the Mediterranean was untreated. See Peter M. Haas (1990), *Saving the Mediterranean: The Politics of International Environmental Co-operation* (New York: Colombia University Press), 101–3.
- United Nations Environment Programme (1989), *State of the Mediterranean Marine Environment* (Athens: UNEP), 37.
- 'The Med', *Oceanus*, 33/1 (Spring 1990), 11.
- United Nations Environment Programme, *State of the Mediterranean Marine Environment* (n. 5 above), 40.
- See MAP Technical Reports Series (Athens: UNEP).
- Number of marine scientists with a BA or higher equivalent degree. See Haas, *Saving the Mediterranean* (n. 4 above), 85.
- Despite a considerable drop in marine scientific capacity from the end of the 1970s. See J. B. Skjærseth (1992a), 'Towards the End of Dumping in the North Sea: An Example of Effective International Problem-Solving?' *Marine Policy* (Mar.), 138.
- J. B. Skjærseth (1993), 'The "Effectiveness" of the Mediterranean Action Plan', *International Environmental Affairs*, 5/4 (Fall).
- See e.g. United Nations Environment Programme (1995a), *Report of the Ninth Ordinary Meeting of the Contracting Parties* (Athens: UNEP), Annex IV. However, if we compare the scientific capabilities of 1974 with 1992, no major change in the asymmetrical distribution between the DCs and the LDCs has occurred. Scientific capability is operationalized as: (a) number of marine research centres; (b) number of marine scientists with a BA or higher equivalent degree. It is probable that the reliability of the data has improved from 1974 to 1992. In addition, the data are based on the number of respondents to questionnaires and may therefore not be completely reliable. See J. B. Skjærseth (1992b), *The Mediterranean Action Plan: More Political Rhetoric than Effective Problem-Solving?* (Lysaker: Fridtjof Nansen Institute).
- 'Black-list' substances include mercury, cadmium, DDT, PCBs, some plastics, used lubricating oils, and radioactive wastes. 'Grey-list' substances include lead, zinc, copper, arsenic, cobalt, silver, cyanide, fluorides, and pathogenic micro-organisms.
- The new name of ROCC is: Regional Marine Emergency Response Centre for the Mediterranean Sea (REMPEC).
- United Nations Environment Programme (1995b), *Final Act of the Conference of Plenipotentiaries on the Convention for the Protection of the Mediterranean Sea against Pollution, to the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft and on the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean*, Barcelona, 9–10 June, 98.
- This information is from 1992 when France, Italy, and Israel reported annually. This situation may have improved, but the author has not found any information on the number of licences issued with regard to the dumping of industrial waste, sewage sludge, or dredged materials.
- See United Nations Environment Programme (1991), *Report of the Seventh Ordinary Meeting of the Contracting Parties* (Athens: UNEP).
- See United Nations Environment Programme (1993), *Report of the Eighth Ordinary Meeting of the Contracting Parties* (Athens: UNEP).
- United Nations Environment Programme, *Report of the Ninth Ordinary Meeting of the Contracting Parties* (n. 12 above), 6.
- 'Mediterranean Action Plan Members Agree to "Reduction" in Dumping by 2005', *International Environmental Reporter*, 14 June 1995, 450.
- United Nations Environment Programme, *Report of the Seventh Ordinary Meeting of the Contracting Parties* (n. 17 above), Annex III. 3.
- United Nations Environment Programme, *Report of the Eighth Ordinary Meeting of the Contracting Parties* (n. 18 above).
- United Nations Environment Programme (1990), *Common Measures Adopted by the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution* (Athens: UNEP), MAP Technical Reports Series, no. 38; and

- United Nations Environment Programme, *Report of the Seventh Ordinary Meeting of the Contracting Parties* (n. 17 above).
24. United Nations Environment Programme (1995), *Assessment of the State of Pollution in the Mediterranean Sea by Carcinogenic, Mutagenic and Teratogenic Substances* (Athens: UNEP), MAP Technical Report Series, no. 92, 71.
  25. United Nations Environment Programme (1992), *Assessment of the State of Pollution of the Mediterranean Sea by Radioactive Substances* (Athens: UNEP), MAP Technical Report Series, no. 62.
  26. United Nations Environment Programme (1991), *Assessment of the State of Pollution of the Mediterranean Sea by Organophosphorus Compounds* (Athens: UNEP), MAP Technical Report Series, no. 58.
  27. There are no recent data to indicate to what extent the coastal population is currently served by treatment plants. A survey conducted in 1978 indicates that only 50% of the seventy-eight Mediterranean municipalities responding to the questionnaire possessed a treatment facility prior to 1978. This situation had improved somewhat by 1980. Recently, the establishment of sewage treatment plants has been adopted as a matter of priority by all Mediterranean countries.
  28. United Nations Environment Programme, *State of the Mediterranean Marine Environment* (n. 5 above), 52.
  29. United Nations Environment Programme, *Report of the Eight Ordinary Meeting of the Contracting Parties* (n. 18 above), 7.
  30. United Nations Environment Programme, *State of the Mediterranean Marine Environment* (n. 5 above), 87.
  31. Ibid. An update of this report will be prepared by the end of 1995.
  32. Ibid. 72.
  33. Ibid.
  34. This can be observed in the Bay of Algiers, the 'lac de Tunis', the Bay of Abu-Kir near Alexandria, the Bay of Izmir in Turkey, the north Adriatic, and the coastal belt along the north coast of the west Mediterranean. Ibid. 74.
  35. 'A Mediterranean Holiday from Pollution', *New Scientist* (5 May 1990), 28.
  36. 'Talks Sink Plans to Clean up the Mediterranean', *New Scientist* (3 Nov. 1990), 22.
  37. Headline on an article fully titled: 'The Med is Cleaner: It's Still Diseased but not Terminally Ill', by P. M. Haas and J. Zuckman in *Oceanus*, 33/1 (Spring 1990), 40-3.
  38. United Nations Environment Programme, *State of the Mediterranean Marine Environment* (n. 5 above), 70-1.
  39. 'A Mediterranean Holiday from Pollution' (n. 35 above), 28-9. In addition, the World Bank in collaboration with the European Investment Bank launched the Environmental Programme for the Mediterranean (EPM) in 1988.
  40. Since 1948 four wars have been fought between Israel and her Arab neighbours. Added to this picture is the Greek-Turkish antipathy and conflict over Cyprus, and the Moroccan-Algerian dispute with regard to the western Sahara. Furthermore, the civil war in former Yugoslavia does not stimulate active participation in international environmental co-operation.
  41. See United Nations Environment Programme, *Report of the Ninth Ordinary Meeting of the Contracting Parties* (n. 19 above), Annex IX.

