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An NGO role in enhancing integrated coastal management in the Mediterranean and the Black Sea: The MEDCOAST experience

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Abstract

In the early 1990s, integrated coastal management (ICM) in the Mediterranean basin found general acceptance as an important issue both at national and international levels, and since then it has been, though slowly, steadily developed. Donor organizations such as the European Union and the World Bank, and the UNEP's Mediterranean Action Plan played catalyst roles in this development by initiating and supporting pilot projects. In 1992, the European Union launched the Mediterranean programs in which the environment, and especially the coastal environment, was considered as a priority issue. Parallel to this development, several NGO initiatives took place for public awareness on pressing coastal issues and in training and education. The idea of MEDCOAST, which is an NGO network of Euro-Mediterranean academic institutions, was born in 1990 and the new initiative was launched in two directions in 1993. One of these was the organization of the *First International Conference on the Mediterranean Coastal Environment (2–5 November 1993, Antalya, Turkey)*, which placed strong emphasis on the management issues. The second was the development of a project proposal to the Med-Campus program of the European Union. The project, which had the title of *Educational Programs in Coastal Zone Management*, was selected for funding and became operational in early 1994. The first international training program organized by MEDCOAST was the *MEDCOAST Institute 94: Coastal Zone Management in the Mediterranean*. This three-week long training effort took place in August–September 1994. Since then, MEDCOAST organized eight training programs in by 1999 five different countries, which were participated by 173 professionals representing 31 countries. Development of an international Masters Degree program in ICM was the second goal of the MEDCOAST's Med-Campus project. Efforts for pursuing this goal are still continuing. This paper elaborates the potential for the NGO's contribution to training and education in the field of integrated coastal management in the Mediterranean and

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the Black Sea by introducing the MEDCOAST experience. It presents the past and planned MEDCOAST efforts and discusses the strengths and limitations of the role of NGOs at the regional scale. © 2000 Elsevier Science Ltd. All rights reserved.

1. Introduction

Attention given to coastal management at academic levels in the Mediterranean started in the mid-1980s, and at governmental and inter-governmental levels in the late 1980s and early 1990s. The academic interest in coastal management in the Mediterranean countries emerged and developed firstly through the influence of the work carried out in the United States (mainly via the Coastal Zone conferences), and secondly through involvement of several individuals in two European networks (EUROCOAST and EUCC), which were both established in 1989. The first generation CAMP projects (1989–1992) [1] led by the Priority Actions Programme Regional Activity Center (PAP RAC) in the framework of the Mediterranean Action Plan, a number of METAP projects of the World Bank, and assessment studies carried out by OECD were the early examples of coastal management efforts around the basin. Coastal management was not an acknowledged goal however, at the start or even during the first phase of the Mediterranean Action Plan.

In the early 1990s, a number of new coastal initiatives of non-governmental nature appeared, which had basin wide scopes. These include the International Center for Coastal and Ocean Policy Studies (ICCOPS) (Genoa, Italy), the International Center for Coastal Resources Center (CIIRC) (Barcelona, Spain), and MEDCOAST (Ankara, Turkey). These new institutions, although they had differences in their structures and scopes, were all led by academicians. One of their common mandates was to offer “training and education” and to disseminate information. Additionally, there exist at least two other networks of Mediterranean universities which have more general scopes (Community of Mediterranean Universities, Bari, Italy and University of the Mediterranean — UNIMED, Rome, Italy). Lately WWF, in the context of their *Across the Waters* project, has organized thematic courses (The Wet School, The Sun School, The Blue School, The Wild School, SILVA) for individuals belonging to an NGO or a non-profit organization.

The history of the Mediterranean coastal management is rather short, and this new profession is not yet well established and accepted at the regional scale. Although the number was not large, all of the respondents to a questionnaire study conducted in the framework of the half-day *MEDCOAST Workshop on Education and Training in Integrated Coastal Management (ICM) in the Mediterranean*, organized during the *Third International Conference on the Mediterranean Coastal Environment, MEDCOAST 97* (11–14 November 1997, Qawra, Malta) answered that “They do not have a well-defined profession called *coastal manager* in their countries”. Earlier, the discussion session on “*Mediterranean and Black Sea: Training and Educational Needs of ICM Professionals — Analysis of Demand*”, organized in the context of the “*Rhode Island Workshop on Educating Coastal Managers*” concluded that “At present, there are no

jobs under the title of *coastal manager* in either the Mediterranean or Black Sea since there are no governmental coastal management programs in these regions” [2]. It is not then surprising that national or international training and educational programs on coastal management which are presently available in the region are very few. In addition to the existing MEDCOAST training programs, Chircop [3] mentions the “planned” program in coastal and marine management in the University of Malta, and the “under way” effort by four institutions for a cooperative program in integrated coastal management as the only other activities in this field. It is not known if any of these two initiatives has yet become operational.

The building up and/or enhancement of formal education towards a degree in the Mediterranean universities has not been one of the activities of the Mediterranean Action Plan. On the other hand, however, the MAP institutions have organized short training programs on thematic issues, such as Geographic Information Systems and their uses for coastal planning, management of specially protected areas and endangered marine species, pollution monitoring and control, and on various issues relevant to ICM mostly through specific CAMP projects carried out by PAP RAC (the so-called “on-the-job” training) [4]. Chircop [5] argues that MAP Coordinating Unit should provide the “necessary catalytic role” among the Mediterranean universities for the “establishment of regional educational programs”. If this happens, it will be a new role to be played by MAP.

The Med-Campus Program of the European Union, which was launched in 1992, provided a noticeable dynamism in the training activities over the Mediterranean scale in various issues under the heading of the “environment”, including coastal management. Unfortunately, the program lived for only three years, and was halted in 1996. It was announced in September 1998 that the Med-Campus program would be re-launched soon, which did not yet occur up to now (July 1999).

The following points, which sum up the present Mediterranean setting for education and training in the field of ICM, could also be significant for shaping future efforts:

- (1) ICM has become a strong component of the Mediterranean Action Plan only in the 1990s, and specially after 1995 (e.g. in the second phase of MAP).
- (2) Governmental ICM efforts over the Mediterranean basin are still at rather early stages in several countries.
- (3) There are not enough national ICM efforts to warrant the need for the new professional called “coastal manager”.
- (4) Since there does not yet exist a sizable market for coastal management professionals at national or regional level, the incentive for initiating degree programs in this new field in the Mediterranean universities is not high. Another difficulty arises from the fact that all of the diverse disciplines, which should input into a well-resourced ICM graduate program exist perhaps only in very few Mediterranean universities, if at all.
- (5) There exist a number of short training programs in the region organized by NGOs and IGOs on general ICM or on a certain sub-theme which are offered especially for the Mediterranean participants.

- (6) The NGO networks of universities and academic institutions which have experience for collaboration in offering the few existing training programs on ICM, may extend their capabilities to develop ICM degree programs which could be available at the regional scale.

2. The MEDCOAST model for international co-operation on ICM

The idea of starting the MEDCOAST initiative for providing scientific and professional support to the coastal and marine issues of the Mediterranean and the Black Sea originated in 1990. It was then noted that, although there were significant concerns over the environmental well-being of the Mediterranean and the Black Sea, and that there were serious efforts by international organizations, national authorities and NGOs towards environment protection and sustainable use of resources, the level of international scientific co-operation and of sharing national experiences, were far from being satisfactory. Indeed, it was concluded that: (a) there was an immediate need for an international Mediterranean conference series open to all interested; (b) it would be beneficial to enhance the exchange of information and know-how by establishing a network of professional and scientific centers around the Mediterranean basin or elsewhere, which are interested in the coastal and marine environment of the Mediterranean and the Black Sea; (c) it would be highly valuable to develop international educational programs focusing on integrated coastal and marine management specific to the Mediterranean and Black Sea conditions, which did not exist at all at that time.

The MEDCOAST initiative has presently three components. These are:

- (a) MEDCOAST conference series.
- (b) Human resources development (conferences, training programs, networking).
- (c) Collaborated research.

The goal of the initiative is to enhance scientific and professional collaboration among individuals and institutes (networking) in the Mediterranean & Black Sea countries, or elsewhere, for the purposes of:

(a) Producing means to improve our understanding of physical, chemical, biological and ecological processes taking place in the Mediterranean and Black Sea coastal and marine environment, and their interactions with human activities (*research component*).

(b) Facilitating the utilization of scientific knowledge and modern management tools in achieving integrated coastal and marine management (*conferences, training programs, publications, newsletter*).

(c) Complementing and contributing to the existing international efforts having similar goals, most notably those of the UNEP Mediterranean Action Plan (UNEP MAP), European Union (the Med programs, PHARE and TACIS schemes), World Bank (METAP), Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC), the GEF Black Sea Environmental Programme (GEF BSEP), the Black Sea Strategic Action Plan, and the regional research programs of NATO (*all components*).

The MEDCOAST activities are run or supported by several key people from 14 institutions which form the MEDCOAST network at present. Seven of these (four universities, one research and two non-governmental professional organizations) were the founding organizations in 1993 at the time of the Med-Campus project application. These institutions are; Middle East Technical University (Ankara, Turkey) (Coordinator of MEDCOAST), University of Genoa (Genoa, Italy), University of Amsterdam (Amsterdam, The Netherlands), Delft Hydraulics (De Voorst, The Netherlands), University of Glamorgan (Pontypridd, Wales, UK), International Center for Coastal and Ocean Policy Studies (ICCOPS) (Genoa, Italy) and the Turkish National Committee on Coastal Zone Management (KAY) (Ankara, Turkey). The new entries into MEDCOAST network in the following two years (1994 and 1995) are Catalanian University of Technology (Barcelona, Spain), University of Malta (Valletta, Malta), Israel Institute of Technology (TECHNION) (Haifa, Israel), University of Alexandria (Alexandria, Egypt), University of Corsica (Corsica, France), Priority Actions Programme Regional Activity Center of the Mediterranean Action Plan (PAP/RAC MAP) (Split, Croatia), and Institute for Remote Sensing Applications — Joint Research Center of the EC (Ispira, Italy). The MEDCOAST network is not an exclusive group. The number and the collaborating organizations may change in time in response to developments. The network does not include a formal member from the Black Sea countries at present, although the Black Sea is fully covered in all MEDCOAST programs and activities. Formal inclusion of a number of leading Black Sea institutions into the MEDCOAST is anticipated in the future.

Since its inception, MEDCOAST has been a truly non-governmental initiative. It is presently a group of voluntary scientist and professionals, which partly use the capabilities of their institutions for building up and contributing to the MEDCOAST ideal. The number of employees (project officers) receiving salaries through MEDCOAST has increased to four only recently. The MEDCOAST Secretariat, which is presently stationed at the Ocean Engineering Research Center of the Middle East Technical University (METU), has been operating basically by using the financial resources transferred from the research funds of the MEDCOAST's Chairman. Additional modest support (in kind and cash) has also been provided by METU. In 1997, MEDCOAST was greatly honored by the PEW Fellowship Program in Marine Conservation (Boston, USA). It was chosen as one of the top 10 efforts worldwide for conservation of marine environment, and was given the prestigious PEW Award, which included a generous sum of financial support for 3 years.

The MEDCOAST events, however, have been sponsored internationally on project basis. Many international and national organizations have provided modest levels of financial support for the scientific meetings and training programs. These small contributions have been invaluable for the success of each event.

The biggest donor behind the MEDCOAST initiative has so far been the European Union through their past Med-Campus program. MEDCOAST received funds from this program in 1994 and 1995. Additionally, Intergovernmental Oceanographic Commission of UNESCO, Mediterranean Action Plan (MAP) of UNEP, Priority Actions Programme Regional Activity Center (PAP RAC) of MAP, Turkish Prime Ministry, Black Sea Environmental Program (BSEP), DGI (PHARE and TACIS

Programs) and DG XI of the European Union, International EMECS Center (Kobe, Japan), and the British Council in Ankara have sponsored the MEDCOAST training efforts and scientific meetings. Euro-Mediterranean Center on Insular Coastal Dynamics (ICoD) (Valetta, Malta) and Catalonian University of Technology have supported MEDCOAST by co-organizing specific events.

Many MEDCOAST training programs and scientific meetings have been organized with very small budgets due to voluntary contributions of many individuals. The overall budget of MEDCOAST over the last six years has been at the level of barely 100 000 US\$/yr on the average.

3. MEDCOAST efforts for ICM training and education in the Mediterranean

The MEDCOAST initiative was launched with the *First International Conference on the Mediterranean Coastal Environment, MEDCOAST 93, 2–5 November 1993, Antalya, Turkey*. Since this comprehensive Mediterranean and Black Sea coastal management conference, MEDCOAST organized two more conferences in the series, MEDCOAST 95 in Tarragona, Spain [6] and MEDCOAST 97 in Qawra, Malta. Three conferences of the “Mediterranean Coastal Environment” series produced seven volumes of proceedings [7–9], which have proved to be very valuable sources of information on many aspects of coastal and marine management for researchers, practitioners and teachers. The fourth MEDCOAST Conference, MEDCOAST 99, is scheduled for 9–13 November 1999, to be held as a joint conference with the fourth EMECS Conference, which is organised by the International EMECS Center (Kobe, Japan). The joint conference, which has the theme of *Land-Ocean Interactions: Managing Coastal Ecosystems*, is expected to be a world congress on management of enclosed seas. The MEDCOAST conferences convene every 2 years (in odd numbered years), in a different Mediterranean or Black Sea town. The MEDCOAST Secretariat assumes scientific and organizational responsibilities for all conferences and workshops.

Ten papers selected from the proceedings of MEDCOAST 93 went through peer reviewing and were published in the special MEDCOAST issue *Ocean & Coastal Management* [10]. Eight papers from MEDCOAST 95 were published as a special issue of *Journal of Coastal Conservation* [11]. Preparation of another special issue of this international journal, which will contain peer-reviewed papers from the MEDCOAST 97 proceedings, is in progress.

In 1996, MEDCOAST organized an important international workshop entitled *ICZM in the Mediterranean & the Black Sea: Immediate Needs for Research, Education-Training and Implementation*. This speciality MEDCOAST Workshop, convened in Sarigerme, Turkey, during 2–5 November 1996, was attended by experts from most of the Mediterranean and the Black Sea countries, leading ICM authorities, and representatives of international organizations and programs. The work was carried out in two parallel paper presentation sessions, followed by three parallel group study sessions. The Workshop produced a volume of proceedings [12], and a summary document, which included 13 conclusions and 14 recommendations [13]. The 13th

recommendation gave following additional tasks to MEDCOAST for enhancing its contribution to coastal management in the Mediterranean and the Black Sea.

- (a) To encourage and support professionals to contribute better to enhancement of public awareness in the field of ICM.
- (b) To develop a masters level education program in coastal and marine management for the Mediterranean and Black Seas, and continue with the already existing short-term training programs.
- (c) To facilitate joint projects by involving the institutions within the network so as to encourage collaborative research at the regional or sub-regional levels.
- (d) To act as a data and information storage and management center for serving data and information which, when passed to the scientific community via newsletter, internet, workshops and training programs, etc., would also diffuse out to the general public.

The participants of the MED & Black Sea ICZM Workshop 96 further recommended the establishment of *International MEDCOAST Center* to serve as a permanent base and facility for carrying out the above functions, together with the already developed MEDCOAST activities.

MEDCOAST recently organized an international conference on the theme of *Wind and Wave Climate of the Mediterranean and the Black Sea (WIND & WAVE 98)*, 30 March – 2 April 1999, Antalya, Turkey. This highly successful speciality meeting produced a valuable volume of proceedings on the subject [14].

Contributing to training and education in ICM in the Mediterranean and Black Sea was one of the major goals of the MEDCOAST initiative from the very start. At the time of the first MEDCOAST event, MEDCOAST 93, a project proposal was prepared for submission to the Med-Campus Program of the European Union [15]. The title of the project was: *Educational Programs in Coastal Zone Management*. The goal of the project was set forth as the development of two human resource development programs for the Mediterranean Non-Community Countries (MNCs) and the Black Sea countries. One of these was a “continuous training program” (named as the *MEDCOAST Institute: Coastal Zone Management in the Mediterranean (including the Black Sea)*), and the other was an “international graduate program in English medium on the topic of coastal zone management and giving emphasis to the Mediterranean issues”.

The most important training activity of the MEDCOAST initiative has been the *MEDCOAST Institute*. This is a 3-week long international training program on the theme of “*Integrated Coastal Management in the Mediterranean and the Black Sea*”. The MEDCOAST Institutes in 94 and 95 were organised by utilising the generous financial support of the European Community through their *Med-Campus* program. The third successive event, MEDCOAST Institute 96, was realised through sponsorship of the Turkish Prime Ministry, as well as a number of smaller sponsors. The fourth event, MEDCOAST Institute 98 was organized through the support of PEW Fellowship Award in Marine Conservation, and several other sponsors including UNEP MAP co-ordinating Unit and the Priority Actions Program Regional Activity Center. The fifth MEDCOAST Institute is scheduled for 24 August–10 September 1999.

Four objectives of the MEDCOAST Institutes are [16,17]:

- (1) To train professionals from the riparian countries on issues relevant to environmental management of coastal and sea areas of the Mediterranean and the Black Sea, by in-class training, field observations and applied research.
- (2) To serve as an instrument and a forum for exchange of information and experience among professionals of the Mediterranean and the Black Sea and experts from other coastal countries, for successful coastal management practices relevant to the Mediterranean/Black Sea by using scientific information and modern management tools.
- (3) To contribute to the international efforts, such as the Mediterranean Action Plan, the GEF Black Sea Environmental Programme and the Black Sea Strategic Action Plan, firstly by introducing these activities to the participants, and secondly by contributing to human resource development in the riparian countries, which is very much needed for the execution of these international programs.
- (4) To carry out applied research on various aspects of coastal and marine management in the Mediterranean and the Black Sea and to contribute to public awareness.

Participation at MEDCOAST Institutes is open to all qualified individuals on a competitive basis. The Institute is announced at the beginning of each year in the professional media, and by mailing out brochures to about 3000 addresses included in the Mediterranean/Black Sea mailing list of the *MEDCOAST Secretariat*. After applications are collected, the selection committee decides on the individuals to be invited for participation by reviewing the applicants' CVs. In the first three Institutes, the majority of the participants were given full or partial scholarships by using the funds provided by the sponsors. Starting with the fourth Institute, it was decided to reduce the level of financial support provided through MEDCOAST, and the participants are urged to generate their own funds from the international or national donors. This new policy has so far been partly successful.

The highest-priority target group for participation in the MEDCOAST Institutes is the professionals holding mid-managerial positions in their central governments and being responsible for planning and execution of programs or projects on coastal and sea issues. Other groups, in decreasing order of priority, are employees of coastal municipalities, non-governmental environmental organisations, universities and research centers. The participants are required to have a basic university degree (Bachelor of Science, Engineering, Art or Law) in a relevant field and work experience of at least 5 yr. The maximum number of participants accepted to an Institute is 25, and diversification of nationalities has been an important consideration in the selection process, for increasing cross-national information exchanges.

All MEDCOAST Institutes have been run by an international faculty, including well-known experts from the partner institutions of the MEDCOAST network. Additionally, experts from the Mediterranean Action Plan (MAP), the GEF Black Sea Environmental Programme, and from other institutions are invited as guest lecturers.

The program of MEDCOAST Institute comprises three parts:

- In-class training, including formal lectures by the faculty on various topics related to ICM in the Mediterranean and the Black Sea, participants' country reports, and group exercises (carried out in the attractive Campus of Middle East Technical University, Ankara).
- Field study and observations on traditional wooden boats sailing along a selected segment of the Turkish coast and anchoring at locations of significant coastal conservation and/or development activities for observations, applied research and interviews with various actors involved in coastal management (e.g., local government officials, developers, conservationists, etc.).
- A concluding workshop, including additional lectures by the faculty on topics relevant to the field study trip, presentations by the participants on their field observations and group discussion sessions on the issues related to the field study trip and a half-day long "simulation game" on a coastal management scenario (in the METU Campus in 1994, in a hotel in Cappadocia in 1995, 1996 and 1998, in a hotel in Dalyan in 1999).

The field study part of the Institute provides a unique and highly valuable experience to both the participants and the faculty. In 1994, the faculty members and participants, on three traditional wooden boats, travelled along the coast of Bodrum Peninsula for which a pilot coastal management study was in progress, and along the coast of Gökova Bay, which is a specially protected area. In all the following Institutes, the area studied was the coast from Marmaris to Fethiye (Ölüdeniz).

During the boat trip, significant coastal forms and features, coastal habitats, conservation areas, and important coastal development projects are studied. Interviews are carried out with developers, local NGO representatives, protected area managers, central governmental officials (governors), and mayors.

Pairs of participants are assigned ICM topics for detailed observations and investigations during the field study trip. The teams present their reports later during the last phase of the Institute (e.g. the workshop).

The final workshop, which was only two days long in the 1994 Institute, was lengthened to one week in 1995. Lectures by the faculty on more applied topics, which are also relevant to the observations made during the field study trip, were moved to the workshop. Furthermore, the number of group discussion sessions, which was only one (special area management plan for Sedir Island) in the 1994 Institute, was increased to four in 1995, and to five in 1996. These topics were; "management plan for Dalyan Specially Protected Area", "sustainable tourism in the Mediterranean", "legal and institutional systems of the Mediterranean and Black Sea countries for ICM", and "coastal use conflicts and environmental impacts in Dalaman coastal region" in the Institute 95, and additionally, "functions of nature exercise" in the Institute 96.

An important part of the workshop is the presentations by participants of their field study reports. Each presentation is followed by an open discussion. This activity, which is carried out on a competitive basis, is found very educational in general, and is highly valued by the faculty and the participants.

Another major activity included in the program of the workshop is the simulation game, which takes about half a day. In the 1994 Institute, the scenario used (the Ibis Bay) was kindly provided by the International Academy of the Environment (Geneva, Switzerland). In 1995, the game called HARBORCO (developed by Harvard Law School) was used. During the following institutes, a modified version of HARBORCO (DALAMAN-CO), based on some of the coastal uses and conflicts observed during the field trip, was used.

After completion of all three phases of the Institute, successful participants are awarded the *MEDCOAST Certificate of International Training Program on Integrated Coastal Management in the Mediterranean and the Black Sea*.

Participants are asked to evaluate each MEDCOAST Institute at the end by completing a detailed questionnaire, which includes questions concerning all three phases of the Institute and covering many academic matters, as well as daily life issues, in addition to overall evaluation of the program. After the conclusion of the Institute, faculty members provide their written evaluation reports and make valuable suggestions for the next event.

According to overall opinions of the participants and the faculty, all four MEDCOAST Institutes were highly successful. After 4 yr of successful organization, MEDCOAST Institute has received a well-earned reputation of being a prime training program in ICM specific to the Mediterranean and Black Sea conditions, and providing a unique opportunity of high-quality training for qualified professionals from the riparian countries.

A condensed version of the in-class training part of the MEDCOAST Institute 95 was offered as a 2-day long short course during 22–23 October 1995 in Tarragona, Spain, prior to the MEDCOAST 95 Conference.

Additionally, MEDCOAST has organised another series of international training program on the topic of “*Beach Management in the Mediterranean and the Black Sea*”. The first event was held in Erice, Sicily during 7–12 April 1995. In addition to MEDCOAST, two major sponsors for this training activity were the ICSC-World Laboratory (Land-3 Project) (Erice, Italy and Lausanne, Switzerland) and the Euro-Mediterranean Center on Insular Coastal Dynamics (Valetta, Malta). Thirteen well-known experts from 11 countries contributed to this program as lecturers. The second event was organised jointly by MEDCOAST and the Euro-Mediterranean Center on Insular Coastal Dynamics (Valetta, Malta) in Gozo, Malta during 11–17 May 1996, and the third program by MEDCOAST in Varna (Bulgaria) during 4–6 July 1997. The fourth event is scheduled for 13–17 July 1999.

In eight international training programs organised by MEDCOAST between 1994 and 1998, a total of 173 participants from 31 countries received training. These eight events produced 161 MEDCOAST alumni, whose distribution to various countries is shown in Fig. 1. Out of the 31 countries, 25 have coastline either along the Mediterranean or the Black Sea. A number of MEDCOAST alumni played leading roles in their countries as the focal persons in the international programs or projects for developing coastal management capabilities (especially in the framework of the Black Sea Environmental Program — BSEP, for which the focal persons from all countries, except the Russian Federation, received training in the first MEDCOAST Institute

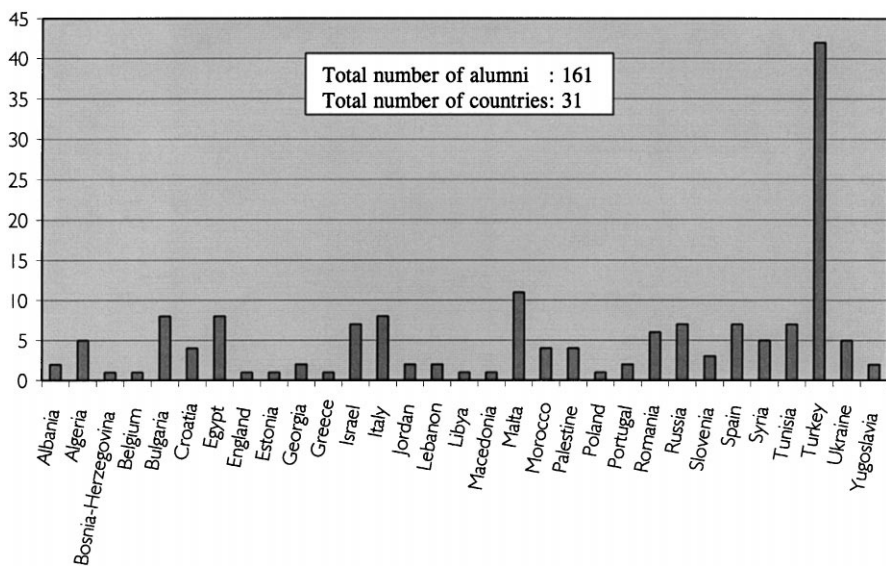


Fig. 1. The nationality profile of MEDCOAST alumni (1994–1998).

organized in 1994. The Russian participant at that institute, though he was not the focal person of the BSEP, is nowadays one of the leaders of the ICM efforts in Russia.).

4. The MEDCOAST model for M.S. Degree in ICM in the Mediterranean and the Black Sea

From the very start of the MEDCOAST initiative, one of the major goals has been the development of an international degree program (M.Sc.) in the field of integrated coastal management (ICM), specific to the Mediterranean and Black Sea conditions, at the Middle East Technical University (Ankara, Turkey), in collaboration with other institutions of the MEDCOAST network [15,18,19]. The aim of this inter-disciplinary graduate program, to be conducted in the English language, was set as “to educate teachers and qualified professionals having different undergraduate backgrounds who wish to develop expertise relevant to ICM in general, and in protection and rational uses of coastal and sea resources in particular”. Since there were not enough coastal management programs operated by the governments of the Mediterranean countries [2], the use of the title “coastal manager” was avoided in all the documents which described the degree program.

The MEDCOAST graduate program on ICM could not be made operational in 2 yr (e.g. in 1994 and 1995) due to several reasons. Although it was thought from the start that the degree program would be a collaborative effort of the network

institutions, many details of collaboration were not agreed on. Furthermore, agreements and authorizations were necessary at several levels in the host institute (Middle East Technical University, Ankara, Turkey). Finally, the financial support of the Med-Campus program in 1994 and 1995 was not sufficient to run an international degree program, and the support was stopped in 1996, since the Med-Campus program came to a temporary end.

Between 1994 and 1998, the international Masters Degree program on ICM to be offered by MEDCOAST was discussed among the key members of the network at various instances (e.g. during the yearly held planning workshops of MEDCOAST, and at several Mediterranean ICM meetings). The MEDCOAST model for the Masters Degree in ICM evolved during this four-year period as the result of in-depth discussions and the follow-up correspondence. The important characteristics of the MEDCOAST model are briefly described in the following paragraphs.

(a) Type of graduates

The program will produce coastal management specialists with comprehensive knowledge in the core topics of integrated coastal management, including coastal environment and ecosystems, important coastal development opportunities, social – environmental – ecological issues, management tools and approaches, and governance. The MEDCOAST model, which is designed for a single type of graduates, and which does not advocate a profession called “coastal manager”, differs in this respect from the model of Vallega [20].

(b) Backgrounds of students

A Bachelor of Science degree, preferably in ecology, marine biology, oceanography, civil engineering, environmental engineering, regional planning, management – economy, geography–geomorphology, policy and law, and in other relevant fields, will be sought.

(c) Course structure

The MEDCOAST model resembles the “course work option” of the typical US model for the MS degree. The total credit requirement is 36, out of which six credits should be earned from the graduation project (thesis). The remaining 30 credits is to be earned normally from 10 courses, each three credits (six core subjects, and four elective subjects). Six core courses (to be taught by faculty members from the MEDCOAST network institutions, who visit METU for periods of at least six weeks in summer and faculty members of METU itself) are:

- (1) Introduction to coastal environments.
- (2) Coastal ecosystem management.
- (3) Principles of integrated coastal management.
- (4) Instruments, tools and techniques used in integrated coastal management.
- (5) Coastal policy and legislation (international, regional, national).
- (6) Coastal development issues and problems.

Four electives are to be chosen from the following indicative (not exclusive) list:

Advanced coastal ecology.

Coastal land use planning.

Planning and management of coastal cities.

Basic coastal engineering.

Environmental impact assessment for coastal projects.

Remote sensing and coastal GIS.

Coastal water quality management.

Coastal recreation and tourism.

Coastal erosion and shoreline management.

Marine transportation, ports and harbors.

Management of living resources.

Management of special coastal units (beaches, dunes, wetlands, deltas, lagoons, and estuaries).

Coastal conservation and specially protected area management.

Management of coastal sites of cultural significance.

Two out of four elective courses can be from the final year undergraduate courses.

(d) Organization of the program

A student following the MEDCOAST's masters degree program will be educated partly at Middle East Technical University (METU) and partly at another MEDCOAST institution. All students will spend two summer semesters (each 6 weeks long) at METU (from July 1 to September 30) for a period of 3 months, and they will take 6 core courses during this time. Each course has a total of 48 contact hours. The lecture load of the students will be 24 h/week on the average.

After two summer semesters at METU, the students will be transferred to one of the MEDCOAST institutions for the second part of their study, which will last an additional two terms (from October to May). In the host institution, the students will take four elective courses to complete the course work, and will carry out their graduation project (thesis). The selection of the institute for this part of the study will be done by considering the backgrounds (B.Sc. degrees) of the students, e.g., a student with marine biology or ecology background will be sent to University of Corsica Pascal Paoli, France to work with the Coastal Ecosystems Team of the Faculty of Sciences. For the graduation project, the students will be assigned two supervisors, a main supervisor from the host institution and a secondary supervisor from METU.

After completing two terms in the host institution, the students will return to METU at the start of June for the final period of their program. The most important obligation of a student during this period will be to complete the report of the graduation project (print and bind), and have it examined by the program committee. The degree will be conferred by the Middle East Technical University, with acknowledgement of the MEDCOAST program and the contribution of the MEDCOAST institution which hosts the graduate for two semesters.

(e) Cost estimate and financing

The total cost of one student to follow the masters degree program for the duration of 12 months, including return travel to Ankara, return travel to the host institution, tuition for four semesters and course expenses, living costs, program management expenses and overheads, is estimated 25 000 US\$ on the average. The yearly intake to the program will be 15 students at the initial stage. Thus, the total annual cost associated with the MEDCOAST's Masters Degree Program on ICM in the Mediterranean and the Black Sea is about 375 000 US\$/yr.

The funding of the program is anticipated to be in the form of individual scholarships given by donors to the students; e.g., a certain student from a developing country will follow the program through the scholarship provided by the government of a certain European country. The funding sources which may provide the scholarships are the European Union, governments of the northern Mediterranean and other European countries, intergovernmental organizations, industry, unions and trade organizations, and local sources (e.g. governments of the students).

(f) Strengths of the MEDCOAST model for the masters degree program on ICM

The strengths of the program are the followings:

- (1) The model is highly dynamic for both students and faculty members with many opportunities for cross-national and cultural interactions.
- (2) It has the advantage of using the expertise of the leading centers around the Mediterranean and the Black Sea, and in Europe (e.g., the MEDCOAST institutions), on various issues of integrated coastal management (such as ecosystem management, management of living resources, tourism development or coastal development in general, environmental and resource economics, policy and law, coastal engineering, etc.) and offering students to be educated partly in one of these leading centres. MEDCOAST already has a good level of experience in such collaboration through the short-term training programs.
- (3) It provides ample opportunities for interdisciplinary interaction of both the faculty members and the students.
- (4) It is a great social occasion and fun for both the faculty and the students as they meet many people from different cultures in a dynamic schedule.

The program will be interesting to the participating MEDCOAST institutions since it will provide:

- (1) Prestige and recognition for being a part of a unique international educational program of high quality.
- (2) A steady inflow of international master degree students.
- (3) Opportunities for international research.
- (4) A modest income through tuition fees.

5. Strengths and weaknesses of the NGO role as deduced from the MEDCOAST experience

The MEDCOAST experience over the last 6 yr has highlighted various important strengths of the NGO role in contributing to the enhancement of ICM practices in the Mediterranean and the Black Sea in general, and in providing training and education in particular. These are briefly discussed below:

- (1) MEDCOAST, being aware of the fact that its main strength is derived from the quality of work that it carries out, has been cooperating with the leading experts in various fields involved in ICM, who have often been also devoted conservationists. Invitation for a new entry into the MEDCOAST Network has been guided by the following considerations:
 - (i) Professional and scientific quality of the lead person and the institution,
 - (ii) Filling up an empty space in the wide spectrum of disciplines contributing to ICM and avoiding duplication of the expertise which is already present in the MEDCOAST institutions,
 - (iii) Diversity of nationalities and countries represented in the MEDCOAST network.

The above strategy leads to a strong and efficient network, which can produce high-quality products.

- (2) As a non-governmental organization, MEDCOAST has remained completely apolitical. None of the MEDCOAST programs has been shaped or modified by political considerations. In the MEDCOAST Institutes, we have enjoyed the presence of participants side by side from politically rival countries, and their unbiased involvement in the program.
- (3) There is a degree of idealism and voluntary nature in any NGO initiative. Individuals contributing to the MEDCOAST events have often spent their time and provided their knowledge and experiences for no monetary benefits in return. This attitude has made it possible to organize several important training programs and scientific meetings with very small budgets.
- (4) MEDCOAST, being an NGO, is very dynamic in its structure. It can easily adopt to changes. For instance, the curriculum of the MEDCOAST Institute can be easily updated every year and the newly emerging approaches or issues can be accommodated in the program.
- (5) MEDCOAST, in addition to its serious involvement in training and education in ICM, is also engaged with activities in three other directions, namely: research at regional scale, organisation of scientific meetings (workshops and conferences), data and information management. All of these three components contribute significantly to the training and education effort of MEDCOAST, as well as to the MEDCOAST ideal of creating the MEDCOAST Family, including the key MEDCOAST people, faculty members, and alumni, who work towards enhancement of ICM in the Mediterranean and the Black Sea.

- (6) MEDCOAST brings together the Mediterranean and the Black Sea (which had been politically separated for a long time). Professionals and scientist from both basins take part in the MEDCOAST activities. Although the coastal issues and management approaches differ to a certain extent, professionals from both basins derive significant benefits from sharing their experiences.
- (7) MEDCOAST Secretariat pursues a close relationship with the alumni, and cooperates with them at various levels. Many MEDCOAST alumni have participated in the subsequent scientific meetings organized by MEDCOAST and a majority of these have presented papers. This close relationship is a significant strength for MEDCOAST and allows the continuation of benefit flow in both directions.

The major weakness of MEDCOAST, like any other non-governmental organization (NGO), is the problem of continuity and insecurity for future existence. MEDCOAST has never been attached to a government or to an inter-governmental organization (IGO) through funding on a standing basis, and this has been a significant strength. Instead, MEDCOAST has been able to generate enough funds from a variety of sponsors on a project-by-project basis. This is obviously desirable, compared to continuous sponsorship, for preserving the NGO identity. However, it is financially insecure at the same time. One solution which could help the funding of the future events of NGOs on project-by-project basis, but with a level of confidence for continuity, could be through signing up of collaboration documents (Memorandum of Understandings) between the NGOs and the donor IGOs. MEDCOAST is in the process of signing MOUs with a number of prominent organizations interested in the coastal and marine issues of the Mediterranean and the Black Sea.

Ideally, an NGO should not solely depend on uncertain future donations for its existence. This can be achieved by becoming a non-profit organization, which generates revenues from its activities. MEDCOAST is now undergoing such a process of institutionalization through the use of the funds provided by the PEW Award received in 1997. In addition to developing the international graduate program at Middle East Technical University on *Integrated Coastal Management in the Mediterranean and the Black Sea*, the following significant developments are presently on the MEDCOAST agenda:

- (a) Setting up of the MEDCOAST Foundation as a non-profit scientific and environmental organization,
- (b) Building up of the *International MEDCOAST Center for Coastal Management in the Mediterranean and the Black Sea* as a physical facility on the Southern Aegean coast of Turkey (as a facility under the MEDCOAST Foundation),
- (c) Enhancing the capabilities of MEDCOAST to operate as a regional data and information management center on coastal and marine issues.

The International MEDCOAST Center will have accommodation units for a capacity of 150 people, facilities for workshops and conferences, a computer laboratory and offices for researchers. It will be used as a base for carrying out regional research projects and for organizing MEDCOAST training programs and workshops. The facilities will be hired to other institutions for similar purposes (e.g. training programs

and scientific meetings). It is anticipated that the revenues generated by the International MEDCOAST Center will be sufficient for the maintenance and the operational costs of the facility on one hand, and for supporting several MEDCOAST programs on the other.

6. Conclusions

Although there do not exist many governmental coastal management programs in the Mediterranean and the Black Sea countries as yet, the interest in the coastal development and conservation issues has risen significantly in the region in the 1990s. Apparently, there does not yet exist a sizable market for the professionals named “coastal managers”. However, there is definitely an immediate need for specialists in the fields related to ICM, who have good understanding of integrated coastal management. These specialists may find jobs in the traditional governmental departments, and be instrumental in developing the future coastal management programs. The early efforts of training and education in the Mediterranean should target such specialists. The three-week long training provided by MEDCOAST in the MEDCOAST Institutes, is of this type, and has been extremely successful.

The national markets for coastal management specialists in the majority, if not all, of the Mediterranean countries is not large enough to justify the development of a graduate program at national level. Therefore, it will be logical to start graduate programs on ICM in a few (three to four) Mediterranean universities, which operate at regional levels. Such international programs should be financially supported by international organizations, especially by the United Nations (through the Mediterranean Action Plan) and the European Union (through the Mediterranean programs).

Due to the great variety of the subjects, which can be included in an ICM degree program, collaboration among universities, especially within the Mediterranean, having expertise in various disciplines imputing into the ICM curriculum, will be extremely valuable. An NGO network of universities, like MEDCOAST, is a very suitable catalyst for bringing the universities together for such a collaborative degree program.

Training and education in ICM should be complemented by research and monitoring on one hand, and regional sharing of experience, data and information on the other. Thus, if a network is also engaged in research (preferably at the regional level) and organization of scientific contacts (workshop, conferences, internet links, etc.), like MEDCOAST, it will be better equipped for training and educational programs.

The collaborative model of MEDCOAST for the international masters degree program in ICM introduced in this paper is based on significant cooperation among several universities, which have already been working together for a number of years. This untraditional model has many advantages, and should be sponsored by the international community as one of the ICM degree programs operating in the Mediterranean and the Black Sea.

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