

**The Black Sea
one decade after the Bucharest Convention
an overview of the international activities in
the Black Sea Region**

Karadeniz

**Bükreş Sözleşmesi'nin 10. Yılı dolayısıyla
Karadeniz Havzasında uluslararası faaliyetlerinin
değerlendirilmesi**

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Abstract

The catastrophic degradation of the Black Sea in a period of four decade has been the major concern of the Black Sea countries and international communities since the Bucharest Convention signed in 1992. The Black Sea Region has become a challenging international arena for political, scientific and socio-economic activities. Intensive international programmes and establishment of governmental and Non Governmental Organizational structures of the 1990s including Black Sea Economic Cooperation (BSEC), Black Sea Environmental Programme (BSEP), Environmental Programme for the Danube River Basin, Marine Environmental Assessment of the Black Sea Region Technical Cooperation Programme by the IAEA and establishment of the Black Sea Commission Permanent Secretariat are some of the major international efforts of the past decade that emphasizes the multi-nationality and large dimension of the Black Sea environmental management issues.

The environmental degradation of the Black Sea is briefly reviewed based on the BSEP reports and data available for land based pollution sources. The environmental risk of marine vessel accidents are also indicated and

environmental safety concern is emphasized under the current conditions of intense energy transportation projects in the Black Sea and Caspian regions.

The international policy actions, co-operation issues and scientific programmes of the past decade are overviewed with emphasis on the international achievements. Concluding remarks include the vital importance of continuation of the international commitments and sharing the political, scientific and socio-economic responsibility on the transboundary environmental pollution, rehabilitation and the safety issues of the Black Sea.

Key Words: Black Sea, environmental pollution, Bucharest Convention, Turkish Straits Region, Black Sea strategic action plan, marine radioactivity.

Introduction

Year 2002 commemorates the important date for the Black Sea, as it marks the 10th anniversary of the Bucharest Convention. It was exactly 10 years ago on April 21st, the Ministers of the six countries sharing the Black Sea coast; Bulgaria, Romania, Ukraine, Russian Federation, Georgia and Turkey signed the Bucharest Convention "The Bucharest Convention on the Protection of the Black Sea Against Pollution". By adopting this Convention, the Black Sea governments have undertaken an important commitment and initiative in order to take joint actions for reversing the environmental degradation and for the protection and rehabilitation of the Black Sea.

The catastrophic degradation of the Black Sea in a period of last four decades has also been the major concern of the international organizations and communities since the Bucharest Convention in 1992. The Black Sea Region became a challenging international arena for political, scientific and socio-economic activities during the past decade.

The international Black Sea activities and related commitments of the past decade are overviewed with highlights on the major achievements.

Background

The Black Sea is a unique marine environment. It is unique in terms of her richness of biological diversity as well as warm climate, beauty of her beaches, mountains and plains. It is the largest in-locked sea and the

biggest natural anoxic basin of the world. It was known as one of the richest marine environment in the world sometime ago until 1960s.

For many centuries, the surface waters of the Black Sea supported a very rich marine biological species. Fisheries have provided a food and economic income for the inhabitants of the coastal towns. Tourism has also provided an important economic income for the six coastal countries. In particular millions of tourists from the northern, central and Eastern European countries preferred the beauty of the Black Sea region for holiday resort.

However this unique marine environment, known as one of the richest marine environment in the world only four decades ago has become one of the most polluted seas in the world. This situation can be described as catastrophic since it has taken millions of years for this fragile ecology to develop but took only four decades to be destroyed (UNDP,1993; GEF BSEP, 1996; GEF BSEP TDA 1997).

Black Sea – Facing an Environmental Tragedy

The Black Sea is facing an environmental crisis. This dramatic decline has been brought about in a period of four decades as a result of the overexploitation of this unique, almost land-locked marine environment, particularly in its use for discharges and disposal of waste from many kinds of human activities and releases from ships (Mee, 1998;GEF BSEP TDA, 1997).

The Black Sea is shared by six countries; Turkey, Bulgaria, Romania, Ukraine, Russian Federation and Georgia. But if all the rivers flowing into the Black Sea are considered, it means almost one third of the area of continental Europe drains into the Black Sea (Figure1). In this area of the Black Sea Basin; population of 170 millions people living in 17 countries, 13 capital cities directly or indirectly contributes to the large amounts of pollutants being discharged into the Black Sea. Major rivers of Europe, the Danube, the Dnieper and the Don discharge heavy load of pollutants. The only connection of the Black Sea to the oceans is through the Turkish Straits Region. The 2 kilometres long Istanbul Strait (the Bosphorus) is the narrowest strait in the world.

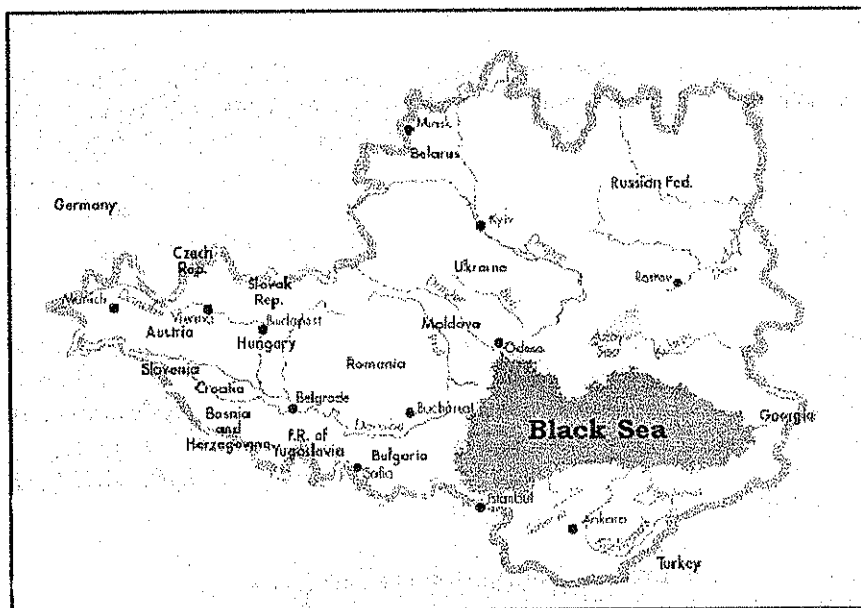


Figure 1. The Black Sea Basin

Values Lost

The environmental crises encountered during the past four decades caused great damage to this fragile marine ecosystem and resulted in series economic losses. Major economic losses are due to increased pollution affecting fisheries, tourism, human health and biodiversity.

Fisheries sector had a dramatic decline. According to the BSEP survey carried out in 1996 on Black Sea fisheries; the commercial fish species caught has decreased from known 26 species to 6 species only during the period 1975-1995 (GEF BSEP TDA, 1997; Mee, 1998). Total fish catches in the same period decreased dramatically with some recovery in recent years.

Main factors affecting the decline in fisheries are due to changes in marine ecosystem as a result of over fertilization (eutrophication), the arrival of exotic invaders and over-fishing.

Pollution Sources- where it comes from?

The most recent systematic international investigations on the sources and extent of Black Sea pollution based on the findings of the Black Sea Environmental Programme (BSEP) show that the Black Sea's ecological balance is seriously affected by several factors.

Pollution assessment from land based sources

The most important pollution factor of the Black Sea is found to originate from the land based sources. These factors which amounts as high as 70 % comes from the rivers, domestic discharges, industrial discharges and the direct dumping of wastes (GEF BSEP, 1994-1997; GEF BSEP TDA, 1997; Mihnea, 1998).

Neutrients and Eutrophication

Eutrophication is regarded as the most significant cause of the Black Sea ecosystem degradation. It simply means the over-fertilization of the sea by neutrients from the land based sources. Nitrogen and phosphorus are the two major pollutants causing the eutrophication. These neutrients are transported into the Black Sea by major rivers in the Black Sea basin. The Danube introduces about 60.000 tons of phosphorus a year (UNDP, 1993). BSEP revealed the fact that 53% of the total nitrogen and 66% of the total phosphorus discharged from the Danube (GEF BSEP TDA, 1997). The % contribution of the total discharge of nitrogen and phosphorus into the Black Sea from all sources are presented in Table 1.

Domestic waste

Sewage

Domestic waste discharge is a series problem contaminating the bathing waters of the Black Sea thus affecting the tourism in negative way. Several beaches and tourism centers are closed down on the Black Sea coast due untreated domestic discharge.

Table 1: Nitrogen and phosphorus discharge
(GEF BSEP TDA, 1997)

Name of country / river	Total nitrogen % (all sources)	Total phosphorus % (all sources)
Bulgaria	1	2
Georgia	-	1
Romania	20	1
Russian Fed.	3	2
Turkey	4	8
Ukraine	9	10
Coruh	3	-
Danube	53	66
Dniepr	-	8
Dniestr	5	2
Don	2	-
Total	100	100

Table 2 shows the amount of sewage discharge from each coastal countries flowing into the Black Sea via rivers or directly discharged into the sea (Mihnea, 1998).

Table 2: Domestic sewage discharge

COUNTRY	SEWAGE DISCHARGE M ³ /year
Bulgaria	36.300.000
Georgia	26.675.000
Romania	22.000.000
Russian Federation	44.000.000
Turkey	237.000.000
Ukraine	204.000.000
TOTAL	571.175.000

Solid Domestic Waste-Litter:

Most of the solid domestic waste, i.e. garbage is dumped on to the beaches, directly into the sea or via banks of rivers and streams. There are no orderly municipality solid waste disposal sites available along the

Black Sea coastal towns in any of the six Black Sea countries neither efficient recycling of household consumable packaging products.

Turkish Eastern Black Sea coast, filled for the new road construction is on the other hand is another example of most recent environmental damage from the land based sources and unsustainable development.

Pesticides, PCBs and Heavy Metals

The concentration of these pollutants found to be lower than expected. Pesticides are discharged through rivers due to agricultural products.

Reliable data on heavy metal concentration in the Black Sea marine water, biota and sediments are collected from various sources. Although there is no sufficient health related estimates of risk studies, heavy water concentration in marine water are found to be in natural levels. However these pollutants such as cadmium, lead, copper, chromium are released from the heavy industry appear as "hot spots" near the identified coastal sources.

Radioactive Pollution

Radionuclides in the Black Sea marine environment is related to the Chernobyl accident in 1986 and the atmospheric weapons tests carried out in 1945-1980.

Radionuclides are classified as "hazardous substances and matter" according to the Convention on the Protection of the Black Sea Against Pollution, which was signed in Bucharest in 1992 by all Black Sea coastal countries. This is due to their toxicity, persistence in the environment and to their bioaccumulation characteristics. Public concern related to the Chernobyl Nuclear Power Plant accident, risk associated with some of the nuclear facilities in the Black Sea region using outdated technology and 3waste related issues are some of the reasons for radionuclides to be ranked high amongst the of the most important marine pollutants to be investigated. In addition to the interest they present as contaminants with potentially harmful effects on environmental and human health, radionuclides are important tools for assessing the fate of other pollutants (Osvath, 1997).

Oil Pollution

One of the most important contaminants observed in the Black Sea coastal zone is due to petroleum products. These are originating mainly from discharges of marine vessels during transportation, oil spills, tanker ballasts and municipal discharges. Oil spills are considered as one of the main causes of the loss of biological species.

According to the BSEP estimates, 111.000 tons of oil/year discharged into the Black Sea, 48% of this amount carried by Danube (GEF BSEP TDA, 1997).

Exotic invaders

Several exotic animal species are known to be accidentally introduced to the Black Sea ecosystem. One of the most well known exotic invader of the Black Sea is a jelly fish like organism, called Mnemiopsis Leidyi. It is most probably carried into the Black Sea marine environment from the east coast of America accidentally by the discharge of ballast water from ships at the beginning of the 1980s. This organism has no predators and invaded the entire Black Sea marine ecosystem. The total amount is estimated to reach 900.000 million tons by 1990. This organism consumes all the zooplankton which that are the basic marine food chain for larvae. Therefore alters the entire marine ecosystem and causing the decline of the Black Sea fisheries (UNDP, 1993; GEF BSEP TDA, 1997; Mihnea, 1998; Mee, 1998).

Accidental oil pollution risk

One of the most serious environmental hazard risk prevailing in the Black Sea is related to the marine vessel accidents. Current marine traffic, especially crude oil and gas transportation impose a great potential hazard for the health, economics and the marine environment of the region. This risk is even much higher in the Turkish Straits Region (TSR).

TSR is a natural formation of a water route through Bosphorus, (Istanbul Strait) the Sea of Marmara and the Dardanelles (Çanakkale Strait). TSR is the most precious natural water passage that separates Asia from Europe and links Black Sea to the Mediterranean Sea. This region has unique environmental as well as historical and cultural aspects. TSR is the only natural water passage that is open to international traffic according to the Montreux Treaty. It has the busiest international marine traffic in the

world and therefore has the highest probability of vessel casualty risk (Göktepe, Gönençgil, 2001).

Risk of Maritime Traffic Accidents at the TSR

Maritime traffic through the TSR presents a complex structure due to rough geographical, meteorological and oceanographic conditions of the region. In fact these conditions for the marine vessel traffic endanger not only the residents of the region but also the marine environment.. Increasing vessel traffic also increases the oil tanker traffic carrying crude oil, petroleum products, inflammable and explosive chemicals which impose a great risk for health, property and the environment safety . Public risk in TSR concerns population of approximately 20 million inhabitants.

TSR with increasing load of marine transport has been facing to various accidents and incidents in the past. Accidents encountered are as high as 500 over the last 50 years. Main consequences of the accidents are loss of hundreds of lives; destroy of sea vessels, damage of seashore residences and series pollution of environment. Some of the accidents occurred at the Bosphorus and will be remembered by their tragic environmental consequences are summarized in Table 3 below (Göktepe, Gönençgil, 2001; Akten, Ustaoglu, Rodopman, 1995).

According to the recent statistical data approximately 51 000 passages a year and more than 2000 daily cross traffic runs by carrying passengers of the megalopolis the Bosphorus. More than 400 marine casualties (collision, grounding, stranding, fire and explosion) are encountered in the Bosphorus between 1953 and 2000. More than 150 series accident occurred during the past decade only. Some of the major accidents caused thousands of tons of oil spill, air pollution and number of deaths. Every large crude vessel or LPG carrier is a potential bomb for Istanbul and potential threat to the marine and coastal environment of the three seas, namely the Black Sea, Marmara and the Mediterranean.

Table 3: Major Collision Accidents in the Istanbul Strait (the Bosphorus)

Date	Ships's Name and Flag	Accident Type	Consequences
14.12.1960	World Harmony (Greek) Peter Zoranic (Yugoslavia)	Collision and fire	18000 tons oil spilled
15.09.1964	Norborn (Norwegian) wreck of Peter Zoranic	Collision, fire and oil spill	
01.03.1966	Lutsk (USSR) Kransky Oktiabr (USSR)	Collision and fire	1850 tons oil spilled
15.11.1979	Independenta (Romania) Evriali (Greek)	Collision and fire	94600 tons oil spilled
09.11.1980	Nordic Faith (British) Stavanda (Greek)	Collision and fire	
29.10.1988	Blue Star (Malta) Gaziantep (Turkish)	Contacted .	1000 tons ammonia spilled
25.03.1990	Jambur (Iraq) Da Tung Shan (Chinese)	Collision,	2600 tons oil spilled
14.11.1991	Madonna Lily (Philippines) Rabunion 18 (Lebanese)	Collision,	20000 live animals drowned
13.03.1994	Nassia (Philippines) Shipbroker (Philippines)	Collision and fire	9000 tons oil spilled

The Overview of the International Activities

International Aspects of the Turkish Straits Region- A Unique Marine Way

The Turkish Straits System serves as a natural marine passage between the Black Sea and the Mediterranean. It is a historical marine route between the former Soviet Block countries and the world market

Prevailing Montreux Treaty signed in July 1936 is the latest international convention controlling the passage through the TSR. Montreux Treaty provided an international consensus on the Turkish Straits issue by allowing the free passage to international marine traffic.

TSR presents a special case for the transboundary environmental safety problems with severe environmental pollution risk.

International Policy Actions

The resources of the Black Sea are shared by six coastal countries, Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine which are also mainly concerned by pollution issues. However pollution problems of the Black Sea have been under the international agenda during the last decade. It is the responsibility of various other nations which are in the Black Sea basin.

The following international policy developments and scientific programmes are some of the major international efforts of the past decade that emphasizes the multinational and large dimension of the transboundary environmental problems of the Black Sea. These international activities/events are summarized below in chronological order:

Bucharest Convention

Bucharest Convention is the most important international policy development of the Black Sea region regarding the initiation of the joint efforts for the protection of the Black Sea against pollution.

Realizing economic, social and health values of the Black Sea marine environment; Black Sea coastal countries decided to act for the protection of the Black Sea and for the conservation of its living resources. Inspired by the Regional Seas Conventions, governmental

representatives of the six Black Sea coastal countries drafted their own "Convention for the Protection of the Black Sea against Pollution" that was signed in Bucharest on 21st April 1992. The convention ratified by all six legislative assemblies by early 1994.

The "Bucharest Convention" consisted of 30 articles and 5 resolutions includes a basic framework of agreement and three specific Protocols, which are:

- Control of land-based sources of pollution,
- Dumping of waste and
- Joint action in the case of accidents (such as oil spills).

Its implementation is to be managed by a Commission with a Permanent Secretariat in Istanbul (the Istanbul Commission). However the establishment of the Permanent Secretariat has delayed due to various political and financial constraints.

Odessa Declaration

The Ministerial Declaration on the Protection of the Black Sea Environment was signed by all six Ministers of the Environment in Odessa in April 1993 in order to set the goals, priorities and timetable needed to bring about environmental actions. The document is based largely upon the Agenda 21 adopted at the UN Conference on Environment and Development in 1992. Odessa Declaration is very important policy development. It consists of set of decisions for common environmental policies of the Black Sea coastal governments.

The Black Sea Economic Cooperation Organization (BSEC)

The idea and the formal establishment of the economic cooperation in the Black Sea region is one of the most remarkable development activities of the 1990s. Black Sea Economic Cooperation (BSEC) is formally instituted by the governments of 11 countries in the Black Sea Region following the Istanbul Summit Declaration of the Black Sea Economic Cooperation and the Bosphorus Statement, signed in Istanbul on 25 June 1992 by the Heads of State or Government of 11 countries; Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russian Federation, Turkey and Ukraine. Later in the 1990s the official establishment of the BSEC is completed through a number of governmental meetings below:

Bucharest Statement of the high level meeting of the heads of state or government on June 1995. Moscow declaration of the heads of state or government on October 1996. The Yalta Summit of the heads of state or government on 5 June 1998 and signing the BSEC Charter. Following the

ratification formalities, the charter came into force marking the official inauguration of the organization of the Black Sea Economic Cooperation on 1 May 1999 and by Istanbul Summit Declaration of the heads of state or government on 17 November 1999.

The Black Sea Economic Cooperation Business Council (BSEC BS)

BSEC BC was established in 1992 by the representatives of the business communities of 11 countries to contribute to the efforts of their governments to secure the greater integration of the Black Sea region into the world economy. The BSEC BS is an international NGO.

The Parliamentary Assembly of the Organization of the Black Sea Economic Cooperation (PABSEC)

PABSEC was created as the parliamentary dimension of the Black Sea Economic Cooperation (BSEC) process. The representatives of the Parliaments of nine countries – Albania, Armenia, Azerbaijan, Georgia, Moldova, Romania, the Russian Federation, Turkey and Ukraine – adopted the Declaration on the Establishment of the Parliamentary Assembly of the Black Sea Economic Cooperation (PABSEC) eight months after the formal initiation of the BSEC on 26 February 1993 in Istanbul.

The Environmental Programme for the Danube River Basin (EPDRB)

The River Danube connects 13 European countries and carries main load of nutrients to the Black Sea. The common interest for prevention of pollution and the protection of the Danube ecosystem by the riparian countries goes back to 1980s. The Bucharest Declaration of the River Danube was signed in 1985. EPDRB was effectively launched in 1992. Under the cooperation activities of this programme, the Convention on Cooperation for the Protection and Sustainable Use of the River Danube, briefly referred as “The Danube River Protection Convention -DRPC “ was signed in Sofia in 1994 by the riparian states of Austria, Bulgaria, Croatia, Germany, Hungary, Moldova, Romania, Slovakia, Ukraine and by delagation of the European Union. The International Commission for the Protection of the Danube River Basin (ICPDR) with Permanent Secretariat in Vienna is established under the DRPC.

GEF assistance was provided to ICPDR for Danube Pollution Reduction Programme between 1997-1999 (ICPDR, 1999, EPDRB, 1995).

Trans National Monitoring Network (TNMN) in the Danube River Basin, became operational in 1996 by the ICPDR for regular monitoring in order to check the chemical and ecological status of the Danube. The joint Danube

survey carried out by a group of scientist from the basin countries along the Danube River in 2001.

Danube Environmental Forum (DEF)

The Danube Environmental Forum of the NGOs of the riparian countries was established in 1994.

Danube Strategic Action Plan (DSAP)

Strategic Action Plan for the River Danube was adopted by the Ministers of the Danube basin countries and the European Commissioner of the Environment in Bucharest in 1994 and the National Action Plans are developed to implement the DSAP.

Black Sea Global Ocean Observing System (BS GOOS)

Black Sea GOOS is established with the participation of Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine and the recognition of the importance of existing systems in research and operational oceanography and will also take full advantage of advances made by other regional GOOS groups such as Euro GOOS and Med-GOOS. This scientific program is designed for advancing Black Sea operational oceanography and also promoting development of Black Sea regional operational oceanography (BS GOOSE, 2001).

The Co-operative Marine Science Program for the Black Sea (CoMSBlack) (1991) is the first multinational program implemented in the Black Sea which forms the background of the BS GOOSE. It was recognized and supported by the Intergovernmental Oceanographic Commission (IOC) UNESCO. The participating countries in CoMSBlack were Bulgaria, Romania, Ukraine, Russian Federation, Turkey and USA.

The Agreement for the formation of an IOC Regional Committee and a Regional Programme consisting of the two pilot projects was reached in September 1994 in Varna. On the Eighteenth Session of the IOC Assembly adopted a resolution (Resolution XVIII-17, UNESCO, Paris, 7-9 June 1995) which established the IOC Black Sea Regional Committee (BSRC). The resolution established the Terms of References (ToRs) for the BSRC and the Resolution also defined the initial tasks of the BSRC for the period 1996-1997.

Two Pilot Projects "The Assessment of Sediment Fluxes in the Black Sea" and "The Black Sea GOOS" were developed in 1996.

The Black Sea Environmental Programme (BSEP)

Following the Bucharest Convention and the Odessa Declaration, the Black Sea coastal countries requested support from the Global Environment Facility (GEF) in order to make an early start to environmental protection action and to develop a longer-term Action Plan. A three-year Black Sea Environmental Programme (BSEP) was launched in 1993 and later extended in a second phase for an additional two years. Programme Coordination Unit (at a later stage succeeded by a Programme Implementation Unit), was established in Istanbul by the UN Office for Project Services in 1994 (Mee, 1996; Mihnea, 1998; Acar, 2000).

An effective institutional network was created as a basic schedule of the BSEP. Six Activity Centers and their working parties were formed and hosted by the Black Sea countries. These were:

- Emergency Response (Varna, BULGARIA).
- Routine Pollution Monitoring (Istanbul, TURKEY).
- Special Monitoring Programmes, Biological and Human Health Effects and Environmental Quality Standards (Odessa, UKRAINE).
- Protection of Biodiversity (Batumi, GEORGIA).
- Development of Common Methodologies for Integrated Coastal Zone Management (Novorossiysk, RUSSIAN FEDERATION).
- Fisheries (Constanza, ROMANIA).

In addition, the following three more working parties formed within the BSEP PCU in Istanbul.

- Data management and GIS
- Advisory Panel on the Harmonization of Environmental Quality Criteria, Standards, Legislation and Enforcement
- Environmental Economics Study Group

The network was conducted several in depth analysis of Black Sea problems (GEF BSEP TDA, 1997).

The major outputs of the BSEP during the period of 1993-1997 are the Black Sea Strategic Action Plan and the construction of "Transboundary Diagnostic Analysis" (TDA) of the Black Sea.

Black Sea International NGO Forum

International Black Sea NGO Forum activated under the umbrella of the BSEP in order to secure public support in decision-making. National NGO Forums in each Black Sea coastal countries were formed and international NGO Forum consisted of more than one hundred environmental NGOs. International representatives of the Forum participated in the governmental

meetings since 1994. Several successful public awareness projects were developed promoting public participation in the preparation of the SAP and increasing the involvement of all sectors of the society on the current issues of the Black Sea environmental activities. The Black Sea International NGO Forum has restructured for legal recognition and started operating as Black Sea NGO network since 2001.

The Black Sea Strategic Action Plan (BS-SAP)

The most important output of the international activities within the scope of the BSEP and other related programmes came out as the preparation and the acceptance of the Black Sea Strategic Action Plan (BSEP-SAP).

Black Sea Ministerial Conference was held in Istanbul on 31 October 1996 in order to finalize and sign the BS-SAP. The Ministerial Conference brought together officials of the Black Sea coastal countries as well as senior officials from the major European international waters programmes in the Mediterranean, the Baltic, the North-Western Atlantic and the Danube. The GEF Partners were represented by senior staff from the UNDP, the World Bank and UNEP, as well as the implementing agency UNOPS. The donors included representatives from the European Union, Austria, Switzerland and the UK.

31th of October was declared as “the International Black Sea Day”. Events are being organized, largely through the NGOs, in coastal communities in all six Black Sea countries since 1996.

The Black Sea Transboundary Diagnostic Analysis (TDA)

The TDA is a technical document which, in a highly analytical manner, examines the root causes of Black Sea degradation and options for actions to address them. The TDA and its supplement “Black Sea Pollution Hot Spots” report identified and analyzed perceived transboundary problems, their root causes and the areas where action is required.

It examines each major environmental problem, the “stakeholders” involved in the problem and the uncertainties in the information describing the problem. It then proposes solutions, often giving various options, and attempts to set a time frame and cost for the solutions. Some of the solutions require policy changes; some require capital investments (GEF BSEP TDA, 1997).

Marine Environmental Assessment of the Black Sea Region, IAEA’s Regional Technical Cooperation Project—A Success Story of Cooperation on Marine Radioactivity Assessment

A wide scope Regional Technical Co-operation Project RER/2/003 “Marine Environmental Assessment of the Black Sea Region” is

implemented by the International Atomic Energy Agency (IAEA) in the period 1995-2000. In response to the needs of participating Member States - the six Black Sea coastal countries - to establish capabilities for reliably assessing radionuclides in the Black Sea environment and applying tracer techniques to marine pollution studies, the IAEA assists laboratories in the region by providing expert services, training, equipment and materials (Osvath, 1997; Göktepe, 1998).

The project has various important aspects: Scientifically; one of the major environmental issue radioactivity pollution is addressed and marine radioactivity data is being accumulated. Technically; laboratory capability for transuranic analysis is developed. Economically; the reversing the ecological deterioration and developing sustainable uses of the Black Sea and its natural resources is one of the major interests. Politically; responsibility of pollution control and rehabilitation plans of six Black Sea countries are addressed through various convention and declarations. Socio-economically, fisheries and tourism sectors are expected to benefit (Osvath, 1998; Göktepe, 2000).

One of the main targets of the project design and management was set as the integration of strong practical co-operation mechanisms into the project. In order to achieve the best results annual planning and co-ordination meetings were held from the start of the activities. A good co-operation scheme between the IAEA and all participant countries as well as other ongoing projects and international organizations is integrated into the work. A first joint scientific cruise with 31 participants is organized to the Black Sea western basin in 9-23 September 1998. The second joint cruise organized to the Eastern part of the Black Sea during the period 21 September-11 October 2000 with a goal to complete the marine environmental assessment initiated in 1998. The Cruise was carried out on board with the Ukrainian Research Vessel "Prof. Vodyanitskyi". 30 scientists from research institutes in all Black Sea countries have taken part in the cruise.

As a part of the joint monitoring program, samples from the selected stations are carried out twice a year. Radioactivity analysis of fish (*merlangius euxinus*, and *trachurus trachurus*), mussel (*mytilus galloprovincialis*), beach sand, alg (*cystoseria barbata*) and surface water samples are carried out.

The preliminary results show that radioactivity levels have no significance in terms of health and environmental safety. However, the data accumulated as a result of this monitoring programme will have a great

importance for the further assessment of the Black Sea marine environment and the emergency response programs.

The Monaco Declaration

A Ministerial Meeting is convened in Monaco, on the IAEA's Regional Technical Co-operation Project RER/2/003 "Marine Environmental Assessment of the Black Sea Region" to discuss future project strategies in 1998. Following an intense discussion between the Ministers and the scientific teams of the marine radioactivity assessment project, Monaco Declaration was signed on 6th October 1998 (Osvath, 1998; Göktepe, 2000).

Black Sea Commission Permanent Secretariat

The establishment of a Commission with Permanent Secretariat in Istanbul (Istanbul Commission) in order to administrate and implement the activities of the undertakings of the Bucharest Convention was one of the joint decisions of the Black Sea governments signed the Convention. Several years of delay occurred in the process of establishment of the Permanent Secretariat. Finally, the Permanent Secretariat of "the Commission on the Protection of the Black Sea Against Pollution (Black Sea Commission) " officially established in 2000, eight years after the Bucharest Convention and became operational in Istanbul.

Black Sea Regional Environmental Monitoring Programme

In response to the Commission request to elaborate a regional monitoring program, the Advisory Group on Pollution Monitoring and Assessment (AG PMA) lead by the Activity Centre in Odessa-Ukraine initiated a preliminary regional program for the year 2001-2002.

The New Black Sea Environmental Programme

Based on the work previously done under the BSEP, a new project on the "Control of eutrophication, hazardous substances and related measures for rehabilitating the Black Sea ecosystem: Phase 1" was drafted and has recently been approved by GEF. A parallel effort for the Danube river basin also exists. The new GEF programme consists of 2 regional projects in the Black Sea and the Danube, and will be supported by an additional investment facility. Phase 1 will be a 2 year project which will be followed by a second phase of 3 years. Its objective is to assist the coastal countries in developing and implementing action plans to prevent and remedy nutrient releases (Acar, 2002).

New GEF Black Sea Environmental Programme is prepared to be launched in 2002 addressing basin wide eutrophication following an Inception Meeting in Istanbul on 16-17 May 2002.

Joint Action Programme of Nutrient Reduction in Danube River Basin

This programme covering the period of 2001-2005 has a target for reducing total emission of nitrogen by 22% and total emission of phosphorus reduction by 33%.

Fisheries Convention

Fisheries Convention has been in the agenda of BSEP, BSEC and BSC in recent years and not yet reached a final solution. However the concept on which the Convention will be finalized discussed and two versions of the Convention evaluated by the Working Group on Organizational Matters of the BSEC and the Black Sea Commission (BSC) on 20h February 2002. It was decided that the Draft Convention for Fisheries and Conservation of Living Resources of the Black Sea to be finalized between the Black Sea coastal states within the framework of the BSC in cooperation with the relevant national authorities.

Achievements –Ten Years after the Bucharest:

Starting with the Bucharest Convention signed on April 21th in 1992 major policy and scientific developments are encountered for the Black Sea region. The past decade is a turning period from political declarations to legal international charters and from initiation of scientific and socio-economic activities to major collaboration efforts.

The major achievements of the international scientific and policy development activities of the past decade overviewed above can be summarized as follows:

- Development and signing of the Black Sea Strategic Action Plan
- Identification of the Hot Spots along the Black Sea coastal zone.
- Functioning of the Project Implementation Unit for the first phase of the GEF Black Sea Environmental Programme between 1993-1998.
- Establishment of Bucharest Convention Secretariat in Istanbul.
- Establishment of a network of 6 Activity Centers & Advisory Groups in Black Sea coastal countries..
- Institutions equipped for monitoring pollution in all Black Sea countries.
- Functioning of the International Commission for the Protection of the Danube River Basin with Permanent Secretariat in Vienna.
- Institutions equipped for monitoring pollution in Danubian countries.
- Establishment of Transnational Monitoring Network in the Danube River Basin.

- International Black Sea Environmental NGO Forum activities under the umbrella of the BSEP and joint NGO projects for public support.
- Network of environmental NGOs communicating in six Black Sea countries.
- Network of environmental NGOs communicating in Danube basin riparian countries.
- Organization of training courses and advanced technical workshops on assessment and measurement radionuclides in marine samples and use of radiotracers for marine studies by the IAEA.
- Provision and commissioning of sediment samplers, radiometric equipment and laboratory supplies.
- Initiation of Quality Assurance Program among marine radioactivity laboratories in the region.
- Establishment of coordinated radioactivity monitoring among six Black Sea countries.
- Development of the Regional Oil and Chemical Spill Contingency Plan.
- Collaboration between international organizations, scientific projects and intergovernmental programs:
Black Sea Environmental Program,
Environmental Programme for the Danube River Basin,
EU Tacis and Phare multi-country programmes,
Black Sea Economic Cooperation Organization,
International Atomic Energy Agency,
NATO, IMO, IOC
Black Sea- GOOS,
Other international or national programs/ projects.
- Accumulation of reliable data on pollution assessment and scientific documentation and national reports on Black Sea observing activities.

Concluding Remarks

Sustainable development of the Black Sea region will require continuous national efforts as well as international cooperation. It is very important to understand the pollution problems at local, national, regional and international scale. Then to share responsibilities of scientific, economic, commercial and political issues related to the Black Sea among all the communities involved.

The review of the past 10 years after the Bucharest Convention clearly shows the importance and necessity of international cooperation among all communities involved in the Black Sea basin. National Black Sea

Strategic Action Plans (NBS-SAPs) of the Black Sea coastal countries, planned to be implemented by the end of 1990s have delayed seriously. The Black Sea countries are currently in the process of ratifying these plans with a provision of development of national nutrient reduction action plans (NAPs).

International collaboration of the Danube Basin countries and intense joint activities to control the heavy loads of pollution discharge from the River Danube has been an utmost importance for the future of the Black Sea ecosystem recovery efforts. The environmental programme of the for the Danube River Basin in 1990s was effective in achieving major goals to maintain and improve the quality of water within the basin and also for intensifying regional cooperation.

High accident risk of vessel passage and the probability of a catastrophically accident is on the other hand is also a multinational problem involving many other countries using this marine way which raises much more serious concern. The extent of a catastrophically accident is far beyond the acceptable limits not only for the local people but for the nations in the region and for the future generations as well.

TSR is a historical marine trade route between the former Soviet countries and the western world. In recent years as a direct result of the economies in transition, market conditions of energy has been changing with increasing energy intensity in the Black Sea and Caspian region. As oil and gas reserves of Azerbaijan, Turkmenistan and Kazakhstan open up to the world energy market, TSR became the heaviest energy transport route in the world

Further exploitation of new oil and gas reserves in Western Asia will continue to impose even more challenges for energy/ environmental issues in the region since this area became attractive with rich oil and gas reserves and ranks among the most productive and economical oil reserves in the world. Therefore the current situation and the near future energy, environment and economic interactions in the region presents a challenge for all the parties involved as well as the national and international environmental NGOs.

One decade after the Bucharest; the Black Sea marine environment is still suffering from various kinds of pollution due to the human activities in the basin and facing a high risk of maritime transportation accidents. On the other hand international political, scientific and NGO activities to

prevent the pollution and to rehabilitate the Black Sea has increased substantially during the last 10 years. Further and stronger international cooperation needed in order to cover the areas for the renewal of the commitments of the international conventions and declarations as well as the strengthening of the joint implementation of the SAP by the Black Sea coastal countries.

The Black Sea can only be saved if six coastal countries, other countries in the Black Sea basin and the international organizations continue cooperation on key scientific, politic and socio-economic issues.

10 years after the Bucharest, geopolitics of the region has been changing and country driven approaches are very important. Solving the environmental problems in the Black Sea Basin will rely on the success of national efforts and public support.

The new BSEP and Danube Regional Project with the assistance given by GEF is a challenge in the region to expand the Black Sea family and to take more concrete actions internationally.

All the international efforts of the past decade, milestones, progress and the initiation of the new BSEP in May 2002, provide good reason to be optimistic for the future. After all, if the environmental degradation of the Black Sea is minimized by the international efforts and the Black Sea ecosystem is protected; it will provide direct economical benefits and prosperity for the countries in the Black Sea Region and for the future generations.

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The views and opinions expressed here are the author's responsibility.

Özet

Karadeniz'de son 40 yılda ortaya çıkan çevre felaketi; 1992 yılında imzalanan Bükreş Sözleşmesi'nin ardından, Karadeniz'e kıyısı olan ülkelerin ve uluslararası kuruluşların en önemli meselesi olmuştur. Karadeniz Bölgesi; yoğun olduğu kadar iddialı politik, bilimsel,ekonomik ve ticari faaliyetlerin yürütüldüğü uluslararası bir alan haline gelmiştir.

1990 lı yıllarda, Karadeniz Ekonomik İşbirliği, Karadeniz Çevre Programı, Tuna Nehri Havzası Çevre Programı, Karadeniz'in Çevresel Değerlendirmesi Teknik İşbirliği Projesi ve Karadeniz Komisyonu Daimi Sekreteryası 'nın kuruluşu gibi geniş kapsamlı uluslararası faaliyetler, hükümetler nezdinde ve Sivil Toplum Kuruluşları arasında organizasyonların oluşturulması, Karadeniz çevre yönetiminin ne kadar büyük boyutlu ve çok uluslu bir mesele olduğunun göstergesidir.

Karadeniz ekosisteminin çöküşü; BSEP raporları ve kara kökenli kirleticilere ait mevcut verilerin ışığında kısaca özetlenmektedir. Deniz ulaşımından kaynaklanan kazaların çevresel riskleri de incelenmekte, çevre güvenliği ile ilgili endişeler, özellikle son yıllarda Karadeniz ve Hazar Bölgelerinde yoğunlaşan ticari enerji projeleri dolayısıyla vurgulanmaktadır.

Bükreş Sözleşmesi'nin imzalandığı 1992 den bu yana geçen son 10 yılda, uluslararası politikaların oluşturulması, işbirliği faaliyetleri ve gerçekleştirilen bilimsel programların kısa bir sunuşu yapılarak, ortaya çıkan başarılar değerlendirilmektedir.

Önerilerde; Karadeniz'de kirliliğin azaltılması ve ekosistemin iyileştirilmesi için uluslararası işbirliği faaliyetlerinin sürdürülmesinin hayati olduğu, Stratejik Eylem Planlarının tamamlanması gereği belirtilmektedir. Sınır ötesi ortak çevre sorunlarının çözümü ve çevre güvenliği için ise; politik, bilimsel ve sosyo-ekonomik sorumlulukların paylaşımı ve Karadeniz'le ilgili tüm ulusal ve uluslararası faaliyetlere sektörel, kurumsal ve bireysel katılımcılığın önemi vurgulanmaktadır.

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Erratum

Vol. 7. Page 88-89 Fig. 2.1, 2.2 Erroneous a : 10 µg/L, b : 25 µg/L c : 50 µg/L d : 100µg/L. Correct: 10 µg/10 ml, 25 µg/10 ml, 50 µg/10 ml, 100µg/10 ml