

*Doc. GA36/EC35/REP/10*

## REPORT\*

### **“Condition of the marine environment in the Black Sea region”**

Rapporteur: Mr. Konstantinos TSIARAS (Greece)

---

\* *Text considered by the Thirty Fifth Meeting of the Economic, Commercial, Technological and Environmental Affairs Committee in Kyiv on 29 September 2010 and adopted by the Thirty Sixth General Assembly in Trabzon on 3 November 2010.*

## I. INTRODUCTION

1. At the background of degradation of the environment in the Black Sea region a factor of the marine environment and marine ecosystems protection becomes the most critical issue in the ecological agenda, requiring the consolidation of urgent measures and actions not only at the regional, but global level.
2. Today the degradation and pollution of the environment and, first, of the marine environment is so vast that it calls for urgent concerted actions. In fact, multi-dimensional regional and international efforts are carried out by a variety of organizations, having established a comprehensive basis for the joint activities.
3. PABSEC, in its turn, is of opinion that more full implementation of existing regional mechanisms might be the first step in the direction of improving effectiveness of environmental cooperation. At its 34<sup>th</sup> Plenary Session on 24 November 2009 Assembly adopted the Recommendation 111/2009 on the “Water resources management in the Black Sea region”, calling for the further strengthening the institutional and legal framework dealing with protection and management of water resources, with subsequent harmonization with international environmental standards, as well as facilitating the elaboration of concrete programmes and strategies aiming at the mitigation of consequences of climate change that has a negative impact on water resources, seeking also new mechanisms of cooperation in this direction.
4. On 12 June 2009 at the 33d Plenary Session PABSEC adopted Recommendation 107/2009 on the “Development of the sea transport in the BSEC member states: problems and prospects”, which urges the national parliaments and governments to strengthen cooperation in the field of sea transport among the member states focusing on the aspects of the observance of international environmental standards.
5. In the Recommendation 94/2007 on “State and Perspectives of Fishery in the Black Sea countries” Assembly calls the member states to “improve legislation framework in the field of fisheries and, if necessary, to adopt additional regulations and laws focusing on the environmental and social aspects of this sector”.
6. In Recommendation 49/2001 “Black Sea Environmental Protection: New Challenges” adopted on 21 June 2001 at the 17<sup>th</sup> Plenary Session, Assembly calls the member states to undertake initiative in establishing regional mechanisms on early warning and assistance in environmental emergencies in order to mitigate the consequences of industrial and maritime accidents.
7. The Report is based on the relevant resources of the Black Sea Commission, UN specialized agencies, EU institutions, and other international bodies and organizations, including scientific-research ones. Rapporteur is thankful to the delegations of Bulgaria, Georgia, Greece and Turkey provided report with contribution.

## II. STATE OF MARINE ENVIRONMENT IN THE BLACK SEA REGION.

8. The issue of the preservation of marine environment of the Black Sea region among other ecological aspects comes to the forefront due to the role of the region in the global economy, firstly being the main transport and energy hub of the Eurasian continent.
9. Conditionally, marine territories of the wider Black Sea region are divided into three main basins, which are the waters of the Black and Azov Seas, Caspian Sea and Mediterranean Sea (Eastern Mediterranean). These three sea basins have common features in terms of environmental issues, and at the same time in result of the latest economic processes in the region, they are all closely interrelated to each other. Moreover, geography of the Black Sea and Caspian Sea brings additional environmental risks: both these seas are landlocked or with very narrow connection with the oceans. In spite of more advantageous location, the Mediterranean Sea is also considered comparatively landlocked with narrow connection with the Atlantic Ocean.
10. Severe environmental degradation of the regional seas started in the early 1990ies along with initiation of the economic restructure in the countries of the Black Sea region. During this period, marine resources in the region have declined due to over-fishing, pollution, unplanned development of coastal zones and intense maritime traffic. Extensively use of land and water for agriculture, forests for paper industry, pulp and construction, rivers for navigation and coastal resources for commercial fishing and tourism together with continued demands for oil and gas extraction are the basic critical factors affecting the marine environment of the region.
11. Marine waters of the Black Sea region receive freshwater and sediment inputs from the rivers draining almost half of Europe and significant parts of Eurasia (including the largest rivers of Europe). Consequently, healthy environmental situation of the marine waters in the region closely linked to the prevention and reduction of pollution of the rivers and basins of the rivers flowing into the seas.
12. Land-based pollution is one of the largest reasons of environmental degradation in the basins of the rivers and consequently in the seas and its coasts. Pollution from vessels and other sea-based activities contribute to the remaining polluting factors in the marine waters and their coastal zones.
13. Exposing to high pressure to their environment on the marine coasts, coastal ecosystems are threatened and the natural environment is converted into developing urban settlements, ports, industrial complexes, tourist beaches and other projects.
14. The “green revolution” in agriculture has resulted in the inflow of large quantities of nutrients from the major rivers. This brought about the phenomenon of the over-fertilization of the seas, resulting in the increased intensity of phytoplankton, consequently hindering light penetration in the seas. As a result, species of algae have died, depriving from light and with them have perished the source of oxygen for a wide variety of species, which have disappeared from the marine ecosystems.
15. Another phenomenon responsible for the degradation of the marine environment of the Black Sea region is the introduction, through vessels navigating in the Black Sea, of alien species, including dangerous ones. These species prey on local plants and animals with serious negative impact on the biodiversity of the seas.
16. As in many parts of the world, another significant factor affecting the marine environment of the Black Sea region is the climate change. The diverse nature of regional geography, with the attendant diversity of expression of climate change impacts, represents a particular challenge for monitoring and management of climate change at regional and local levels. The most common feature in the region is the widespread increase in summer temperatures. It is estimated that although the

temperature increase is predicted to be relatively small, the effects of climate change are still likely to be quite large, as well as the sea level rise in sea basins triggers erosion and flooding.

#### *BLACK AND AZOV SEA BASIN*

17. More than 300 rivers flow into the Black and Azov Seas, including the second, the third and the fourth major European rivers, namely the Danube, Dnieper and Don. The estimated annual volume of river discharge entering the Black Sea fluctuates from 294 to 480 km<sup>3</sup>. Vast quantities of silt are brought by rivers, resulting in low transparency of coastal waters, especially in the north-western Black Sea area and in the Sea of Azov. The construction of dams for irrigation and power generation purposes has resulted in a substantial net decrease in the runoff to the Black Sea and the Sea of Azov. This, in turn, has caused a reduction in the freshwater and sediment inflow into these areas, with concomitant coastal erosion and changes in salinity.
18. In a major part of the Black Sea basin, the climate is similar to the Mediterranean (warm humid winters and hot dry summers). The south-eastern part, surrounded by the mountains, is characterized by a humid subtropical climate (abundant precipitation, warm winter, hot summer). In general, the Black Sea basin climate is favourable for tourism and resort activities.
19. Most of coastal areas are densely populated and even over-populated during the summer season. According to estimates based on national census statistics, permanent human population along the Black Sea shores came to 16-20 million in the 1990s, with some 4-12 million per year of these represented by tourists. These data do not include people inhabiting the coasts of the Azov and Marmara Seas, as well as the citizens of the largest Black Sea city - Istanbul.
20. The main causes of seawater pollution come from point and diffuse land-based sources, river run-off, atmospheric deposition, and intentional and accidental discharges from vessels. Many coastal municipalities and industries discharge their wastewaters directly to the sea with inadequate or no treatment.
21. Eutrophication, caused by nutrients (nitrogen and phosphorus) is the primary problem of the Black Sea. It started particularly in the late 1960s, when fertilizer use grew markedly and urban settlements were increasingly seweraged, while nutrients were not removed from sewerage.
22. The economic crisis that began in the region in early 1990s, however, resulted in opportunities for improvement of ecosystems: farmers were unable to apply the quantity of fertilizers used in the former economies and many large polluting industries were forced to close. The main sectors responsible for nutrient inputs into the waters of Black and Azov Seas are municipal and agricultural. In agricultural sector, the transition to a market-oriented economy has caused a significant reduction in the total production of agriculture and livestock, with some positive consequences for the environment.
23. The economic impact of algal blooms and, in particular, of harmful and toxic ones, includes the value of damage to wild fish and shellfish stocks, and reductions in tourism and associated industries. Eutrophication, along with overfishing, pollution and invasion of dangerous organisms irrelevant for the Black Sea fauna, contributed to the dramatic declines in landings in the first half of 1990s.
24. With regard to the tourist sector, the number of people vacationing on the Black Sea shores has dropped substantially in recent years. Furthermore, eutrophication was the direct cause of the destruction of the algal biomass ecosystem serve as a raw product for the chemical industry, in the northwestern shelf.
25. Oil pollution in the Black Sea is predominantly concentrated in the coastal area around stationary sources, such as river mouths, sewerage outfalls, harbours and industrial

- plants. Accidental and operational spillage of oil and petroleum products from vessels contributes to pollution in both inshore and offshore areas.
26. With regard to the presence of dangerous chemical compounds in the Black and Azov Sea basin, a number of scientific and research institutions has repeatedly reported on high concentrations of synthetic pollutants in different parts of sea basin. Along with the agriculture and industry, municipal sewage is the main source of these pollutants.
  27. Another environmental problem of the Black and Azov Sea basin is the radioactive pollution, which came on the agenda after the Chernobyl catastrophe in 1986. Anthropogenic radionuclides were introduced to the sea mainly by atmospheric precipitations and rivers. In the 1990s, the Black Sea showed relatively high concentrations of radionuclides. Nevertheless, preliminary results of the various scientific assessments underline that radioactivity levels have no significance in terms of human health and environmental safety.
  28. Due to a poorly developed tourist infrastructure (in comparison with Mediterranean region) and the illegal disposal from marine transport and households, the Black Sea and its coasts seem to be subject to very high levels of solid wastes. Almost all Black Sea cities and settlements currently discharge their effluents into the marine environment directly or via rivers. The estimated total volume of sewage comes to over 570 million m<sup>3</sup> per year (statistics of 1990s).

#### *MEDITERRANEAN SEA BASIN*

29. Being the largest semi-enclosed European sea, the Mediterranean Sea is characterized by a narrow shelf, a narrow littoral zone and a small drainage basin especially in the northern part. The Sicilian Channel separates two distinct basins, the western and the eastern, and acts as a geographical and hydrological frontier between them. It is necessary to emphasize that Eastern Mediterranean, as a part of the wider Black Sea region, consists of two major seas – Levant and Ionian Sea, connecting with the Aegean Sea in the north and other with the Adriatic Sea. Besides, namely the Eastern Mediterranean represents the most oligotrophic part in the European marine waters, causing by phosphorus limitation.
30. The Mediterranean coast of the Black Sea region hosts many human activities, which constitute important causes for the degradation of the marine ecosystem. As in the Black and Azov Sea basin, eutrophication is one of the most critical issues for the Mediterranean basin. Eutrophication is very common in sheltered marine water bodies, such as harbours and semi-enclosed bays along the Mediterranean coast, mainly near coastal towns. Untreated or partly treated urban effluents contain significant loads of nutrients and suspended matter (degradable or inert). They largely contribute to the accumulation of deposits rich in organic matter and contaminated with metals and other pollutants.
31. Urbanization of the coastline is one of the major problems in the Mediterranean region, often leading to loss of biodiversity due to habitat destruction and physical alteration. Problems related to the concretization of the coastline are encountered through the Mediterranean that is usually due to uncontrolled development, especially of tourist infrastructure. Both wetland and salt marsh destruction for land reclamation and mining of coastal resources for construction needs are also altering irreparably the natural Mediterranean coastline.
32. Sand erosion is a common problem in many parts of the Eastern Mediterranean. Although it is rooted in natural causes, such as marine sediment transport, it is amplified by human activities (e.g. sand quarrying). Sand erosion may have negative impacts on the coastal ecosystem; destroying soil surface layers leading to groundwater pollution; degrading the dune system leading to reduction of sedimentary resources; and desertification and reduction of biological diversity.

33. Solid waste produced in urban centers along the Mediterranean coastline is often disposed of in dumping sites with minimal or no sanitary treatment. Discharge of fine solids from coastal industrial plants or discharge of inert material from construction activities leads to blanketing of the sea-bed with land-based material.
34. The problem of sewage and urban run-off in the Eastern Mediterranean is related to the fact that from approximately 600 coastal cities with a population of more than 10 000 inhabitants (total resident population is about 60 million) only 70% operate a wastewater treatment plant. However, the efficiency of the plants to remove urban pollutants is often rather low and inadequate. The problem is exacerbated by the rapid growth of many coastal cities and towns in the Eastern Mediterranean coast.
35. Most of the Mediterranean coastal areas host chemical and mining industries that produce significant amounts of industrial wastes (e.g. heavy metals, hazardous substances, and persistent organic pollutants, which may reach the marine environments of the Mediterranean Sea directly or indirectly, particularly through rivers and run-offs. In addition, stockpiles of obsolete chemicals are considered a significant source of contaminants into the marine environment. In many cases, no measures have been taken to control and treat leachates from the dumping sites, which are polluting groundwater and the coastal marine environment with organic pollutants and heavy metals. Furthermore, accidental fires emit smoke particles, hazardous chemical compounds (polycyclic aromatic hydrocarbons and dioxins), seriously affecting air quality.
36. Marine transport is one of the main sources of petroleum (crude oil) and other hydrocarbons pollution in the Mediterranean Sea. It is estimated that about 220 000 vessels of more than 100 tones each cross the Mediterranean annually. These vessels discharge approximately 250 000 tones of oil due to shipping operations such as de-ballasting, tank washing, dry-docking, fuel and oil discharges. In addition, approximately 80 000 tones of oil have been spilled between 1990 and 2005 from shipping accidents. Finally, incidents at the oil terminals, together with routine discharges from land-based installations, are estimated at 120 000 tones/year, thus leading to elevated oil concentrations in their vicinity.
37. In addition to the land-based and transport-related threats, a number of issues, related exceptionally to the natural processes, have been recognized as being of concern to the health of marine ecosystems in the Mediterranean. Climatic changes in conjunction with deteriorated ecosystems near ports and bays have resulted in significant changes of biodiversity due to the introduction and establishment of exotic species (majority of exotics are found in the Levantine Sea). The introduction of exotic species is a dynamic non-stop process with approximately 15 new species reported each year.
38. Harmful algal blooms and natural hazards are among the natural processes that have a most negative impact on the marine environment. Thus, in the Eastern Mediterranean increasing appearance of harmful algal blooms has led to significant public health problems caused by the consumption of seafood contaminated by toxic algae. As during the last years enhanced seismicity in certain Eastern Mediterranean regions is observed, ecological impacts of major earthquakes can be devastating in coastal urban areas.

#### *CASPIAN SEA BASIN*

39. The Caspian Sea, representing the vastest inland catchment in Eurasia, which covers the major industrial regions of Russia and Caucasus, is currently suffering an increasing anthropogenic impact. In the Caspian Sea, chemical pollution is the most important issue of marine environment. The most important pollutants are oil and oil products, phenols, and, in the North Caspian, detergents. The chemical pollution grows with the intensification of the human activity on the seacoasts and in the sea proper and

represents one of the most hazardous kinds of anthropogenic impact on the Caspian ecosystem.

40. The main sources of pollution of the Caspian natural environment are trans-border atmospheric and water transfer of pollutants from other regions, washing off with river flows, discharge of untreated industrial and agricultural wastewaters, municipal–domestic wastewaters from cities and settlements in the coastal zone due to the insufficient number of treatment facilities, oil and gas operations on land and offshore, oil transportation via sea, river and sea navigation, secondary pollution during bottom dredging operations, and sea level rise. The increased concentrations of pollutants are characteristic of the near-mouth areas of the rivers, which observed not only off the largest Volga River but also off the rivers of the western coast of the sea. Another particular feature is related to the fact that the degree of pollution of the eastern shelf of the Caspian Sea is lower than that of the western shelf because, in the latter case, the amount of pollutants is reduced due to a small number of sources – rivers and industrial enterprises.
41. With the increase of the economic potential of the Caspian countries due to hydrocarbon extraction, construction of new sea ports, rehabilitation of existing ports, revival of the merchant and tanker fleet, enhancement of the navy component, and construction of oil and gas pipelines, subsequently environmental stress is growing. The risk of the negative effects of the hydrocarbon field development in the bottom and coastal regions of the Caspian Sea is especially great in the shallow-water Northern Caspian, which is exclusively important for development of the unique commercial biological resources of the entire Caspian Sea, and which is at the same time a nature reserve zone. Oil and chemical pollution of soils is observed over all the territories of the energy fields. The main sources of this sort of pollution are breaks in oil pipelines, emergency flowing of exploratory wells, violations of the technologies of storage, accumulation, separation, and transportation via pipelines, and inadequacy of the constructions and equipment used in oil production and transport. The highest values of oil product pollution are noted in the areas near major cities, ports, and industrial regions. Intensive exploration of oil and gas fields in the Caspian region resulted in extensive water, land and air pollution, wildlife and plant degradation, exhaustion of natural resources, ecosystem disturbance, desertification and considerable losses in biological and landscape diversity.
42. Over the recent decades, the inter-annual variations in the contamination of the waters and sediments of the Caspian Sea were mainly caused by the influence of the sea level rise, the accidental oil losses, and the general fall in the industrial activity in the Caspian basin. In the 1990s, a greater contamination was observed in the waters of the North Caspian subjected to the runoff of the Volga River. Smaller values are characteristic for the waters of the South Caspian, where the principal oil and gas fields are located, as well as for the waters of the Middle Caspian.
43. In shallow-water areas, bottom sediments represent sources for secondary contamination – at sea level rises under the influence of dynamic processes additional pollutants are supplied to the near-bottom layer of the sea. Over the entire area of the Caspian Sea, there is a tendency to a decrease in the concentrations of pollutants down the water column. Although since 1995 the water level in the Caspian has remained relatively stable, a further rise of the sea level may still lead to emergencies in oil production areas. Among them are flooding of drilling sites located in lowlands, breaking of protection embankments and levees around drilling sites, breach of on-field pipelines, and pollution of underground waters.
44. Since the Caspian Sea is a brackish-water basin, the distribution of the species composition in it is controlled by the response of the organisms to the water salinity. The quantitative distributions of phyto- and zooplankton, benthos, and fishes during the

last years can be estimated as stable. The greatest changes are caused by the invasion of alien species, massively started in the middle of 1990s. Besides, the changes in the Caspian bio-community are caused by the sea level inter-annual variability and are mostly manifested in the North Caspian, in the zone of the interface between the river and seawaters.

45. In the late 1990s, a number of previously unknown dangerous species were encountered in the region at the boundary between the Middle and South Caspian. According to some researches in this direction, these species were carried with ship ballast waters from the Black Sea, where it caused significant changes in the ecosystem of the sea. In the beginning of 2000s, the abundance of the most dangerous alien species – *mnemiopsis*, in the Caspian Sea essentially increased and was several times as high as that observed in the Black Sea in the period of its maximum development in 1990s.
46. One of the most crucial aftereffects of the anthropogenic intervention into the Caspian ecosystem is related to the population of sturgeons, which are the most valuable commercial fishes of the Caspian Sea. In certain periods of the past century, their catches were high, reaching an amount of 26,000–27,000 tons per year. However, later, sturgeon abundance drastically dropped, firstly due to the invasion of dangerous alien species, and secondly, due an epidemical disease (miopathy), which involved the greater part of the sturgeon population. The origin of this disease is still unclear. Third factor of this decline was the uncontrolled fishery started in the early 1990s.

### **III. REGIONAL AND INTERNATIONAL FRAMEWORK**

#### ***GLOBAL COOPERATION***

47. The foremost development in the field of the protection of the natural environment, reflected in the universal conferences, declarations and international commitments of the members of the international community is the consecration of the principle of sustainable development, requiring the introduction of environmental conservation as an inseparable goal to the goals of economic efficiency and social equity.
48. With regard to the marine environment, the general obligations of international actors, states and international organisations, businesses, civil society actors, are spelled out in the United Nations Convention on the Law of the Sea (LOSC). The LOSC was concluded in 1982, after almost twelve years of negotiation at the Third UN Conference on the Law of the Sea, and entered into force in 1995. The Convention codifies customary international law of the sea and introduces also some new elements for internationally agreed uses of the sea.
49. Agenda 21 adopted by 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, is the comprehensive plan for global, national and local action by organizations of the United Nations system, governments, and major groups in every area in which human impacts on the environment. Chapter 17 of Agenda 21 deals with the protection of the oceans, all kinds of seas (including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources). Chapter 18 deals with freshwater (including the management of rivers and lakes). Chapter 21 deals with solid waste ("all domestic refuse and non-hazardous wastes such as commercial and institutional wastes, street sweepings and construction debris. In some countries, the solid wastes management system also handles human wastes. Environmentally sound waste management is concerned not just with safe disposal or recovery but also with the root cause of the problem, such as unsustainable production and consumption patterns"). The UN Commission on Sustainable Development (CSD) was created in 1992 to ensure effective follow-up of the UNCED, to monitor and report on



- implementation of the Earth Summit agreements at the local, national, regional and international levels.
50. Issues related to the protection of the marine environment are included in the Johannesburg Plan of Implementation adopted by the World Summit on Sustainable Development (WSSD), held in 2002 in Johannesburg. The Plan covers the issues of prevention and minimization of waste and maximization of reuse, recycling and use of environmentally friendly alternative materials.
  51. The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), adopted in 1973 and modified by the Protocol of 1978, is the main international convention aimed at controlling pollution from the shipping sector. It covers all the technical aspects of pollution from ships, except the disposal of waste into the sea by dumping, and applies to ships of all types, although it does not apply to pollution arising out of the exploration and exploitation of seabed mineral resources. The Convention regulates the matter of quantities of polluting substances discharge by ships may into the sea, taking into account the ecological sensitivity of different sea areas.
  52. The Convention establishing the International Maritime Organization (IMO) was adopted in Geneva in 1948. As the UN specialized agency IMO is responsible for improving maritime safety and preventing pollution to water and air from ships with the main task to develop and maintain a comprehensive regulatory framework in the relevant field. IMO serves as the Secretariat for the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78, and for the 1972 Convention on the Prevention of Maritime Pollution by Dumping of Wastes and Other Matter (LDC).
  53. The Convention for the Prevention of Marine Pollution from Dumping of Wastes — the London Convention (signed in 1972) - is a global agreement concerned solely with the control of dumping of wastes at sea. Annex I of the Convention lists wastes and other matters which must not be dumped. In LDC it is recognized that plastic materials and other materials which may cause problems of entanglement and ingestion by marine organisms constitute an environmental hazard. As a consequence, dumping of such materials is prohibited. However, LDC does not address wastes that have been generated during the normal operation of ships. The Convention is only applicable to wastes which are loaded onto the ship from land-based sources for the deliberate purpose of dumping them at sea.
  54. The United Nations Environment Programme (UNEP) was established as a follow-up to the 1972 UN Conference on the Human Environment. Since its establishment UNEP has been creating a basis for comprehensive consideration and coordinated action within the UN on the problems of the human environment. Its mission is to provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life.
  55. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (UNEP GPA) was adopted by 108 countries in 1995 (Washington Declaration). The Programme is a global recognition of the fact that the major threats to the health, productivity and biodiversity of the marine environment result from human activities on land — in coastal areas and further inland. One of the major objectives of the GPA is to support and facilitate the implementation of land-based sources/activities components of the various UNEP Regional Seas Conventions and Action Programmes. UNEP is responsible for coordinating and catalyzing the implementation of the Programme, and for this purpose UNEP has established a GPA Coordination Office.
  56. The Global Environment Facility (GEF) is an independent, multilateral financing mechanism created in 1991 to address global environmental issues that do not normally get funded through national, bilateral, and international finance. With GEF funds,

developing countries and nations transitioning to market economies can carry the added costs of making planned projects environmentally friendly and finance regional approaches to multinational problems. GEF funds projects in four programme areas: Climate change, biological diversity, ozone layer and international waters. GEF is the leading multilateral entity working to reverse the degradation of aquifers, basins, lakes, oceans, rivers, and wetlands of international significance. In the GEF Operational Strategy, four major areas of concern related to international waters are identified: Degradation of the quality of trans-boundary water resources, physical habitat destruction, introduction of non-indigenous species, and excessive exploitation of living and non-living resources.

57. The UN Development Programme (UNDP) and the World Bank are the GEF implementing agencies. UNDP is focused on assisting countries in realizing the goals of Agenda 21 by "helping countries adopt integrated approaches that focus on managing natural resources to improve the livelihoods of people living in poverty". UNDP primarily responsible for implementing technical assistance and capacity building programmes. UNDP also manages the Small Grants Programme, which supports community-based NGO projects related to the GEF's global concerns. UNDP-GEF programmes under International Waters include a large number of regional and global projects. The integration of the "environmental dimension" of the freshwater, coastal and marine resources as a continuum is an important aspect of the World Bank's work, which is realized through strategic studies, regional programs, projects and advisory services. At the regional level the Bank, in cooperation with a range of partners, is undertaking activities to support management of a number of sea areas. At the national level, coastal zone management activities are being supported in a number of countries. The World Bank is also a founding member of the initiatives for marine protected areas and integrated coastal management.
58. Among other organizations and projects dealing with the marine environment issue, the following can be pointed out: the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), being a multidisciplinary body of independent experts nominated by the sponsoring organizations (IMO, FAO, UNESCO-IOC, WMO, WHO, IAEA, UN, UNEP); the UN Food and Agriculture Organization (FAO) and its Major Programme on Fisheries and Code of Conduct for Responsible Fisheries aimed at promoting sustainable development of responsible fisheries and contributing to food security.

## *REGIONAL COOPERATION*

### *A. BLACK SEA*

#### *Organization of the BSEC*

59. The protection of the environment has been a matter of primary interest of the BSEC since its inception, clearly highlighting the need for enhanced regional cooperation for the protection of the Black Sea marine environment. A cursory view of BSEC Summit declarations as well as the political and legally binding dispositions throughout the BSEC's history confirms the Organisation's prioritization of the environmental issues. Thus, the Summit Declaration on Black Sea Economic Cooperation (Istanbul, 1992) requests the states to participate in the newly launched regional initiative, by "taking appropriate steps for the protection of the environment, particularly the preservation and the improvement of the Black Sea environment, and the conservation, exploitation and development of its potential.
60. Following the transformation of the BSEC into the full-fledged international structure in 1999, the environmental protection became one of the areas of cooperation in the framework of the organization, as reflected in the BSEC Charter. The environment is

addressed in a project-oriented manner in the BSEC Economic Agenda for the Future. Over the years, this commitment of the BSEC to act in favour of the regional environment has been confirmed at the political level that firstly was stipulated by the Ministerial Declaration on 3 March, 2006. Later, the member states reaffirmed their particular responsibility on the protection of Black Sea marine environment at the highest level - in Declaration adopted by the BSEC Ministers of the Foreign Affairs on 25 October 2007 in Ankara.

61. On 1 June 2010 Greece assumed the BSEC Chairmanship-in-Office and declared cooperation in the field of environment as one of the priorities, accompanied by the slogan “Black Sea turns Green”. During its Chairmanship activities of Greece in this direction aimed at sustainable development and the improvement of environment conditions, addressing this issue through promoting economic activities, including conservation and protection of the seawaters and their biodiversity of the region, which constitute the basis for its future development through tourism, agriculture, fisheries etc.
62. Since the basic mechanism of sectoral cooperation in the BSEC is carried out through the specialized working groups, participating states have established the BSEC Working Group on Environmental Protection, which at its first meeting on 3-4 November 1993 agreed that “environmental protection has emerged as a priority in the BSEC region, and that immediate and concerted action be taken in order to combat pollution”.
63. Current Plan of Action of the BSEC WG on Environmental Protection for the 2009-2011 period the following aspects: a) development of a Black Sea Information System on sustainable development of the Black Sea region in order to answer the needs of the internal and external users; b) regularly exchange of information on the new developments in the environmental legislation and the progress towards protecting the environment; c) organization in cooperation with international organizations of different workshops in the various related issues on environmental priorities – influence of climate change on marine biodiversity, specific topics on land based pollution sources-hot spots, environmental safety aspects of shipping-port facilities, pollution, erosion and environmental emergencies; d) strengthening the cooperation with international organizations, dealing with the issues on the protection and rehabilitation of the Black Sea marine environment, including those on preventing and reducing pollution of the rivers and hydrographical basins of the rivers flowing into the sea.
64. Cooperation with third parties represents another mechanism of broad cooperation of the BSEC in concrete fields, including non-profit organizations. Nowadays, cooperation on maritime transport with a number of organizations with non-governmental status (BSEC-URTA, BRASS, BASPA, BINSAs and CPMR) has been enhanced<sup>1</sup>. In this format, particular importance is attached to the cooperation in the field of prevention of accidents and incidents connected with the emission of hazard substances, ballast water treatment and recycling of vessels.

*Commission on the Protection of the Black Sea against Pollution*

65. The urgency of the environmental situation of the Black Sea in the early 1990s prompted a few initiatives in this field. On the international level, the Global Environmental Facility (GEF) managed jointly by the World Bank Group, the United Nations Environment Programme (UNEP) and the United Nations Development

---

<sup>1</sup> BSEC URTA – Union of Road and Transport Associations, BRASS – Black Sea Region Association of Ship-builders and Ship-repairs, BASPA – Black and Azov Seas Ports Association, BINSAs – Black Sea International Ship-owners association, CPMR – Conference on Peripheral Maritime Regions of Europe

Programme (UNDP), promoted the Black Sea Environmental Programme and supported several environmental activities.

66. The Black Sea Environmental Programme contributed to the creation of the Commission on the Protection of the Black Sea against Pollution (Black Sea Commission). The Black Sea Commission (BSC) was established by the Convention on the Protection of the Black Sea against Pollution signed in Bucharest on 21 April 1992 by the six Black Sea coastal states (Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine). The ratification process of this convention was completed by 1994 but the Commission became operational in 1997, while its International Secretariat started to function in 2000.
67. The Commission manages the implementation of the 1992 Bucharest Convention and its annexes (Protocol on Protection of the Black Sea Against Pollution from Land Based Sources; Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and other Harmful Substances in Emergency Situations; Protocol on Protection of the Black Sea Marine Environment Against Pollution by Dumping, all signed the same day as the Convention). Within its structure an additional Protocol on Black Sea Biodiversity and Landscape Conservation was negotiated and signed in Sofia on 14 June 2002. Another major text guiding the BSC and its states is the Strategic Plan for the Rehabilitation and Protection of the Black Sea, whose latest version was adopted in Sofia, on 17 April 2009.
68. The BSC is assisted by seven Advisory Groups which provide their expertise and information support to the Commission and Secretariat on following sectors: (1) pollution monitoring and assessment (PMA); (2) control of pollution from land based sources (LBS); (3) development of common methodologies for integrated coastal zone management (ICZM); (4) environmental safety aspects of shipping (ESAS); (5) conservation of biological diversity (CBD); (6) environmental aspects of the management of fisheries and other marine living resources (FOMLR); and (7) information and data exchange (IDE). Within the institutional framework coordinated by the Black Sea Commission, seven Black Sea Regional Activity Centres (RAC) have been established, using the potential of existing national structures. The BSC collaborates also with a number of other specialised institutions.

*Danube Black Sea Task Force (DABLAS)*

69. The Danube Black Sea Task Force (DABLAS) was set up in 2001 with the aim to provide a platform for cooperation to ensure the protection of water and water-related ecosystems in the Danube and the Black Sea. The DABLAS is comprised of representatives of the countries in the region, the International Commission for the Protection of the Danube River (ICPDR) Secretariat, the Black Sea Commission, International Financing Institutions [European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), World Bank, and Black Sea Trade and Development Bank (BSTDB)], the European Commission, interested European Union (EU) member states, other donors (e.g. Iceland, Liechtenstein) and regional and international institutions. Also civil society is involved in the various tasks carried out by the DABLAS Task Force.
70. The European Commission (through its Directorate-General Environment) holds the Secretariat of the Task Force. The full Task Force meets once a year with seven meetings held so far. An annual workplan is agreed during these meetings, which is then taken forward by a smaller working group to ensure the implementation of activities. The overall goal of DABLAS is to facilitate coordination for a focused approach to the protection of water and project featuring, and to develop financing mechanisms for the implementation of investment projects for pollution reduction and the rehabilitation of ecosystems in the wider Black Sea region.

71. Under the leadership of the DABLAS Task Force a first project was initiated to prioritise investment projects addressing nutrient reduction. Some 113 out of a total of 158 potential municipal sector projects were evaluated in terms of their environmental impacts on the Black Sea, potential financing, technological efficiency and compliance. Implementation of these 113 projects is estimated more than €2.500 million.

*International Commission for the Protection of the Danube River*

72. The International Commission for the Protection of the Danube River (ICPDR) works to ensure the sustainable and equitable use and management of waters and freshwater resources in the Danube River Basin, naturally including the Black Sea. The work of the ICPDR is based on the Convention on Co-operation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention, Sofia, 29 June 1994), the legal instrument for cooperation and trans-boundary water management in the Danube River Basin, binding upon eleven of the Danube riparian states – Austria, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldova, Romania, Slovakia, Slovenia, Ukraine and the European Community.
73. The main fields of the ICPDR are the conservation, improvement and rational use of surface waters and groundwater, the adoption of preventive measures to control hazards originating from accidents involving floods, ice or hazardous substances and of measures to reduce the pollution loads entering the Black Sea from sources in the Danube River Basin. Its members have agreed to cooperate on fundamental water management issues by taking “all appropriate legal, administrative and technical measures to at least maintain and where possible improve the current water quality and environmental conditions of the Danube river and of the waters in its catchment area, and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused”.

***B. MEDITERRANEAN SEA<sup>2</sup>***

74. The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) was adopted in 1976, entered in force 1978, and was revised in Barcelona in 1995. Activities within the Convention are coordinated by the MAP Coordinating Unit (MEDU). The objective of the Convention is to achieve international cooperation for a coordinated and comprehensive approach to the protection and enhancement of the marine environment and the coastal region of the Mediterranean area. Protocols to the Convention include:
- 1) Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft (Dumping Protocol); adopted in 1976, in force in 1978, revised in in 1995 as the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea.
  - 2) Protocol Concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency (Emergency Protocol); adopted in 1976, in force in 1978. A new text - Protocol Concerning Cooperation in Preventing Pollution from Ships and in Case of Emergency Combating Pollution of the Mediterranean Sea, was signed in January 2002.
  - 3) Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources (LBS Protocol); adopted in 1980, in force in 1983, amended in 1996 as the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities.

---

<sup>2</sup> Conventions and agreements overlapping with the Black Sea region are considered

75. Mediterranean Action Plan (MAP) was adopted in 1975. Its legal framework comprises the Barcelona Convention. The MAP tackles Mediterranean environmental and sustainable development issues (a widening of its remit in 1995) and has four key fields of activity: curbing pollution; safeguarding natural and cultural resources; managing coastal areas; integrating the environment and development. The MAP Coordinating Unit (MEDU) was established to co-ordinate activities within the framework of MAP, including the Barcelona Convention. MEDU is the secretariat of the MAP and is responsible for its implementation.
76. There are several cooperation initiatives and scientific projects within the MAP institutional framework with regard to the environmental protection of the seas of the Mediterranean basin. These are Adriatic Sea Partnership, Trilateral Commission and Adriatic-Ionian Initiative. Four BSEC member states participate in the activities on the protection of Mediterranean Sea – Albania, Greece, Serbia and Turkey.

### ***C. CASPIAN SEA***

77. Framework Convention for the Protection of the Marine Environment of the Caspian Sea was signed by five Trans-Caspian states in 2003. The objective of this Convention is the protection of the Caspian environment from all sources of pollution including the protection, preservation, restoration and sustainable and rational use of the biological resources of the Caspian Sea.
78. Caspian Environment Programme (CEP) was established in 1998 by Trans-Caspian countries. The CEP's mission is to assist the Caspian littoral states to achieve the goal of environmentally sustainable development and management of the Caspian environment for the sake of long-term benefit for the Caspian inhabitants. Within this programme a Caspian Strategic Action Programme was approved in November 2003.

### ***D. COOPERATION WITH INTERNATIONAL ACTORS EUROPEAN UNION***

79. The EU place particular emphasis in the protection of the Black Sea environment. While the EU-BSEC cooperation has been institutionalized, EU interest combined with the observer/sectoral dialogue partnership status of the European Commission in the BSEC opens up new opportunities of cooperation between the BSEC and the EU in the field of the environment, including marine ecology issues.
80. The EU programme, “Black Sea Synergy”, contains a number of concrete initiatives looking at areas like of the environment, maritime management, fisheries. The EU has also established a new cross-border cooperation programme involving local authorities in the countries around the Black Sea, and supporting the activities of civil society organisations.
81. Conference launching the Environment Partnership of the Black Sea Synergy initiative was held in Brussels on 15 March 2010. The Environment Partnership is established to support the efforts of the EU and its partners of the wider Black Sea region to find cooperative approaches to the common challenges that the Black Sea region faces. In perspective, this Partnership will be built around concrete projects, such as water quality, integrated coastal zone management, solid waste and sewage management.
82. EU legislation in the field of marine environment is comprehensively developed. Among many other regulations, the basic ones are the Water Framework Directive, Habitats and Birds Directive, Port Waste Directive, Common Fisheries Policy, etc. Particular place is given to the Green Paper on a Future Maritime Policy for the European Union adopted by the European Commission on 7 June 2006. This Green Paper is the result of over a year of consulting with stakeholders, identifying gaps between sea-related sectoral policy areas and attempting to adopt best practice and learn from obstacles and challenges. The mandate has been to examine all economic

activities of Europeans which are linked to or impact on the oceans and seas, as well as all the policies dealing with them, with a view to finding the best way. EU regulations directly apply to some Black Sea coasts and maritime sectors (Bulgaria, Romania).

*UNITED NATIONS ENVIRONMENT PROGRAMME*

83. The basis of the cooperation between BSEC and UNEP is the Agreement on Cooperation between two organisations signed in Istanbul on 20 February 2002. In the terms of the Agreement, “joint priority activities” of the two institutions should be: the development of environmental monitoring systems and the improvement of regulations, methodologies and the legal basis for environmental management, and the adoption of international environmental standards in BSEC member states, in particular those specified in international environmental instruments.
84. The Agreement also provides the practical means for the implementation of the above joint priority cooperative activities. According to the agreement, at the invitation of UNEP, representatives of the BSEC may participate in the work of the Governing Council of UNEP and its various bodies in the discussion of matters of mutual interest, without the right to vote, as well as representatives of UNEP may participate in the work of the Council's sessions in the discussion of matters of mutual interest, without the right to vote. The UNEP and the BSEC shall take the necessary steps to ensure their mutual participation in other meetings relating to environmental protection held under their auspices.

*UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE*

85. The Cooperation Agreement between the BSEC and UNECE was signed on 3 July 2002 in Istanbul. Agreement provides that necessary measures will be taken to assist countries to implement the regional environmental conventions and to facilitate compliance. Moreover, in the framework of the UNECE environment performance may be carried out in order to assist countries to improve their management of the environment. Environmental issues are also included in the agreement with respect to the analysis of the environmental aspects of future fuel and energy developments in the member countries and the area of transport (“harmonisation of safety and environmental norms and standards in the area of transport in the BSEC region”).
86. In the framework of the Cooperation Agreement, the UNECE Secretariat, which services the governing bodies, also helps them monitor the implementation of important international agreements relevant, among others, to the protection and rehabilitation of the Black Sea marine environment.

#### **IV. NATIONAL FRAMEWORK**

87. In **Albania** the development of the marine aquaculture is one of the priority issues of the environmental policy that is considered an important and prospective sector for the domestic economy. During the last decade Albanian government has been placing particular role to the research infrastructure in the field of marine environment. Thus, basic scientific research institutions in the country are involved in the issues of the coastal and marine protection and their management. Albania is actively involved in the bilateral cooperation on the environmental protection, having signed 20 projects with European countries, including environmental cooperation on the management of the coastal zone of the Adriatic Sea. The basic environmental document regulating also the marine environment is the Cross Cutting Strategy in the environmental sector.
88. In **Azerbaijan** pollution of water basins, including that of the Caspian Sea with waste water originated from domestic and industrial activities. The second factor of damaging marine environment in Azerbaijan’s part of Caspian basin is change of level of the Caspian Sea. As one of the main producer and exporter of oil and gas resources, Azerbaijan is currently carries out the comprehensive environmental policy. Taking

into the fact that majority of energy deposits are located in the offshore area, the government attaches particular attention to the protection of marine environment from pollution. Environmental monitoring activities were organized on Azerbaijani sector of the Caspian Sea and its coastline, as well as enterprises and facilities located on the sea, vessels and other similar sites. During the last years more than 1000 monitoring activities were conducted under the auspices of the Ministry of Ecology and Natural Resources. Activities includes a practice of biological, chemical and eco-toxicological laboratory tests of water and surrounding soil, as well as organization of expeditions to the open sea for identification of ecological problems related to flora and fauna of the Caspian Sea. Presidential decree on “Plan for Complex Measures on improvement of ecological situation in the Republic of Azerbaijan during 2006-2010” and “Certain measures for protection of the Caspian Sea from pollution” regulate the main aspects of marine environment in the country. With regard to these legal documents 16 module type local purification systems were constructed on 86 km of the Caspian coastline and handed over to respective municipalities. Aiming at purification of manmade flows to the Caspian Sea, construction of such facilities is ongoing. Monitoring control activities over these facilities are conducted on a regular basis.

89. In **Bulgaria**, the Ministry of Environment and Waters (BMEW), Ministry of Transport (BMT) and Ministry of Public Health (BMH) are at the head of activities related to the protection of marine environment. BMEW includes two administrative/executive structures – Bulgarian Black Sea Basin directorate (BSBD) and Environmental Executive Agency (BEEA). BSBD has functional branches in the largest coastal cities of Varna and Bourgas. Another structure – Regional Environmental Inspectorates situated in the same cities, which are entrusted with a task of environmental control. BMT acts through subordinate structures named as the Bulgarian Maritime Administration (BMA) and Bulgarian Port Administration (BPA), which have their agencies in Varna and Bourgas. BMA is responsible for: a) the control and protection of the Black Sea environment and the Danube River from pollution caused by shipping; b) administrative investigation in cases of marine pollution; c) examination of vessel’s documentation related to the protection of the environment; d) examination of vessel’s construction and equipment aimed to prevent marine pollution; e) control of port reception facilities and waste management plans in Bulgarian harbours and on ships; f) imposing fines and penalties in accordance with the national legislation; g) response to emergency situations accompanied with accidental pollution of sea. These state structures work in tight cooperation with municipalities and local administrations of the cities, towns, villages and other populated sites. Regulatory framework regulating protection of marine environment in Bulgaria consists of the Water Act, Territorial Development Act, Law on Fishing and Aquacultures, Law on Biological Diversity, Environmental Protection Act, Waste Management Act, Act on Sea Areas, Inner Water Ways and Ports and Merchant Shipping Code. As the EU member, Bulgaria transposes relevant EU directives and standards in its national legislation.
90. In **Georgia** a considerable volume of untreated domestic and industrial waste is discharged into the Black Sea via its rivers and estuaries. As the important transit corridor in transportation of the Caspian hydrocarbon resources, country experiences the oil pollution at the Black Sea coastline. Refining wastes and spills from oil storage terminals discharge directly into the Black Sea at two main Black Sea ports in the country – Batumi and Poti, where coastal soils and marine sediments are contaminated mainly with heavy oil components. Georgian government gives priority to the protection of the marine environment and river basins. Marine environment issues are regulated by the Law on Environmental Protection, Maritime Code, Laws on Water and Public Health. Two ministers – the Ministry of Environmental Protection and Natural Resources and the Ministry of Public Health – are responsible for the



coordination of national activities on marine litter control in Georgia. Within the Black Sea Integrated Management Programme supported by the GEF and World Bank implementation of the system of protected wetland areas in the coastal zone of Georgia is in progress.

91. **Greece**, as maritime country with a coastline, which extends to 15.021 km, is the country with the most extensive coastline among all Mediterranean countries. Over two thirds of the country is mountainous, while 20 percent of the land is divided in the islands, some of which are quite small and dispersed over the Aegean and Ionian seas. Sea pollution in the country is basically localized. Pollution levels are quite high in the places, which are in the vicinity of large urban centres or industrial sites. The urbanization of the coast in relation with the lack of adequate infrastructure -sewage system- has contributed in some places to a deterioration of the quality of the marine environment. As the Greek government seeks to attract investments to the development of touristic sector over all islands (due to their natural assets), the issue of marine environment and preservation of marine diversity are of high priority. To overcome the basic problems of coastal areas and islands, the Ministry of the Environment, Environment and Climate Change has initiated a process towards a more effective coastal management. This initiative foresees the elaboration of a strategy, with the participation of experts from research and academic institutions, for the sustainable development of coastal areas and islands and the development of an Action Program for Coastal Areas and Islands. The Mediterranean dimension has been a long term focus area for the Greek environment policy. In this framework, being the EU member state, Greece has been the leading country of the Mediterranean Component of the EU Water Initiative.
92. In **Romania** central government structures involved in the activities on the protection of marine environment are represented by the Ministry of Environment and Water Management (RMEWM), Ministry of Transportation (RMTCT), Ministry of Public Health (RmPh). Besides, there are two other bodies responsible for the contacts with local authorities of the coastal cities, which are the “Romanian Water” National Administration and National Environment Protection Agency. Largest Romanian Black Sea port Constantza is one of the main maritime transport destinations in the region, having the biggest shipyard in the country. Constantza shipyard plays an important role in the management of ship-generated waste on the Black Sea coastal areas, including installation of incineration plant facilities. Along with EU *acquis communautaire* on the maritime issues, integral part of the Romanian legislation on the marine environment are the Law on the Maritime Areas, Sanitary Code and Law on Wastes, governmental decisions on the integrated management of coastal zones, waste management, pollution control and environmental assessment procedures. The environmental public movement in Romania seems to present the most dynamic and coherent part of non-profit sector by conducting various activities, i.e. regular coastal cleanup campaigns and educational projects. Since 1990ies Romanian environmental NGOs have constantly promoted networking. And some have reached distinguished levels of organizational development.
93. **Russia’s** policy on the protection of marine environment in the Black Sea region has been declared at the highest level as the priority one, firstly due to the several factors: Russia plays important role in energy supply of the region, where energy resources are transported via the Black and Azov Sea corridors; second factor is the hosting of Winter Olympic games by the Black Sea coastal city Sochi in 2014. In this regard, Russian government is interested in the realization of environmental projects in the Black and Azov Sea region. At the federal level marine environment policy is regulated by the Ministry of Natural Resources, including the Federal Water Resources Agency, Ministry of Public Health and Social Development, Ministry of Transport, including

the Federal Agency on Marine and River Transport, the Federal Service on Hydrometeorology and Monitoring of Environment and Federal Service on Ecological, Technological and Nuclear Control. Currently two large environmental programmes are carried out by the government, which are the Federal Sectoral Programme “Ecology and Natural Resources - 2002-2010” and Long-Term Action Plan of the Ministry of Natural Resources in Exploration and Use of Natural Resources and Environmental Protection – 2002-2020. During the last period a certain progress has been achieved in the environmental policy in Black Sea coastal regions of Russia, in terms of both institutional and legislation framework. Aspects of integrated coastal zone management are developed in main Russian Black and Azov Sea ports – Taganrog (Azov Sea), Novorossiysk, Gelendzhik, Tuapse and Sochi (Black Sea). These aspects include organization of the waste management services, spatial development plans, regular monitoring activities in the marine areas and adequate mechanisms of allowing coastal communities to take a participative role in the decision-making process. At the federal legislative level marine issues are touched upon by the Water Code, Law on the Continental Shelf, Law on the Waste Production and Consumption, Law on the Sanitary and Epidemiological Welfare of Population and Law on the Protection of the Environment. At the regional level with regard to the Black Sea coastal territories, basically Krasnodar and Rostov provinces, several laws have been adopted. These are the Laws of Krasnodar on Waste Production and Consumption and Epidemiological Welfare of Population and Law on Natural Healing Resources, Health-improving Areas and Health Resorts in Krasnodar.

94. **Turkey's** economic development has brought with it increased environmental challenges. As Turkey's economy experienced high levels of growth since 1990s, the country's boom in industrial production resulted in higher levels of pollution and greater risks to the country's environment. As Turkey is bounded by all the main regional seas and marine sector plays huge role in the economic life of the country, governmental policy on marine environment is focused on protection of coastal zones from pollution, prevention and minimization of marine litter and effective waste management. With rise of the domestic energy consumption and consequent increase of oil and gas import, oil pollution in the Black Sea and Bosphorus Strait increased environmental threats for Turkey. The potential threat created by the introduction of harmful organisms through the discharge of ships' ballast water is an important concern for Turkey. Contamination from ships ballast water resulted in a collapse of fish stocks and significant economic loss in the Turkish part of the Black Sea. The Turkish Under-secretariat for Maritime Affairs initiated an in-depth study entitled “Project on control and management of harmful organisms transferred by ballast water” in July 2006. Besides, Turkey has started a pilot implementation project on ballast water management in some of the ports located in the eastern part of Mediterranean Sea. Within this implementation project, Turkey will require all ships to make ballast water exchange before entering the ports, and regular surveys are going to be held, including practice of ballast water sampling. With regard to the shipping activities, Turkey has adopted a number of administrative instruments covering aspects of the marine environment. These are the regulations on largest harbours (Istanbul, Trabzon, Rize), regulations on the control of solid, medical and hazardous waste, regulations on environmental impact assessment, regulations on ship dismantling, on waste purchase service from the vessels, on reception of waste from the ships and waste control. At the general legislative level marine environment issues are regulated by the Law on the Turkish Coast Guard Command, Law on the Environment, Law on the Coast, Law on the Municipality and Law on the Response and Coverage of Damages in Emergency Situations caused by pollution of the Marine Environment by Oil and Other Harmful Substances. According to the latter, the powers, duties and

responsibilities regarding drawing up of emergency response plans, implementation of emergency response plans in coastal areas, determination of the type and effects of pollution are vested in the Ministry of Environment and Under-secretariat of Maritime Affairs. Generally, these two governmental bodies play important role in the marine environment policy of Turkey, implementing also functions and duties of basic administrative organs on the environmental issues. Apart from central governmental bodies, local authorities in Turkey have significant competences in the field of marine environment. Governorships, metropolitan municipalities and municipalities are responsible for the execution of laws and regulations related to the waste management in the coastal zones.

95. In **Ukraine** the central governmental structures managing issues of marine environment are represented by the Ministry of Environmental Protection (it includes specialized Division on the Black and Azov Seas and three state ecological inspections, respectively, for the areas of the North-Western Black Sea, Black and Azov Sea round Crimea peninsula, and for the rest of the Ukrainian coastal zones of Azov Sea), the Ministry of Public Health and the Ministry of Transport and Communication (it includes the Department of Marine and River Transport). Ministry of Environmental Protection have the territorial departments in all seven seashore provinces of Ukraine - Autonomous Republic of Crimea, Odessa, Nikolayev, Kherson, Zaporozhye, Donetsk and Sevastopol. Conceptual framework of the Ukrainian policy on the marine environment consists of the National Programme for the Protection and Recovery of the Environment of the Azov and Black Seas. National regulatory framework includes the Law on the Protection of Environment, Principle Legislation on Public Health, Code of Trading Navigation, Water Code and Law on Waste. In the 1990ies Ukrainian government adopted resolution on the adoption of rates for the estimation of compensation and harmfulness caused by pollution from ships and other floating facilities in territorial and internal marine waters of Ukraine.

## V. CONCLUSIONS

96. Generally, all the countries of the Black Sea region are in transition process of developing and updating their national instruments aimed at combating marine pollution. Actually, this developing process and elaboration of concrete instruments are quite different in different countries of the region; however, there are general trends on marine environmental policies of the countries. Each member state in its national policy aims at the prevention and prohibition of pollution in the coastal zones and shore-strips, improvement of the waste management and enhancement of the governmental control of environmental activities. The major legislative and regulatory tools for the protection of marine environment include basic laws, codes and specialized normative legal acts on the concrete aspect of the marine environment. Besides, there is a process of development of administrative instruments at the level of local authorities (municipalities, districts, harbours, province etc.) in the majority of member states. The EU member states transpose relevant EU directives and standards in their national legislation with implementation of best practices in the EU maritime policy.
97. The main streamlines of the process of improvement of national policies of the BSEC members states on protection of marine environment are the following: formulation of strategies, action plans and programmes in the concrete framework, reforms in the legislation, where the marine environment is the basic component, establishment of separate state structures dealing with the protection of marine environment and marine security, involvement of the civil society in the problems of marine environment, clear

- determination of roles and responsibilities of main actors in the field of marine environment (state and its organs, civil society and NGOs, business and various investors), establishment and development of wide cooperation with regional and global organizations, with various states, in particular with neighbour countries, as well as the integration in global regional initiatives, plans and strategies, becoming signatory party in international environmental conventions, protocols and agreements and on the base of this international cooperation an implementation of the environmental projects supported by the international financial institutions.
98. Having a significant potential in the evolution of cooperation in the environmental sphere, the Black Sea Economic Cooperation has not used its potential in an optimal way, mainly to incorporate environmental important approaches in the economic and social development of BSEC Member States. Despite of the visible progress in the marine environmental protection undertaken in the last 20 years in all the countries covered by BSEC region, there are still outstanding problems to be tackled both at the national and regional level.
  99. Environmental monitoring still needs major improvement that is essential for a regional assessment of the state of marine environment, and also for the establishment of further actions and measures in order to rehabilitate the damaged marine environment and to evaluate the risks.
  100. Integration of environmental concerns into economic sectors strategies and promotion of sustainable development is a priority, which should be considered at the national level but could have an impact at the regional level, particularly in the transboundary context. In this regard, development of economic and financial instruments as incentives for the protection of marine environment is a crucial aspect for all the BSEC member states.
  101. Integrated river basin management is also considered as one of the essential priorities in the protection of marine environment. It is well known that marine waters of the Black Sea region receive freshwater and sediment inputs making connection between the land and sea. Consequently, healthy environmental situation of the marine waters in the region closely linked to the prevention and reduction of pollution of the rivers and basins of the rivers flowing into the seas. Integrated river basin management takes into account the links between quality and quantity, surface and groundwater, resource and demand and the impact of rivers on the marine environment.
  102. Taking into account, in special, the impact of the climate change on one side and the development perspectives in the region on other side, sharing of experience in water conservation and pollution prevention will be very valuable and could contribute to a regional approach for adaptation to climate change. Another important aspect for the marine environment is strengthening hazardous waste management and trans-boundary waste movement. Waste management in general is a problem at the level of entire region. Therefore, an exchange of experiences could be of real benefit for all BSEC member states and could contribute to an important increase in the level of marine environmental protection. Trans-boundary movement of waste in the maritime areas of the region is a problem to be handled in a coordinated manner.
  103. One of the main management problems affecting most Black Sea countries consists in imperfect ability to apply the existing laws and regulations, including international agreements, which are the essential part of the national legislation in every state of the region. Declaration of efforts and intentions for close cooperation should be reinforced by proper implementation of the regulatory framework that is a prerequisite of effective cooperation on the protection of marine environment.