PREFACE

Republic of Montenegro is a member of the State Union of Serbia and Montenegro, which is set up after decomposition of the SFR Yugoslavia. Montenegro has a competence in leading of all the activities, which arise from the Barcelona convention, because the Mediterranean area, on which the convention is related, in the whole belongs to its territory. SFRY has ratification the Convention, and the process of the new ratification from the part of the present State is in course. From this fact Montenegro in present time receive formal right on connecting and participation in the realization of the activities, which are related with MAP to formal connection.
Because of the objective reasons in Montenegro isnt formaly addopted the Strategical action plan (SAP MED-addopted in 1997.year), which is related on the sea pollution from land sources and activities, but from 2004. is intesived the work on implementation of all the activities, which arise from it.
SAP MED need to indentify the main sources of sea pollution from the land, to point on the possible measures of control, to show the financial sum of these measures and to bring the temred working plans for its implementation. The accorded aim is that SAP MED protect the environment of the sea nad the coast, through prevention and reductionof the pollution emission, elimination of the emission influence, developing and carrying out of the national action programs for the protection of the environment of the coastal sea from the activities and the pollution sources from the land. Based on the individual activities, which are identified in the SAP MED, is brought the National action plan, like operative long-term aim of the SAP MED. In accordance with established aims and activitivities of the SAP MED, in NAP is doing the identification of pollution on the land and determine the pollution sources. NAP include the aspects of bilateral, regional and international cooperation, from which depend its sucesfully implementation.

EXECUTIVE SUMMARY

National action plan (NAP) is very important product of the Strategical action program (SAPMED). Base for NAP prerаration represent the Basic emission balance (BB) and National diagnostic analysis (NDA) for the Montenegro coast., which are prerared in 2004.year. NAP has the review of existing sources and nature of pollution from land sources, then the review of predicted activities, priority actions and other legal aspects for the NAP implementation. Also, NAP has the final aims for the reduction and/or elimination of the pollution from the land sources.
Non-regulated question about management of communal waste waters, which are not refined, is the key priority on the Montenegro coast. Therefor, the priority actions are pointed on the reconstruction and spreading of the system for collecting and discharging of waste waters and building of the WWTP with necesary level of refining of water. Priority actions include and spreading of communal service area, building of sanitary landfills, selection and waste recycling. Program of priority actions include also the management system in both these sectors, which include and defining the subjects of management system. Shipyards and maintenence of ships (heavy metals, organochalogens) in existing state are the activity to be worried about, from great

importance, but on limiting localities. Problem of its emission must be urgently solved, and the optimal way is introducing of the Best avaiable technics (BAT) and Cleaner production (CP) Activity of storage and distribution of petroleum and fuels (mineral oils, heavy metals, PAH) is of midlle importance. Potential danger of bigger amount order the use of cleaner technology. Existing industrial emission (heavy metals, pesticides) is of smaller or to be ignored, like and agiculture (pesticides).
Addoption of new regulations in national legislative will create the conditions, obligation and control of the reduction and elimination process of pollution emission. To the positive effect in this way will contribute and Montenegro cooperation on the bilateral, regional and international level, with serie of individual, concrete projects. In these conditions, implementation of aims and NAP tasks will be more efficient and effect, with final result of emission decrease and preserving of environment quality of the sea on this part of the Adriatic sea.

PART 1 – SCOPE

1.1.OVERWIEV OF THE NATIONAL ISSUES REALTED TO LBS PROTOCOL AND SAP

Like part of the former common state SFRY, which is ratificated the Convention of protection of the Mediterranean sea from the pollution, Montenegro is included into realization of this convention and its protocols from the start.
Forming of the common monitoring network, Montenegro is begun the realization of the pilot project addopted Protocol for Mediterranea sea from the pollution, in framework of the Mediterranean action plan (MAP), known like MED POL-PHASE-I, which has been realized in period of 1975-1080. Experiences from this program has form the way to the new "Long.term research and monitoring programm for Mediterranean sea pollution", known like MED POL-PHASE-II. The contents of this program has involved four levels: Monitoring of the pollution sources, monitoring of the coastal areas, including the river mouths, monitoring of the cave waters (referent area) and monitoring of the pollution by the atmosphere.
Decomposition of the SFRY has caused the reorganization of this area in every, and also in state view. Montenegro is in frame of new formed SRYugoslavia lost the formal-legal status of the memeber, what is confirmed by the sanction to our country. Following the traditional destination for active and cooperative participation in the region, to which belongs, Montenegro is trying to bridge the actual legal-policy bariers and on this field. In 90' of the last centuryin cooperation of Federal hydro-meteorological institute from Belgrade and Republic hydrometeorological institute form Podgorica is formed the program of activities in aim of inclusion in the MED POL phase II, program of the coastal waters monitoring. During several years (1994.,1996.,1997.,1998.) done the one day lasting researches of the water quality on the surface (0,5m) and on maximal depth, on 19 measure profiles along whole Montenegrian coast and in Boka Kotorska bay. The program has included the measurement of the organoleptic parameters, physical parameters, oxigenium regime, nutrients and some dangerous and hazardous substances,

microbiological parameters and radiological parameters. The program has realized in cooperation with Hydro-grafic institute of the SRY Army.
In framework of this program, in the 1993.year, on the meteorological station Herceg Novi is installed the station for the air quality, with aim of following the pollution from the land. The working program has included the analysis of the 24-hours samples of air on the contents of volatile compound in the air, contents of the basic ionic sorts in the precipitations and the contents of heavy metals in the precipitation and in aerosol. The bombing campaign of our country in 1999.year stoped these activities.
Today the Government of Montenegro create the legal and other assumptations for proceding of the full activity of Montenegro in programs predicted by the Convention, even numerous important elements from the program MED POL PHASE-III, including the monitoring of pollution of the "hot spots", monitoring of the waters for recreation and marine culture and other, failed without no returning.
Preparation of the documents BB, NDA and NAP should manage the sanation of the missed activities and to create the conditions for the sucesfull including of the Montenegro in the next program of the MED POL-PHASE-IV.
Also in course is the activity related with other MAP protocols, programs of MARPOL, management of the coastal areas, Mediterranean strategy on the national level. Also, Montenegro is included into other important projects, like Adriatic-Ionic initiative, which is formed by the countries from the Adriatic coast, and is financed by the Italian Government, Contingency plan related on the procedure in accidental pollution of the Adriatic sea, Strategy of sustainable development of Montenegro, in cooperation with UNEPMAP and UNDP etc.
Realization of all these activities and programs is international obligation of the country and preparation for the conditions in approaching to the EU. Preserving the continity of the participation in the MAP and decrease of the quality of these activities manage the sucesfully coordination of the region, state and local communities in aim of sucesfull implementation of the principles of the sustainability, through concrete programs for preserving the quality of the Montenegro coastal environment and Adriatic sea in the whole.

1.2.NATIONAL JURISDICTION

National jurisdiction is based on existing legislative. The most important legal acts, which regulate the area of the protection of coastal area and the sea are listed, as follow:

1.2.1. Water law

Law about waters define the used and protection principles in the water sector. In article 2 says that the water can be used in the way that don’t endangered its natural characteristics, don’t lead in danger the health and life of people, don’t endangeres the plant and animal world, ambient and ecological values.
Water power activity is from public interest and include water management, water protection and providing of water for use. (article 3). In the article 7 are defined the water areas: basin of Black sea and basin of Adriatic sea. Harmoniying of the use and

protection of water is planic activity in competence of the Government of Montenegro (art.9). In aim of aprovation of the assesment in the water sector is neccessary to have the water power agreement, by which is confirmedthat the technical documentation is done in accordance with water power conditions (art.12). Permission for the use of object gives Monistry of water power, wih previous opinion of the Ministry of health (art.15).
In the article 26 is given the protection of the water from pollution, by banding, limitation or undertaking other measures for preserving and improving of the water quality. Protection of water from pollution implement in the accordance with the Plan of protection, which bring the Government. Because of the protection of the water quality and determination of the level of use, is done the systematic analysis of water quality and determination of the quality and quantity of water for each year, which do the organ for hydrometeorological works(art.30).
Legal of civil persons who discharge the pollution into natural recipient or public sewage system are obligated to measure the quantity and quality of the effluent on regulated way (art.31).
For use na dprotection of the waters exist the compensations: compensation for using the water, compensation for water protection from the pollution, compensation for extracted materilas from the water current, compensation for use of water power objects (art.42). Means are payed into Budget of the Republic Montenegro and are used among the rest for the water protection of the pollution.
The inspect supervision do the Ministry for water power, through iits inspection service. By the Law are predicted and the punishment regulations.
In the preparation is and new Law about the waters. Main reason of its bringing is relatively good legal text of the existing law to be rearange in accordance with the principles of the Framework directive about waters.

1.2.2. Environmental law

Law about environment, adopted in 1996., is harmoniyed with EU regulations, but should not content the articles, which cleary regulate the question of waste management and accordance with Directives about the waste (Directive about the waste 75/442/EEC, Directive about the hazardous waste 91/689/EC, Directive about landfills 1999/31/EC).

1.2.3. Law fort nature protection

Aim of the law is to protect the anture like one unit (art.1), in the process, which is from special social interest (art.6). Portection of the environment is lead especialy through:
-determination of the relation of the man among the nature, in aim of providing the permanent use of the nature,
-putting under protection of mobile and immobile objects of live and deth nature,
-prevention of the actions which can endangered the nature, especialy the protected objects of nature,
-providing the most favorable conditions for protection and maintenance of the protected nature objects (art.2).
Basic principles, on which is based this law are:
-biological diversity,

-decrease of the risk,
-polluter pays,
-obligated ensurance(art.7).
By the law are predicte and bans and limitations for the activities which pollute the environment.

1.2.4. Law about sea good

Management of coastal area, sea good, its promotion, use and protection are arranged by the Law about sea good Sea good is in the public property (art.4). In aim of more efficient reaching of the aims of sea good management is formed the independed firm, Public firm for sea good management, in Budva, which has founded the Assembly of the Republic Montenegro (art 5).
By the decision of foundaing of this PF is defined its activity: protection, arangement and promotion of sea good use, building and maintenece of infrastructure of the objects for sea good needs and other.
In aim of efficient law use, baed on this law are bringed some sub law acts which deteailed regulate the questin of the compensation for the sea good use, making of register of sea good, maintenence of sea good and other important questions.

1.2.5.Space plan for the area of special purpose for sea good

Space Plan for the area of sea good start form the point that the zone of sea good is a valuable complex of natural and producted values, and in the samee time and limitation factor of the development. Because of that the main task of the Plan is oto suggest the lines for sustainable use and sea good protection, having in mind the specific and limitation, strategy of development of Montenegro and international standards of management of this area. These aims include:
-rational use of the resources, with prevention and elimination of posible negative consequesnces, especialy related with the environment,
-prevention, promotion and development of the values and determination of the regime of the space use,
-organiyation of the initiatives of education, science, cultural type,

- starting of new complexes of the sea good researches.

In the Plan are defined the keyzones of development: Zone of Boka Kotorska Bay, Zone of Budva, Zone of Bar, Zone of Ulcinj.
Network of settlement should to receive the characteristics of polycentric system and diferent hyerarchy statute of the settlement.
Special accent is put on the evironment protection. The most acceptable principles of sustainable development(UNCED, 1992: Rio Declaration) for this area are:
-Humans have central place;
-States have sovereign right to exploatate own resources, with environment protectio, in accordance with own regulations;
-realization of the rights for development;

-in aim of reaching the sustainable development, state must reduct and cancel the non-sustainable ways of production and consumption and increase the demographic development;
-public participation in environment protection;
-state undertake the measures for prevention inthe environment protection;
-providing of financing in the field of environment protection;
-obligation of assesment impact on the environment;
-peac, development and protection of the evironmrnt are inter related and nondevided.
Also are included the principles form Pan-Europe strategy for protection of natural areas and biodiversity (10), principles of sea protection and coastal area from »Direction of development of Montenegro-ecological state« and other.
By the Plan is predicted of sea good management: strategy of integral management, development of all kinds of protection of sea water and ecosystem, conditions for balanced use of the biologivcal sea resources and protection of littoral and the same coast.
By the Plan are also defined the long-term aims and policy of the evironment protection, measures and protection and other.
It is estimated that the minimal financing frame for the plan implementation could be provided from own accumulation (up to 2020) and partialy from foreign credit.
Now is in the preparation the suggestion of the Space Plan for the sea good area, which will accept the prepositions and sugestion , presented on the public tribunes, during plan presentation, and other activities.

1.2.6. Regulations considering sea area

Regulations direct related with the sea are given below. One of main regulations, which are related to the protection of sea eco-system is the Law about discharging of ballast oiled and other waste waters into sea water of Montenegro, which is in phase of adoption. Non-existance of this protective regulation already have bad consequences on the marine ecosystem.

Law about sea good	«Off. pap. SRM», No. 14/92
Law about sea fishing	«Off.pap.of RM», No. 55/03 and 40/04
Law about coastal sea and epicontinental belt	«Off.pap. of SFRY»,No. 49/87 and 57/89 and «Off.pap.of SRY», No. 24/94 and 28/96
Law about nautical and internal navigation	«Off.pap. of SRM», No. 19/78, 8/79, 19/87, 22/90, 13/91 and 48/91
Law about transportation of hazardous substances	«Off.pap. of SRY», No. 27/90, 45/90, 24/94, 28/96 and 68/02
Regulation about maintenance of the order in the ports and on other parts of the coastal sea and internal navigation ways	«Off.pap. of RM»,No. 34/92 and 23/95
Decision about conditions, time of use and amount of the compensation for use of sea good	«Off.pap. of RM», No. 27/92
Decision of foundation of the public firm for sea good management	«Off.pap. of RM»,No. 25/92
Book of regulations about determination of the line on which water stand to be salted in the rivers which are discharged into the sea and	«Off.pap.of RM», No. 10/04

determination of the limits of fishing bans	
Book of regulations about price list for compensation for done damages, done by illegal fishing	«Off.pap.of RM», No. 10/04
Book of regulations about construction-technical bases, eye magnitude, was of use and purpose of some sorts of nets and other means for economy or sport fishing, extraction of shells, corals, sponges and sea plants.	«Off.pap. of RM», No. 10/04
Book of regulations about the way, sort and quantity of fishing equipment which can be used into sport-recreative fishing and the pattern, number and content of the permission.	«Off.pap. of RM», No. 10/04
Book of regulations about conditions, limitation and sequence of fishing on some fishing areas or zones.	«Off.pap. of RM», No. 10/04
Book of regulations about form, contents and was of leading the journal about fishing and growing.	«Off.pap.of RM», No. 10/04
Book of regulations about compensation amount for the economical fishing (fishing and growing), pattern permission and leading the register of given permissions.	«Off.pap. of RM», No. 10/04
Book of regulations about production and maintenance of the register of sea good	«Off.pap. of RM», No 21/97
Programm of sistematic analzsis of water quality on and public beaches.	«Off.pap. of RM», No. 13/00
Command about prohibition of hunting and putting in market of young fishes, ungrowthfishes and other sea organisms.	«Off.pap. of RM», No. 10/04

1.2.7. Law for airt protectionr from pollution

By this Law is regulated the question of protection and promotion of the air quality, in aim of the people health protection, environment and material goods (art.1). Air is under special protection of the society (art.2). Air quality (imission) is conroled among two level regulate values of pollution substances: limitation (short/term and long-term) and strict limiting values (short-term and long-term) which are registred for touristic and ercreative area, or are the values to whci should gravitate. Installation which pollute the air are obligate to measure the effluent quantity (emission), on the sources of pollution. Measures for air protection are lead on municipal level (art.8), through space-urban planning, bringing of regulations, organizing the emission measurement. The Republic undertake the measures for air protection through plans of development, space plans, bringing of regulations and normatives, organizing and financing of the monitoring.
Objects-sources of the pollution are obligate to maintene in order the equipment for the emission reduction, to measure the emission and to provide investment-technical documentation, which is related on the sort and the quantity of pullutants.
Supervision among this Law do the organ for the works of sanitary supervision. Polluters pazs the measurements of the emission on own sources. Monitoring of the imission, through the program which bring the Government, lead the organ for hydrometeorological works and is financed by the Government for the budget.

Law predict and penalty regulations.
This is the oldest valid law. Probably soon will be prepared a new law, which should relatively good law text and system of sub law acts, change in accordance with EU regulations and domestic posibilities.

1.2.8. Criminal statute

Necesary principle of violation and fault (punishment) in the field of environment protection, which is a part of particular laws, has find the special place in **Criminal code (**Off.pap. of RM, No.70/03 and 13/04). This Code define numerous criminal acts in the field of environment protection as: criminal act of pollution and non undertake of the measures of protection of environment; illegal building and functioning of the objects which pollute the environment; damages of the objects for the environment protection; damages of the environemtn; destroz of the flora and fauna(especialy protected species); theft, destroying; damage and exportation in foreign of protected natural good; inport of hayardous materia in Montenegro; prohibitet processing; disposal and storage of hazardous materia; non execution of the decision of the measures of the environment protection; violation of the law on the informing about the environment state; in Montenegro illegal fishing and other.

1.2.9. National institutional framework

»Package of the measures of legislation restructing« Of the Montenegro Government, is set the line for modification of the institutional frame. Preposition of institutional erconstruction is based on the following principles:
-cleary defined competence division,
-clear division of the private and public tasks,
-clear cominication network,
-readness for the dialogue and parthnership,
-implementation of the organization,
-easy avaiable information,
-development of integrate human resource,
-cleary defining of all instructions and permissions,
-integrate system of the monitoring and control.
Existing division of the competence include:

- Council for sustainable development – Advisory organ, which main competences are: development of the legislation, policy, measures and indicators of the sustainable development; solution of the conflicts environment-development; implementation of the global agreements, like Agenda 21.
- Ministry for the environment protection and physical palnning – Central Government organ, which take care about the system of environment protection.Competence of this ministry covers the following areas: system of environment protection, sustainable use of natural resources;nature protection, natural goods and biodiversity, protection of the marine organisms; hazardous waste; strategical estimation of the impact onthe enviroment; integral prevention, control and following of the pollution state; economical instruments and eco-management; production of the standards of the environment

protection; information system of environment, polluter register; sanation programms; water protection from the pollution; sea good; international cooperation.

- Ministry of water power, forestry and agriculture- Is competent for following areas: Portection of flora and fauna; sea fishing; arrange of water and its currents; use of water resources.
- Ministry of navigation and traffic – marine traffic, ports, marine and shipyards; determination of the indicators and following of the pollution from the vechicles on the emission source; undertaking the measures in the case of pollution.
- Water administration – Forming of these coordinative organ for the water sector is predicted by the new Law about waters, which is in the preparation. Competence isn't still defined.
- Agency for the environment– With development of the new regulations in accordance wth EU legislatives and activities in the field of environment protection, is present the need for forming the central coordinative body in this area, by which will, in the first part , be precised the competences in this sector, what is now a big problem. Agency would be responsible for:

-implementation and control of the legislative about the environment,
-giving the ecological permisions for foundation, work and closure of the objects, which are in competence of the Ministry for the environment and physical planning,
-giving the all permisions for transportation, storage and treatment of the mud and the waste,
-conduct of the supervision over the environment from all ecological asspects,
-ecological certificates for the installations and used processes,
-forming the data base about the environment and submit the reports.

- Administration of navigation safety, Bar – Its main competences are: Safety of the navigation on the coastal sea; maintenence of the navigation sea ways and safe navigation; prevention of the sea pollution and environment; implementation of the IMO and other international regulations.

1.2.10. Local institutional framwork

The most important representatives of the local institutional structure are the municipalities. The municipalities are the carryer of the activity on the local level, which are defined by the national legislation (Law about local administration). Its competence is on the field of doing the tasks from local public significance, in acordance with the legislation.
In accordance with the Law, municipalities especialy must to:
-manage with municipality good,
-provide the conditions for economical development and do the tasks in the field of industry, tourism and agriculture,
-lead the space planning, interventions into the environment, building and ensure the public service for land building,
-provide the conditions for housing construction and increase of housing actions,
-regulate, manage and take care of local public service,
-take care about the air pollution, land protection, water resources, noise, collecting and disposal of the waste and other activities of the environment protection,

-regulate and maintene the municipal water and energetic objects,
-build, maintene and regulate the public traffics and streets, recreative and other public surfaces, public traffic etc,
-organize the help and rescue in the case of the elementar catastrophies,
-adopt the municipal legislation acts,
-organize the municipal administration,
-promote social ensurance, ensurance of pre-school children and elementary children ensurance, families, social depended persons, handicaps and oher persons,
-promote sport and culture,
-promote and regulate other activities fro local significance.

Also, the municipalities do the statistic, archive and analitic activities.Municipalities regulate the work of touristic-caterer objects, restoraunts and caffes.
Municipalities Herceg Novi, Kotor and Bar have alsi and additional task and competence to:
-Provide the health service on the secondary level,
-organize public transport (intercity, airports),
-found the network of middle and high schools and faculties,
-organize, promote and implement the manifestations of touristic-festival and cultural contents.

In aim of more efficient and rational implementation of some tasks, the State through law entrust the solving of these tasks to the municipality, with previous agreement.

1.3.DEVELOPING OF THE SAP/NAP STRATEGY AND APPROACH

Realization of the activities on the development and addoption of the strategy and the approach of SAP/NAP is created by the aim of the Republic Montenegro and State union for approaching to the standars of the EU and join to the European Union. In the same time, this is the reflection of declaired aim and effort of the Montenegro to obtain a high level in the environment protection, having in mind the basic principles of the protection and preserving the environment. Changes in that sence are in the first place related in formuling and addoption of the new legislative, which strictly follow the EU recomandation, labour to satisfy the requests, related to the environment, commerce and similar ("State relation towards the environment").
Implementation of the Strategy for sustainable development, which is in the preparation in cooperation with UNEPMAP and UNDP, and other regulations, will provide the planned increase of social product and general economic development in the framework of the sustainable development, parallel with more efficient use of the national goods, ecological resources, with nature protection by improving the environment quality. Changes in the society, which are in course, in field of economy, ecology, legislations, first of all, will make possible the use of ecological resources and natural goods along with resection of the principles of sustainability and society load, what will be influenced by the transition towards the development-ecological model of reinforcement of the sustainability and optimal preserving of the ecological goods.

By the acquis of communautaire in national legislation is done the intencioned change of the policy of the environment protection and its implementation in the framework of national sector management. In aim of more efficient realization of established objectives, the implementation of the sectoral management is defined through national sectoral programs, in short-term period and orientation programs, in long-term period.
Based on addopted sectoral programs for individual areas of the environment, is formed the integral approach for SAP/NAP preparation.

1.4. METHODS OF IDENTIFICATION AND ASSESSMENT OF ISSUES

The issue identification and evaluation, like a phase in the NAP preparation, is based on the documents National Diagnostic Analysis (NDA) and Basic emission balance of the pollution substances Baseline Budget (BB). These documents are prepared during 2004.year, because of already mentioned reasons of later inclusion of the State Union, that is Montenegro in the MAP activities. In frame of the NDA are treated all national occurrences and problems: Sources of pollution and degradation of the environment, pollution substances, physical changes and endargement of the habitat, significance and magnitude of the pressures, endangered areas. BB document treat the quantity emission of pollutant substances from some sources of pollution. It should to make possible the establishment of the recommended level of emission decrease in some administrative regions and on national level. Having in mind mentioned state and problems in this field, and the fact that is talking about estimation of the emission quantity for the most sources, BB will realize this its function only for some sectors. The favorable is the fact that is talking about the sectors, which are the most problematic and where the pollution emission has the most influence on the environment: communal wastewaters and solid waste.
Ship construction has a great influence but it is on narrow localization. The same is for the port activity (Port of Bar), and for the sector of storage and distribution of oil derivates and fuels. Industry on the present level is from smaller importance, like and agriculture and road traffic (air pollution). In every case there is lack of the data for reliable evaluation of the emission through quantity and the substances sorts.
In the opreparation of these documents are consulted all present and avaible documents and individual reports, and especially Master plan for management of the wastewaters for montenegrian coast and community Cetinje, Master plan for managemant of the solid waste in Montenegro and Space plan for the area of sea good.
The analysis are pointed on the several sensitive space zones. Kotor Bay from the aspect of discharging the severage waste waters, zone around the Shipyard Bijela and Remount institution Tivat, from the espect of the emission of heavy metals and organic toxicants, zone of Port Bar, form aspect of the discharging of the waste waters, heavy metals, organic toxicants, mineral oils, are identified like possible "hot spots". Like sensitive zones are identified Mala Plaza in community Ulcinj, from the espect of communal waters, zone around mouth of cannal Port MIlena, from aspect of communal waters and zone around the mouth of the river Bojana, from aspect of diferent sources, identified and not identified. Endangered zones are and salted habitats of Solil near Tivat and Ulcinj field around saltwork, in Ulcinj. Whole Boka Kotorska Bay is known like national "hot spot". Solution of the problem of this area, from the aspect of disharging the waste waters

and communal and industrial solid waste have priority significance. Completion and get in function of the collector system Trašte, through which the waste waters from the bay will be discharged far from the bay in the open sea, like the construction of the WWTP, regarding the Master plan, have the priority in solution of the problems of the environment of the land and sea in this area. The program of priority actions for this area also involve the adequat treatmnet and reduction of the heavy metals emission, organic toxicants, mineral oils, oiled waters and ballast waters form the Shipyard into the Bay. The program of priority actions must involve permanent and reliable measurement of the emission from the pollution sources and state of the environment (monitoring).
Priority actions for other administrative regions must be coordinated with the activities and the visions of the development on the national level, and the program must be harmonized with mentioned Master plans and legislation base, which is in the preparation.

1.4.1. Marine area endangered from the land based activities

• *Boka Kotorska Bay*
Even the Boka Kotorska Bay enters in the land at 15 nautical miles, directly is linked with open seawaters of South Adriatic. Boka Kotorska Bay is complex and is composed of external (Herceg Novi Bay), middle (Tivat Bay) and internal (Risan-Morinj and Kotor-Dobrota Bay) part. External and middle parts are linked with Kumbor neck, and middle and internal, with Verige neck, 340 m wide.
Internal part of the Bay is precipitous, with narrow coastal zone. External part of the Bay is lower, with more lower ground (Tivat, Mrcevo and Grbalj field and valley Sutorina). There the coast is wider, up to 10km. Precipitous mountain ranges of the internal part of the Bay receive the most precipitaiton sediment in the Montenegro. Here is the locality with the higest quantity of the precipitation in the Europe, Crkvine, with average year sediment sum of 4.623 mm. Thanks to the mainly karst ground, permanent currents almost don't exist, so the atmospheric water, except of the surface runoff, discharge by the underground way, cracked and compressed groundwater and springs on the sea bottom, among which is this Bay, mostly its internal part known.
Fluvial-graphic regime temporary significantly influence the decrease of water salinity in internal part of the bay. Except this natural factor on the endangered of the sea environment decisive influence and human activities: communal waste waters, shipyards, distribution of petroleum derivates.
♦ »Adriatic shipyard« Bijela include around 350 km^2 of sea area. The lenght of the operative coast is 1.200 m. It has a posibility for ship remont up to 120.000 t portability, like and servicing of the ship engines, turbins, regulators etc. The shipyard has two tugboats of 450 KS and 250 KS and necesary infrastructure: trafostration, aquaducts network, tank for used oil, storages, workshops etc.
Compsumption of the water in the Shipyard is around 136.800 m^3/year. During 2003. year in technological procedure is produced the following quantity of the waste: 8.000 t (waste in the process of rifling of old paint from the ships), 1.000 t of old iron, 5.000 t of oiled water from the ships, 200 t of the mud from the ships, 150 t of grease waters. Oiled waters, mud and greese waters are disposed into separator station PP"Hemosan" from Bar, from where is transported out of the country. Scrap iron is sold. »Grit« from

treatment of ships is disposed on the local non-covered waste dump. It is not a rare occasion that about remont of the ships, ballast waters, fuel and grease, oiled waters are uncontroled and non-allowed discharge into the sea. Other waste: gum, glass, paper, wood, concrete, plastic, isolation material, is disposed on the local waste disposal.
»Grit« contents the large amount of heavy metals (Cr, Zn, B and other), than PAH. Ground on the local disposal of the grit is because of that contamined by the heavy metals (Pb, Cr, Ni, Zn, B) and PAH. By the emission from the Shipyard, is contamined by the heavy metals, mineral oils and PAH, the sub sea and the sea living world in the vicinity (sediment and shells). Shipyard occupy the main part of the coast of the settlement Bijela.

♦ Metal industry "Daido" is placed into industrial zone of Kotor in Grbalj field. It work on the galvanic processing of the metal. The industry has ownself, bordered, temporary disposal for the liquid and solid waste, from where is done its transfer. Consumption of the water is around 12.000 m^3/year.
In its technological work produce the higly toxical waste. Galvanic mud which production is 700 l for month, contents heavy metals Sn, Pb, Cu, Fe and resin. It is postponed in the burrels, placed into ensured disposal. There is produced around 5.000 kg for month. It is disposed in the metal burrels on the dump. This waste is recycled in Republic Serbia. Quantity of galvanic waste waters is 5.000 m^3/year. They are released into public sewerage system, after technologicasl treatment on the apparatus for purification of type "Surey". In it are the increased the contents of the iron, lead, nical, chromius, tin, but in the permited levels (through one day lasting analysis of the referent institution). Sanitary waters without treatment are released into public sewerage system. They have increased number of fecal bacteria (E.coli, Enterobacter, sp.Bacillus sp.). On the saniraty sewerage system is connected the atmospheric. The quantity of this water isnt measured.

♦ A.D.«Jugopetrol« Kotor do the storage and distribution of the pertoleum derivates in Montenegro. Working objects are placed on the locations, sensitive on the pollution. The most important instalations in the Bay are:
- Petroleum instalation Lipci placed into internal part of Boka Kotorska Bay, on the same sea coast. Dispose with five reservoars of total capacity of 12.200 m^3, around 5.000 m of pipe network, ship moor capacity of 6.000 t and draft depth of 8m.
-Airoplane service Tivat placed in vicinity of the airport. Location Bonići serves for receiving the merchandise by the sea way for ships up to 3.000 t of capacity and draft of 5,2 m. It is with underground instalation lenght of 960 m linked with other object, which is formed of reservoar of capacity 4.840 m^3 , diesel aggregate instalation, pumps, auto refill 50 t/h capacity, trafostation, reservoar with antifire water and pump, and administrative and working buildings.
Technological and atmospheric waters on the instalation are collected in the separators for mechanical separations. Surface layer of petroleum oils is removed and is again in use. From the last tank water is discharged directly in the sea, only when there is a inflow of the liquid (for example rain). Water in the separators is sometimes loaded with heavy metals, cianids, detergentes, fenols, and especialy mineral oils.
-Autobase in Radanovićima. On the object autobase exist the internal network for collecting of technological, sanitary and atmospheric waters. These waters among the

need discharge into network of public sewerage system. This water are temporary loaded with mineral oils, detergents, iron, zink, lead, fecal pollution
-Gasoline stations. Gasoline stations contribute to the pollution of surface waters, in the first place of pertoleum derivates and mineral oils. These substances by the atmospheric sediment or washing of the working surfaces being washed into internal drainage network. The stations are like the source of air pollution of volatile organic compounds (VOC), PAH and similar, like and surounding ground of the organolead compounds. Mostly in the use are the fuels with added lead and diesel fuels.
♦ Remont institution »Sava Kovačević« Tivat. In technological process are produced the hazardous waste substances, like strong mineral acids (HCl, H_2SO_4); Na-hydroxide, carbo solvents, fuel D-2 and gasoline (220 l) for washing of the equipment; used oil; grit from ship recolouring (loaded with heavy metals) etc.
Waste disposal is unadequate (mainly directly in the sea). The seriousness of the pollution problem is increased by the fact that the Institution is placed in the midlle part of the city, between two city beaches.

• *Sea area of Port of Bar*
The main pollution source of the closed sea area is »Port of Bar«.

♦Port of Bar is the biggest port on the Montenegro coast. It has 3.500 m of the operative coast, from what 2.500 m with sea depth of 10-14m, with terminals in the background. It is placed on the area of around 2.000.000 m^2, what represent 500.000 m^2 sea area, 1.208.000 m^2 of the open storages and 120.000 m^2 of closed storages; traffics (raod and train) - 155.140 m^2 , of energetic and other objects.
Port has special crans and bridges and other needed mechanizations. After business colapse in 90-teen years of the past century, working of capacities increase, even still now don't work with full capacity. Among data from the Port, in 2003.year is reload 521.849 t of general load, 1.025.985 t of interspersed load (mostly stone, petrolcoke and wheat) and 375.288 t of liquid load. It is estimated that after reload on the terminal (in the port sea area) is remain around 5.130 t of intersperse waste.
By working of the port mechanization, receives around 1.337 l of used lubricating oils for year. There isn't organized its collecting and lead away for the recycling.
On the Port area exist the installation for transfusion and storage of the alkali, acids and other hazardous substances, owner is Aluminium Mill from Podgorica, then installation for transfusion and storage of vinegar acid, owner MSK Kikinda, cooler "Centrokoop" and "Centrojadran" (cca1.000t) with amonium, like fluid for cooling.
In the Port are produced diferent contamined waste, which is composed of oiled waste (filters, pails, wraping materials, cuttings, means for cleaning); wraping materials from paints, polishes, nitrosolutions, anticorosive means, chemical means, hygiene means; waste for asbestos-cement pipes, pertolcocks, electrolitic resin, phosphates, alumina; used glass wool, mercury light bulbs, metal parts, small-oil highvoltage switchs with trafo oil, old batteries, gums. In the Port don't have selective collecting of this waste. All the waste is carrying away by the Port vehicle.
Other waste is composed from: cards package, glass, PVC, metals (Cu, Al); wood rests; used metal parts; concrete; old iron; organic waste. These waste is carrying away on the

city dump, except of old iron, wood palets, old gums, reserve parts and similar. The Port don't have the equipment for the receiving of ballast waters.

♦ Atmospheric waters, in which collector system are in\llegaly collected the drainpipes from numerous households, services and other objects, temporal and communal waste waters, discharge directly in the water of Port basin and are significant source of pollution and cause of bad ecological sea area quality.

♦ Installations of "Jugopetrol" have influence on the open part of sea, out of port. The sensitivity of the sea area on the accidental pollution in the occasion of overload petroleum is reported, having in mind that don't exist adequat equipment for timely and efficient intervention. In the accident from 2001.year. from ship-tank is leaked out in the sea 148 t of fuels D2, 60% is evaporated, 35% is collected and about 5% was non-collected.

1.4.2. Issue/Impact matrix

Like obvious and practical indicator of the preliminary estimation of the relative significance of diferent problems on the area of Montenegro coast serve like matrix issue/impact. Its preparation is enabled after completion of the NDA, in which are included the problems of diferent weight and significance. Mentioned ecological problems score according its pressure on the humal health, sea environment, socio-economical loss and global environment. Individual presures are primary registred from the part of the international SAP team, according to its weight and that the national NAP team have scored every impact, according to individual contribution of every problem. Calculated final score of every problem reflect the seriousness of its ecological influence. Also, the final results help in the selection of the priority problem on the national level, which must be solved for the time or after NAP implementation.
Issue/impact matrix for Montenegro coast is given in the Annex, Annex1.

PART 2 - NATIONAL ISSUES

2.1. INTRODUCTION

On the Montenegro teritory exist two basins: Basin of the Black sea and basin of the Adriatic sea. The basin of the Adriatic sea almost in whole represent the basin of river Bojana, which is, with Skadar lake, transboundary water, and because that isnt involved in this analysis. Beside through this river (river Bojana is a boudndary river toward Republic of Albania), medeierranea region of the Montenegro - Montenego coast dont have areal deeper hydrological connection with internal ground of Montenegro, from which is physicaly apart by the chain of high mountains.
Montenegro coast is in the ecological sense the most developed parts of the Montenegro. Problem of the environment for this area is increased by the lack of activities, which generate toxically pollution in more serious amount, and activities, which are, because of un-controlled emission, however bring to the visible worse environment of the coastal sea, first of all in sensitive water zones.
Monitoring of the water quality in Montenegro, and the waters of the coastal sea are in jurisdiction of the Ministry for watereconomy, forestry and agriculture. Toward determined program, monitoring is convey every year, in the period of 6-8 months of maximal pollution emission (spring-autumn). Based on autoritative values wide lists of parameters (physical-chemical, radiochemical, microbiological), is determined the class of the water quality and is compared with required class.
The basic fault of this policy of the environmt protection is the lack of the Register of the pollution emission, through sorts and sources of pollution substances. Subjective-sources of pollution don't measure the continious ownself emission (exept temporary). Disposal of the waste materials is done unadequatly and on non-registered way. These elements directly limit the posibilities of done NDA.
In the framework of the NDA are identified the main problems in the region.
The most serious sectoral activities among whole coast are: communal waste waters, which discharge, sometimes directly in the sea, without any pre-treatment and quantification; communal solid waste, which is postopned on the sanitary-technological and areal unadequate locations; tourism, which by the emission type is linked with previous activities.
Porblems of local type are ship making and remont of the ships, because of used technology and the way of posponing the very toxical waste; Port activities and distribution of pertoleum products and fuels. Port of Bar is the most bigger port on the Montenegro coast. It has regional significance. Now it works with decreased capacity. With full use of own capacities and the capacities of the train track Beograd-Bar, with realization of furter development plans, this subject will become the significant factor of the influence on the environment.
Industrial activity is less bother, because of representationa and present capacity in work. Metal industry in Kotor do the partial control of the waste. In food industry in Bar (olive processing) dont exist any control of the waste waters, which are discharging into bnatural recipient. Salt production in Ulcinj contribute to the saltening of the swamp areas in vicinity. Industry of chemical products and detergents in Kotor doesn't work.

Special problem on the whole coast represent the uncontroled and excess urbanization of the area. The big part of the objects are build in the direct coastal zone. The most part of the Boka Kotorska Bay is converted intop almost continual line of urban zone, and its menace all the coast. Thanks to the conditions of atmospheric dynamic, atmosphere pollution from local emission isn't so worry. There stand apart the influence of the road taffic (technical malfunction of the vehicle and distribution of the fuel), burning of the waste on the dumps for solid waste and stone exploitation. The most significance influence is transboundary transport and atmospheric deposition. From more important problems we put apart regional transport and deposition of desert aerosol from South Africa (influence on water and terrestrial ecosystems) and acid gasses, especially sulphurdyoxide from industrial regions of South Europe. Monitoring of these influences is just on the begining and isn't implied with regular state program.
Aspect of transboundary pollution of the water is linked with river Bojana and its basin. Because of the lack of data, it can not be brought any marks of this problem. Sollution of the problems, can not give any evaluation of this problem. Solution of this problems linked for pollution contribution and effects on river Bojana must be lead out with mutual sinhronize activity of the competent institutions of the Republic of Albania and Montenegro, and seriousness of this problem impose the need for international help.
This state has provoced certain consequences in the marine ecosystem. Identified sensitive zones are the Boka Kotorska Bay, especially Kotor bay and coastal Bar area, especially around Port of Bar, and in smaller measure area around mouth of Port Milena, on the Velika beach in Ulcinj. »Hot spots« are the zones of shipyards in Bijela and Tivat, and Port of Kotor, and, on the open coast, near Port of Bar, too.

2.2. IDENTIFICATION AND ASSESSMENT OF ISSUES

2.2.1. Sewage management

Communal waste waters are the main source of sea pollution. City's collector system are not integrated. User comprision with this systems isn't suficient. Parts of present systems are often in malfuction, because of old equipment or because of interumption in the electric power. Then the water is discharged throught accidental overflow, in coastal vicinity and causes allarmant water pollution. Sub sea drainpipes are inadequat. From more then 87 of evident sub sea drainpipes on the coast, only 10 are 1.000m of lenght. Many of its are damaged and are not in function on the whole projected lenght. Usualy don't have the diffusors or it are not in function. Nither municipality don't have the installation for refining of the waste waters. Waste water is discharged into coastal sea without any pre-treatment. Isn’t done the regular measurement of the quantity and contents of wastewaters, nor on this level of communal firms, which husband with waste waters, nor on the level of individual users.
Gap of the atmospheric water into sewerage network and sediment formation and solid waste into pipes make difficult the correct work of the collector systems, which are projected like separators. This is a cause of of many blocks of the gravitation sewerage systems and dicharging of the waste water on the streets. Solid waste is the cause of damaging and stop of the pump working. Sewerage network is inadequately maintened, what like consequence has the damages and open manhole and seddiment in the pipes.

The occurance of pouring the septic tanks into cannals for atmospheric water or into natural recipient is rare. About 25% of septic tanks from 6.000 hauseholds pours into cannals for atmospheric water. In winter period are disconected the pump station, because of saving the electrical power.
Waste waters from industrial and installations of small economy firms and services are discharged into public sewerage network, surface recipient (smaller temporary water flow) or directly in the sea, without any pre-treatment.
In Herceg Novi are characteristic numerous short drains, what endangers the quality of swimming water, health of different users and increase the level of water eutrophy.
The problem of numerous shorth drains and its harmfull effects are evident on the whole area of Kotor. Because from the closed coast of the Boka Kotorska bay and desalinization of the water by flow in of the sweet water from the land and from sub sea, influence of discharged non refined waste water realy endangers marine ecosystem and aggravate the sanitary-hygiene quality of swimming water, and by that endangers the health of swimmers.
The problem of waste water discharge on the area of municipality Tivat is inadequately solved, partialy from settlement to settlement. Because of that the most part of the waste waters is discharged into the Bay, what have for consequence the whole number of harmfull infuences, from water eutrophication, quality of swimming water etc.
Connection of the hauseholds on the sewerage network in Budva municipality is the highest on the Montenegro coast. The problems are identified in inadequate functioning of some its parts. Pump stations dont have adequate dimensioned damage discharges, so the waste waters are sometimes discharged near the coast.
The bigest problem on the Sutomore area, touristic settlement in Bar municipality, is the lack of discharge drain into the sewerage network. Because of that waste waters are discharged near the coast, endangering the swimming water quality.
In city Bar sewerage network the main problem is non-function of the discharge pipe through hill Volujica in the open sea. Because of that the waste water is temporary discharged into closed sea area of the Port of Bar. Indentified is also the problem of illegal connecting of the households, handicraft and other objects on the collector system of the atmospheric waters, which termined into port basin, like and drainpipes from households into riverbed of temporal river Željeznice. It is endangered the quality of coastal water for swimming around its mouth, increase the hygienic-sanitary riska and endangered the health of the population among the riverbed.
It is identified and the specific problem of satelite touristic settlements Dobra voda and Utjeha, which don't have nither water supply nor sewerage networks.
The biggest problem in the Ulcinj municipality are illegal drainpipes from the hotels on the Velika beach, like and households, in the Port Milena canal, around its mouth is endangered the quality of swimming water. Great part of the population and the touristic settlement on and in the background use the septic tanks, by which is endangered the quality of underground waters, which are usually used for irrigation.
Estimated quantity of wastewaters and polluted waste substances discharged by its, is given in the Tables 1-2.

Table 1.: Quantity of the waste water in the municipalities of Montenegro coast, in 2003.year (NDA,Montenegro coast)

Municipality	Households + tourists	Industry	Total	Households + tourists	Industry	Total
	Winter flow m^3/day			Sumer flow m^3/day		
HERCEG NOVI	3.600	600	4.200	6.800	600	7.400
KOTOR	800	100	900	900	100	1,000
TIVAT	400	900	1.300	600	900	1.500
BUDVA	4.300	0	4.300	7.300	0	7.300
BAR	3.600	3.100	6.700	7.700	3.100	10.800
ULCINJ	3.800	100	3.900	4.600	100	4.700
Total	16.500	4.800	21.300	27.900	4.800	32.700

Source: Master plan for waste water management of the Montenegro coast and municipality Cetinje

Table 2.: Estimated total emission of the pollution from inhabitats and toursts (NDA,Montenegro coast)

Municipality		Suspended substances	BCO_5	HCO	Total nitrogen	Total phosphorus
		t/year				
H. NOVI	Inhabitants	663,16	723,45	1.627,75	119,37	42,20
	Tourists	691,17	754,01	1.696,52	124,41	43,98
KOTOR	Inhabitants	460,66	502,54	1.130,71	82,92	29,32
	Tourists	153,84	167,83	377,61	27,69	9,79
TIVAT	Inhabitants	273,62	298,50	671,62	49,25	17,41
	Tourists	121,18	132,20	297,45	21,81	7,71
BUDVA	Inhabitants	319,37	348,41	783,92	57,49	20,32
	Tourists	1.130,53	1.233,30	2.774,93	203,50	71,94
BAR	Inhabitants	803,74	876,81	1.972,82	144,67	51,15
	Tourists	448,22	537,86	1.210,19	88,75	31,38
ULCINJ	Inhabitants	407,32	444,35	999,79	73,32	25,92
	Tourists	389,74	425,17	956,64	70,15	24,80
Total	Inhabitants	2.927,87	3.194,06	7.186,61	527,02	186,32
	Tourists	2.934,68	3.250,37	7.313,34	533,31	189,60
TOTAL		5.862,55	6.444,43	14. 499,95	1.060,33	375,92

In the Table 2 is evident the significant part of the tourism sector in the total quantity of waste waters. Seriousness of this problem is increased by the fact that this emission is mainly concentrate in the tree-month period of tourism summer season. On the Budva area the contribution of the tourists is dominant. Pollution emission from tourists is over tree times bigger then the one from local population. In bigger tourism centers, like Herceg Novi and Ulcinj, the contribution of these two pollution sources is approximately equal, and in other is bigger the contribution form the local population. Emission from the tourists in Budva represent around 1/3 of total emission from tourists on the Montenegro coast and around 1/5 of total emission. Estimated total year quantity of BOD is 6.444,43 t, total nitrogen is 1.060,33 t, and phosphates 375,92 t.

2.2.2. Urban solid waste

Communal solid waste is a second key source of pollution on the Montenegro coast. Solid waste management is totally inadequate. On the whole area don't exist any landfill, which will satisfy minimal sanitary-hygienic conditions. Because of that is increased the health risk for the community. The competence of collecting and delay of communal waste have local communal firms. Waste is postponed on the non-protected area, on non-protected locations, in vicinity of the settlement or the coast. Don't exist the selection of the waste, or measurement of the quantity and structure. On these dumps is done the non-selective burn down of the waste and often the self-burning of the waste. Unemployed persons, mainly of Rom nationality, do the bringing of the chosen waste, mainly from metal and metal products. Waste is exposed to the atmospheric influence and wash out by the rain.
Special problem is un-controlled delay of the shot and building materials among main inter city traffics.

Table3. Estimated quantity of the solid urban waste by its contents (t/year)

MUNICIPALITY	PAPER	GLASS	METAL	PLASTIC	TEXTILE	ORGANIC	OTHER
HERCEG NOVI	2.713	1.085	543	1.628	543	2.713	1.628
KOTOR	1.885	754	377	1.131	377	1.885	1.131
TIVAT	1.119	448	224	672	224	1.119	672
BUDVA	1.307	523	261	784	261	1.307	784
BAR	3.288	1.315	658	1.973	658	3.288	1.973
ULCINJ	1.666	667	333	1.000	333	1.666	1.000
TOTAL	11.978	4.792	2.396	7.188	2.396	11.978	7.188

Covered of the users of communal services is non-satisfying. Technical outfit of the communal firms is very bad. Public consciousness about the significance of the waste management is on non-satisfying level.
Together communal waste is postponed with the dangerous waste from different sector of activities. Identified problems in this waste category are inadequate delay and treatment, like and non-existence of the evidence for the quantity and contents.
On the picture 1. and 2. is shown the estimated participation of the some sorts of solid waste, and in the Table 3. estimated quantity of solid waste is among some categories.

Figura 1: Urban solid waste emission according to the type, in coastal area of Montenegro (NDA)

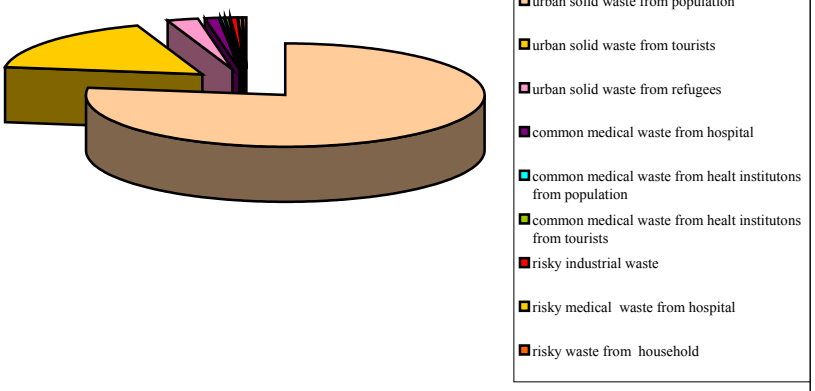
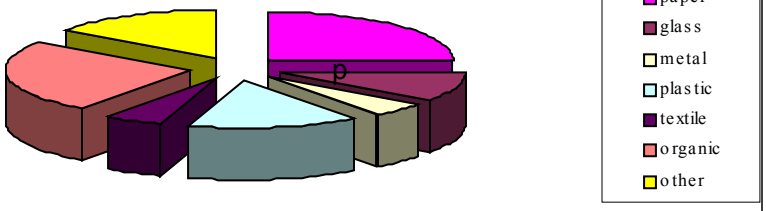


Figure 2: Urban solid waste emission in t/y , in coastal area of Montenegro (NDA)



City dump of the municipality Herceg Novi is on the higher quotation over the city, on karst ground. The contents don't have direct influence on the sea water, but because geological structure of the ground, can have the influence on the underground water and by that way on the coastal water (Morinjska river).

For the municipalities Kotor, Tivat and Budva are done the intermunicipality provisory sanitary landfill on the locality Lovanja, in vicinity of the main traffic road Budva-Tivat and runway for the airport Tivat. The landfill is built in 2004.year, with donation of the World Bank. With it manage the new-formed independent firm. Physically is secure. Surrounding ground protected with impermeable ground and foil. Waste is filled into formed cells and comprised, and then covers with the ground. The leak out is collected and then is lead away.

The most serious situation is in the municipality Bar. City dump is on the border of urban part of the town, even is physically apart by the hill Volujica. It is placed on the slope of

the hill on the same sea shore. Waste is inadequate postponed and burned down. By that is polluted the lower parts of the air in the settlement. Rains wash off the contents directly into coastal water.
The dump of the municipality Ulcinj is also placed on the inadequate locations, near the traffic road on the approach of the town. It is done the inadequate delay and burning down of the waste. The dump doesn't have the direct influence on the seawater, but can have the influence on the underground water. For the municipalities Bar and Ulcinj is planed the construction of the temporary sanitary landfill, with the donation of the World Bank. The procedure is in the phase of selection of location and providing of public acceptance.
In course are the negotiations about procuring the means for building of recycling center on the Republic level, in accordance with recommendation of the Master plan.
In the Master plan for management of solid waste in Montenegro is predicted the management of the communal waste, hazardous and industrial waste, mud from the installations for refining of the waste waters, and is developed and the strategy of waste recycling.

2.2.3. Hazardous waste

This is potentially huge problem on the Montenegro coast. The waste in the liquid phase is discharged into canals for the atmospheric water, natural tributaries, city dumps or natural grounds. On that way fast and in no changed chemical structure gets into sea water, from where enters into biological chains.
Solid dangerous waste is postponed on the city dumps or natural ground. Oils are burned on the dumps, by which originate still more dangerous gasses products, which pollute the air. The waste is exposed to the precipitations and is washed out into ground or sea area.
The seriousness of the problem increases the situation that isn't lead the control, selection or treatment of the hazardous waste. In this conditions, the most reliable mark of the influence of toxicity of the waste can be get through analysis of bioindicators species in the areas where is identified this emission.

2.2.4.Heavy metals

Big problem in this sector represent the lack of any evidention of sort emission of heavy metals. In the NDA are identified the liquid and solid emission of heavy metals. Delay of solid waste with heavy metal contents is inadequate and without treatment. Much more serious problem is liquid emission of heavy metals. Pollution sources are the Shipyard Bijela and Remont institution in Tivat, that is both in the sensitive part of Boka Kotorska Bay. Waste is from the ship treatment in the process of "repainting" of the ships and is directly discharge in the coastal water. or delay on inadequate internal dump, liable to the precipitation washing off. Evident are the cases of illegal delay of this waste on the natural locations in vicinity.
Metal industry Daido also is the source of the heavy metals emission. Solid waste is collected on the secure way on the internal landfill and is transported out of Montenegro. Liquid emission of galvanic emulsion is treated before discharging in to natural recipient.

Available results of the analysis shows that the contents of heavy metals don't cross registered values, but this is in every case inadequate way of delay and must be put under control.
Amount of heavy metals emission from these sources can be only evaluated based on individual measurements.
Smaller sources of heavy metals is and Port of Bar. Evidential about this source also don't exist.

2.2.5. Organochalogenic compounds

Like heavy metals.

2.2.6. Radioactive substances

Having in mind that in Montenegro isn't present the use nor production of the strong sources of nuclear (radioactive) radiation, these substances are not what to worry about. Bringing of this law about radiation safety (which is in a process of adoption) will regulated the question of evidence, control and diagnostic, then former used radioactive lightning rod, apparatus against the fire and similar), trazit of radioactive materials and influences of regional nuclear accidents. Competence for these works will have predicted Regulatory body, responsible to the Government of Montenegro.

2.2.7. Physical alteration and destruction of habitat

Construction of the coastline/alteration
The most population density in Montenegro is on Montenegro coast. On 148km of Montenegro coast, the urbanization level is very big, especially in the Boka Kotorska Bay, with tendency to transform the coast in unbroken line of urban agglomeration. The biggest density of objects is in the narrow area near the coast. Great part of this objects is illegaly built and isnt collected on water supply and/or communal network. Somewhere these are whole setllements (in municipality of Bar, Tivat) what represent big sanitary, health and ecological problem. Especially big pressure on this area is in summer touristic season, when are full numerous weekend houses and weekend setllements and other touristic objects.
So the coastal population is exposed to the change proceses and destruction of the conditions for living, and coast lose its ambiental and landscape qualities. Priority action is focused on the prevention of unplanned and illegal building and preserving of the coast in its natural state. This is excellent task of further Space plan of special purpose for the area of sea good and other plan and legal documents.

Mineral extraction/alteration
This activity is of small importance for montenegro coast. However, caution is for increase building activity on the coast and use of natural decorative stone, what can get the proprtion which will endanger the the coastal landscape.
Exploitation of building stone is present in a few quarry on the same coast or in direct background, in urban zones or on non-populated area. This activity is controled through

giving of concesions and procedure of public rivality. In every case is necesary to take care of further locations and measurements which will prevent the consequences of these activities, like: violation of the ground apparence, air pollution, covering of the ground with dust, covering of the sea bottom with the dust and endangered of its living world and apperance (that is avanturistic, diving tourism), disturbance of the coastal population by the explosions etc.
Uncontroled sand exploitation on the dunes in the background of Velika beach and on the same beach endager the rich ecosystem of the area, so this activity must be put under control and to limit or eliminate.

Salt marsh and salted habitats alteration
Swamp areas are endanger by the drainage in aim of building and touristic building and other redestination of the ground. Significant surface of the swamp area are Solila near Tivat and background of Velika plaza (Long beach) near Ulcinj. These are the significant habitats of swamp birds and migration birds. These areas are under protection like endangered, but is needed to ensure the mechanisms to implement the regulations in act and this value areas indeed preserve and sustain its biodiversity.

Sea water and basin coastal area
Degradation of sea water is evident in Boka Kotorska Bay, then near Shipyard in Bijela and Tivat, in the area of Port of Bar. In touristic season almost on whole coast is changed the quality of sea water, because of the influence of the organic substances, nutrients and fecal bacteria from non-refined communal waste waters, which are discharged directly in the sea. This is the most serious problem, and its solution is primary priority on the coast.

Biological alteration
Biological alternation still are not the subject of serious questions on Montenegro coast. The attention must be pointed on the pollution reduction from the land, discharging of ballast waters near the coast and in territorial waters of Montenegro and uncontrol and illegal fishing. In coastal sea are evident alohton species, like alga *Caulerpa racemosa,* near Budva, for which removing is already undertaken the action (Institute for marine biology from Kotor).

2.3.IDENTIFICATION OF PRIORITIES ACTIONS

2.3.1.Sewage management

Treatment and discharging of the effluent in Montenegro is regulated through regulations, based on the **Law about waters** »Off.pap. RM« No. 16/95, **Law about space planning and management« off.pap.** RM», No.16/95, 22/95 and 10/00, **law about environment protection**«Off.pap. SRM», No. 36/77, 39/77 and 2/89, **Law about environment** «Off.pap. RM», No. 12/96 and 55/00 and other. Except these, more imortant, which regulate this area are:

Constitution of the Republic of Montenegro «Off.pap. RM», No. 48/92
Declaration about ecological state of Montenegro «Off.pap. RM», No. 39/91
Law about building the objects «Off.pap. of RM», No. 55/00
Law about communal activities «Off.pap. of RM», No. 12/95
Law about sea good «Off.pap. of SRM», No. 14/92
Law about water supplying and discharging of waste waters and disposal of solid waste from the municipalities area of: Herceg Novi, Kotor, Tivat, Budva, Bar, Ulcinj and Cetinje «Off.pap. of RM», No. 46/91
Regulation about influence of impact assessment on the environment «Off.pap. of RM», No. 14/97
Regulation about compensation amount, way of compensation account because of environment pollution «Off.pap. of Rm», No. 26/97, 9/00 and 52/00
Regulations about the quality of waste waters and way of its discharging into public sewage network and natural recipient «Off.pap. of RM», No.10/97 and 21/97
Program of systematic researches of the water quality on water areas and public beaches «Off.pap. of RM0», No. 13/00
Zakonu o planiranju i uređenju prostora.

• Among the **Book of regulations about water quality and way of its discharging into public sewage system and natural recipient, waste waters are:** Sanitary waste waters, which origin like physiological need of the people and maintenance of the objects in which people stay; industrial waste waters, which origin from technological processes in the industry, agriculture and other activities; colding waste waters; Radioactive waste waters; Atmospheric waters; water from street washing; Drainage waters
Permitted quality of waste waters is given in the Table 4.

Table 4.: BCO of hazardous and harmful substances, which cannot be released into natural recipient and public sewage system

Parameter	Unit	Public sewage system	Natural recipient
Suspended substances	mg/l	<300	20
HCO form $K_2Cr_2O_7$	mg/l		45
BCO_5	mg/l	<500	30
Ammonia, like NH_4	mg/l	10	0.5
Nitrites	mg/l	10	0.5
Nitrates	mg/l	50	40
Phosphorus (P)	mg/l	10	1.0

Identification of priority actions is included in Master plan for drainage and refine of waste water of Montenegro coast and Cetinje municipality.

• *Master plan for drainage and refining of teh water of Montenegro coast and municipality Cetinje*

The intention is to form the legal and financial frames for request implementation from the Directive 91/271/EEC and Water framework directive 2000/60/EC. EU directive for coastal waters require that up to 2005.year all settlements bigger than 10.000 of population provide the system for secondary treatment of waste waters (especially for BOD5 and COD). In our conditions, in case of discharging into waters of Boka Kotorska Bay, like " very sensitive waters", are necessary and the reduction of the nutrients. In case of discharging in "less sensitive waters" of the open coast is necessary the primary treatment and drain of the waste water by long drainpipes into the sea.
Aim of long-term development (25 years) is covering of the users with sewerage network and drain of waste water to the WWTP, with needed tretment. By the long-term aim must be defined the phase investion plan and formulated several answers:
-Areas which will be covered with sewerage system. For setllements smaller then 1.000 habitants is more for covering with septic tanks. Out off 4km from the closest sewerage network exculpator the network investment for less then 4.000 of inhabitants. Because of that with the aim of long-term development predict that all smaller setllements remain out of sewerage network, except setllements in Boka Kotorska Bay, because of sensitiveness of coastal water of the Bay. Plan predict that about 33.000 of inhabitants and 28.000 of tourists remain collected on the septic tanks.
All industrial objects should be conected on the sewerage systems.
-Number and WWTP location. It is been analysed several options through several parameters, like needed capacities of WWTP, long-term standards for efluents for each location, costs of refining, costs of the waste water transport to WWTP, possibilities of phaze construction of each options, risks and consequences of ramp of each system from ordinary work, flexibility of submit the big variation of flow and load, influence of the environment. The concept is favorable to postpone of bigger investment for later.

Phase investment plan PIP
Projects of development of sewerage network are defined on the base of existing state and aims for long-term development. Defined are the priorities for projects, among following criteria: technical, populatio health, endangered of the environment, financial. Municipality phasal investment plans are treated through financial analysis, in aim to investigate its justification. The projects are ranked in tree phases:
1. Phase I (2004.-2008.)-For each project in this phase is done the analysis of realibility with estimation of influence on environment.
2. Phase II (2009.-2018.)-For projects from this phase is done the preliminary analysis of reliability.
3. Phase III (2019.-2028.)-The projects of conceptual development are prepared.

Identification of needed projects and forming of the priorities is done in cooperation with representatives of Public Enterprise for Water supplying and canalization, and revision of the phasal plan in cooperation with representatives of all municipalities.

PIP - Physical needs
In planed period is necesary build 120 km of collecting system and 44 pump stations, then 6 big WWTP and 4 small for aloof areas. With present about 150.000 inhabitants

and tourists conected on the canalization network, to the end of 2028.year that number sould increase to 430.000.
Ten big sub-sea drainpipes have adequate hydraulic capacity for evacuation of the waste water in the future, what will be of great importance for the marine and coastal environement. The necesity is for its reparation and midlle-term biger reconstructions. In that case the building of WWTP will have midlle-term or even long-term character.
Also, each of 27 existing pump stations must be generaly reconstructioned, and in planed period must be restored and 100km of pipes.

Table 5.: Types of works among estimation of the environment state in sector of waste waters

Action	Type of works	Remarks
Municipal sewerage network	Reconstruction of pump stations	
	Reconstruction in networks	Urgent interventions
	Reconstruction of big sub sea drainpipes	
	Cutting off of short subsea drainpipes	Redirection of the flow toward big subsea drainpipes
	Extension of subsea drainpipes	If the effect is proved
	Expanding of city parts of sewerage system	For settlements >2.000 PE
Water cleaning up	Construction of primar refine (elimination of solid waste, sedimentation)	In city areas <10.000 PE
	Construction of secondary refineing (biological refining)	In city area >10.000 PE
	Copnstruction of tertial refining (elimination of the nutrients)	In the sensitive areas (Bay, protected fresh waters, etc)
	Implementation of various dezinfection of the effluent	For subsea drainpipes <500m from bathing water (beaches)
Control of industrial waste water discharging	Collecting of the industry on municipal sewerage systems	Including agreement about industrial waste water quality and taxes for irregular releasing
	(Pre)treatment for industrial waste waters	Bars, removing of floating fat, releasing of untreated water in industrial zone
Septic tanks	Closed septic tanks for disposal at low developed rural areas	For settlements <2.000 PE

PIP - Forming of priorities
Except of mentioned one are taken into the consideration and some other criteria: providing of good state of the existing canalization infrastructure, elimination of accute problems which endanger the human health and the environment, promotion of maintenance and management, development of sewerage system and adaptation of republic and EU regulations about need of the waste water refining.

Full functionality of the pump stations is necesary. Its condition is bad (especially electro machine equipment), so the usual damages have the direct influence on people health.
The priority is and solving of the problem (eliminating) of shorth drains in Boka Kotorska Bay, which consequences endangers the inhabitants and swimers health and quality of swiming water.
Promotion of maintenence and management also imply the coresponding urgency.
Requests for waste water refining in the conditions in the Region don't define the urgency. the exception is Boka Kotorska Bay, where is necesary urgent building of WWTP because of prohibition of the influence on human health, quality of swiming water, eutrophication of coastal water and endangered of its ecosystems.
Influence estimation of some objects in the sector of waste waters on the environment, from which can be determined the level of its implementation urgency, is given in the Table 5.

2.3.2. Urban solid waste

Problematic of the solid waste management is regulated by existing and by regulations in the preparation:

-Law about environment (1996.),
-Law about waste (1981.),
- »National policy of waste management«
-Law abotu evaluation of influence on the environment (Draft)
-Law about integrated prevention and control of environment pollution (Draft)
-Law about strategical evaluation of the influence on the environment (Draft)
-Regulation about projects for which is prepared the report about evaluation of influence on the environment,
-Book of regulations about contents of documentation, patterns, reports about influece evaluation on the environment and public books,
-Regulation about installations and activities for which must own the integrated permision, about contents of program of measures
-Book of regulations about contents and way of lead of register of integrated permissions
-Book of regulations about contents of the report about strategical estimation of the influence on the environment and criteria

Government of the Republic of Montenegro has in 26.feb.2004.y. adopted the »National policy about waste management«, which contents the vision, concepts and aims established by the program of the environment development and existing national legislative.
The policy of integral and sustainable management with the waste in Montenegro establish the vision of future waste management and define the aims and strategy, which will lead to the predicted results. The purpose of the policy is to:
-Promote the prevention and decrease of the waste production and by that, decrease of pollution on the place of waste production,

-Promote the way of waste management, which will minimise the inevitable waste influence,
-Provide the integral and sustainable use of all segments of the environment (water, air, ground),
-Provide the sanation of the environment pollution and sanction for responsible persons.
Because of harmonize with EU regulations is needed to do the reconstruction of domestic legislation, so it will provide the bases for legislative base for structural management of each kind of waste. Law about the environment is consistent on the legislatives of EU, but it should be supplement with articles about waste management, so it can be harmonized with the Directive about the waste. Law about the waste is more time changed, so it must be change with the Law about waste management which will contents the Directive about the waste (75/442/EEC), Directive about the hazardous waste (91/689/EC) and the Directive about landfills (1999/31/EC).
In the preparations are tree Drafts of new laws: Draft of the law which suppplement the Law abotu the environment (so it can be establish the system for waste management), draft of the Law for waste management and draft of the Directive of Ministry of environemtn and physical planning about production the plan for waste management.
Law about estimation of the influence on the environment is based on the article 88 of Statute of RM, among which Republic organize the the system of environment protection. It is harmonized with Directive of the Council 97/11/EC about estimation of the influence and with Directive of the Council and Parlament 2003/35/EC about public participation, from 23.05.2003.year. Law accept in the European Union addopted principle of the integration of the economic and ecological aims and harmonization of the measures of prevention act.
In the article 2 through evaluation of the ingfluence on the environment determine each individual case possible direct and indirect influence of planned project on: 1. Human life and health, flora and fauna, 2.Ground, water, air, climate and landscape, 3.Material goods and cultural inheritance, 4.Mutual relations of these elements.
In the article 3 is defined the competence for lead of the evaluation procedure, which belongs to the organ of govermnent administration competent fopr the environment protection and organ competente for environmental protection in unit of local administration.
In article 19. is described the contents of report about influence of the project for the environment. Report is necesary part of the documentation based on which is given the permission for project implementation. It contents the analysis of quality and sensitiveness of the environment factors, prediction of the impact of project realization and measures for it prevention, rejection, reduction or sanation of harmful impacts on the environment and humal health.
Revision over implementation of this law and following regulations has the organ of administration competent for actions of environment protection (article 33). Activities of inspection revision in framework of this competence do the ecological inspsction, which is obligatory to among the rest undertake the measures: to order to the project carryier to provide the accessions for the impact estimation on the environment, in accordance with the law and to prohibit the generation of the works untill geting the accesion of competent organ for impact estimation.

By following regulations are defined the aspects of the environment, measures for prevention, decrease or rejection of harmful impacts, content of public book about evidential of treatment in giving the accessions and other.

Law about integrated inhibition and control of the environment pollution is in accordance with the Directive of Council and Parlament 2003/35/EC. By the law is organized the prevention and control of the environmental pollution through system of giving the integrated permission for installations and activities, which can have negative influences on the human health, the environment and material goods. Integrated approach of giving the permissions is harmonized procedure, in which participate the measures for efficient and integrated approach to this procedure (article 2). Competence of giving the permission is give to the organ of state administration, competent for environment protection, or organ of local administration, competent for the environment protection (article 3). The permission is given for the limited period, and outlasts 10 years (article 6). In the request for giving the permission, operator especially named: emission sources from the installations, nature and quantity of pollutant materials which get in the environment, identification of significant emission impact on closer and far environment, suggested technology by which is decreased or forbidden the emission, BAT which use or plan to use in aim of prohibition/decrease the emission, measures for decrease or waste disposal, measures for efficient use of the power, planned measures of emission monitoring in the environment (article 7). Among the request for permission giving, operator enclose among other: plan for the waste management, plan of measures for accident prevention and limit its consequences, plan of the measures for the environment protection after completion of the installation work (article 8). The permission is not valid, is operator don't have financial and technical means for completing the obligations, don't do the monitoring of the environment and don't give the data, give incorrect data about procedure of permission giving, don't proceed toward inspector requests and other (article 23). Inspection works do the ecological inspection (articles 26. and 27.).

By following regulations are arranged the questions of sort of activities for which is given the permission (energy production, production and processing of metal, industry of minerals, chemical industry, waste management etc. The program of measures for adaptation of the work and activities of existing installations is treated, with costs, evidence of the measure results and time dynamic for the realization.

Law about strategical estimation of the impact on environment is in accordance with Directive 2001/42/EC -Strategical directive.

In article 1.is determined the procedure of strategical impact for plans and programs which can have significant influence on the environment, public participation and interested parsons etc. Aim is to reach integration of the environment protection in the procedure of addoption and preparation of plans and programs, as it could significantly influence on the environment, to ensure high level of the protection and improve sustainable development (article 2). In article 3. are given addopted principles of strategical estimation (principle of sustainable development, integrated, precaution, hierarchy and coordination, public). Making of strategical estimation is obligated for programs in field of physical and urban planning or use of the land, agriculture, forestry, fishing, hunting, energetic, industry, mining, traffic, tourism, telecommunication, waste management, waters, sea good, natural and cultural goods, plant and animal world and its habitats (article 6). Build in is the context of transboundary pollution, which lead the state

organ competent for the environment protection (article 19). This organ bring the criteria for report evaluation about strategical estimation.
In follow up regulations is determined the question of report of strategical estimation (impact estimation, alternative programs), estimation of possible influences (influence on all factors of the environment, measures of prevention and limiting of harmful influences), program of following the environemnt state (state indicators, rights and obligations of competence organs, procedure in case of accident etc.).
Identification of the priority activities is included into Strategical master plan for solid waste management in Montenegro (Project EAR/03/MTGO1/04/02), which is formed with help of European agency for the reconstruction (EAR).

• *Strategical master plan for solid waste management in Montenegro*
Aims of Master plan are: providing of the conditions for rational and sustainable waste management, decrease of the waste influence on the environment, reclaim of negative effects of wste management in the past and better efficience of using the resources. Middle term aim should be decrease of the wste quantity, what is harmonized with EU directives about the waste. Master plan enable the crossing of short-term needs linked with municipal, medical, hazardous and other waste, in to middle-term aims, which are recognize in:
-Increase of waste quantity which is collecting,,
-Decrease of waste quantity which is delay on the landfills,
-Introduction of waste recycling..
Identified aims are established on the Project task, Law about the environment and national policy of waste management, among including the principles of use and recycling of the waste, vicinity and necessety of waste disposal and »polluter pays«.
Strategical aims are:
-Establishment of main orientation of waste management for middle ter, national developpment,
-Building on strategical plans of EU, adoption of the EU directive about waste,
-Determination of the priority options of waste management.
In the plan are given the proposals for the reconstruction of domestic legislation, in aim of approachning to the EU and institutional superstructure on national and local administrative level, and the recomendation for the founding of the Agency for the environemtn and Agency for the project implementation, in frame of the Ministry of the environment and physical planning.
Temporary aims and actions include following items:
-<u>Municipal waste</u> The analysis of the existing state of waste disposal shows that the state is unsustainable. The most rational way of reaching the Government aims are integral system of waste management, which offers a serie of mentioned options, among which and limited use of the landfill for waste disposal.
To reach these aims, is necessary the significant change of public consicious about way of waste tretment and high level of public participation in implementing the local plans.
For reaching the final aims, temporary aims will be based on forming the inter municipality landfills among EU standards. System of municipal waste management is based on the building of new landfills, which among regional principle, include two or more municipalities, and gradualy closing of existing dumps. By system is included the

collecting, transport and treatment of municipal waste. Activities of recycling process understand the building of adequat among municipalies objects with predicted recycle yards, collecting point over towns and spaces for the composting. It will be forsed the activity of recycling and maximal spread of the areas from which is waste collected. Rest of the waste will be delay on the landfills, compacted and covered, in accordance with permited operator plans for landfill work.

-Hazardous and industrial waste. Temporary aims are based on forming the controled system of production, treatment and temporary storage of hazardous waste. In the begining, these storages will be used and like temporal storages in case of export of hazardous waste out of country. So the hazardous waste will be storage under controled conditions and in that way will be decrease it dangerous influence on the environment. By the legislative measures will be introduced the categories of »control« and »permission«.

Temporary strategical aims include and industrial non-hazardous waste. Often is producted into big quantity. Long term aim is adopting the EU IPPC directive or local regulations with same effect. The goal is introducing of cleaner technologies, what understand the capacity building and training of the employed in the industry. Is reccomended the foundation of the national center for cleaner production, together with UNIDO. This will require the intensive training, which in the begining will include the engagement according to the contract of international experts.

-Medical waste. Temporary strategical aims include establishment of secure system of management with this waste, implementation of national and EU regulative and introducion of the best avaiable measures of this waste treatment. Selection of this waste must be done in the units of healt protection.

-Management of the mud from the waste waters. With temporary aims is included the construction of installations for drain, solar drying and composting, development of regional institution for mud management, introduction of corresponding tariff structure and payment methodology.

-Contamined areas. It is recommended that: PCB not in use should immediately export for destruction; equipment with PCB contents and not in use, as soon as possible change or graduately expunge form use, among EU requests. Collecting and exportation of PCB can do and some trained private subject.

Identified project partners are:

–Waste productors (houses ands buisness activities, economy and industry),

-Local authority (planning, collecting, treatment and waste delay),

-Government (policy and regulatory frame and control of resources),

-Agency for the environment (adviser for the questions about the environment protection),

-Volunteer, non-profitable sector (volunteer iniciative for environment improvement).

Also is predicted the package of measures of institutional restruction, by which will be relief the implementation of plans about the waste. It is based on the principles: clear defining and division of the competences, clear division of the tasks-private and public, clear communication, readiness for the dialogue and parthnership, organization implementing, avaiability of the informations, development of the integral human resource, clear defining of all instructions, permissions and competences, integrated of

the monitoring and controling system. The division of the competence is defined by the following: clear defining and division of the competences, clear division of the tasks – private and public, clear communication, readiness for the dialogue and parthnership, implementation of the organizations, avaiability of the informations, development of the integral hunman resource, clear defining of all instructions, permissions and competences, integrated monitoring and control system. It is defined the competence division by the following:

-*Ministry of environment protection and physical planning*
Except existing one, Ministry should undertake and serie of other obligations in the proces of approaching to the EU standards, what is followed by the organizating the structure. New structure units are Agency for the environment, Agency for the project implementation, Sector for policy and planning and others.

-*Agency for the environmentu*
Implementation and control of the laws abotu the environment, giving of the ecological permissions for founding, working and closing of objects, then permission for waste and mud storage, carrying out of supervisions among the environment, ecological sertificates for the installations, forming of data base for the environment and submit of the report.

-*Municipality organization*
Municipalities work in frame of the Law about local autonomy. It must prepare all management plans for own administrative area, harmonized with national plans and regulations. It should follow the waste management activities on its area, with help of the inspector from the Agency for the environemtn. Also it must to write the reports about all questions that consider the environment. To do that, it must to do the restructue

2.3.3.Heavy metals

Identification of the priority actions for pollution caused by the heavy metals is in general comprised into Master plan for solid waste management, in framework of the hazardous waste. On the Montenegro coast are identified tree serious sources of heavy metals emission. In solving these problems exist two approach: first, that emission is solved on future sanitary solid waste landfills and second, that the emission is solved on the same pollution sources, what is more efficient. Metal industry «Daido» do the partial control of own emission. Shipyard in Bijela is in the phase of providing the foreign donations for solving the problems of own emission. Remont institution Tivat up to now don't do any action in that way, and actions in that way are conditioned by the firm became private. Smaller serious sources of heavy metal emission are Port of Bar and Jugopertol Kotor. Jugopetrol Kotor also don't take actions for reduction of own emission. In Port of Bar is prepared innovate «Ecological plan» for Port area, which include training of personal and procuration of the equipment, but for now there is not a financial means for it realization. In Montenegro don't exist the legislation which determine the technical characteristics of imported cars, nor technical correction of that cars. There is a lack of evidence about

quantity of lead from these sources (fuels with lead contents), so there are not the conditions for its control.
It is hard to evaluate the emission of heavy metals from other sources, first of all of Hg, Cd and Pb. Probably these problems in recently future will be solved in frame of sanitary landfill of solid hazardous waste.
Analysis of today situation in the society point that the problems of hazardous and toxical substances from mentioned sources, has it seems the conditions for sucesful solution, involving BAT and similar, make private these firms-sources of pollution and investment of financial means of its owners.

2.3.4. Organohalogenic compounds

Identification of the priority actions is inadequately included into legislative:
Law about transportation of hazardous substances «Off pap. Of SRY», No. 27/90, 45/90, 24/94, 28/96 and 68/02
Law about production and market of toxically substances «Off.pap. of SRY», No. 15/95, 28/96 and 37/02

Having in mind that don't exist the adequate evidence of organichalogens compounds emission, it cant be led the control measurements and emission reduction.Based on realiable data are identified endangered areas and sources of emission: water and land around Shipyard Bijela and Maintenence institution Tivat from PAH emission (»hot spots«). Potential direct danger (and maybe the real one) exist in Port of Bar and shipyards, because of use of trafo-oils with added PCB, and indirect, in objets for distribution of electrical power (PCB), like an industry for olive processing from Bar, because of organohalogen emission, used in plant protection.
Also out of control are difusion emission sources of chloric hydrocarbons from cars and objects for fuel distribution, like and treatment of used trafo-oils and its further use for protection of wood objects or burning on the dumps (production of dioxie and simiilar).
For contamined areas is recommended to do the Project task, which will define the aims, results, tasks, method of the work and investments. The project will define the plan for dump sanation, evaluation of present state and protection of surfaces waters in the future and evaluation of the costs.

2.3.5. Polychlorine biphenils (PCB)

Use of PCB is prohibited in the European Union. Owners of the installations which contents PCB must do the regulated decontamination, up to 2010.year. Isn't allowed the fulfill of the transformators with dielectrics with PCB contents, reuse of used PCB, drawing of PCB by recycling or from the waste, more then 24 months of temporary delay of PCB, PCB dump or installations with PCB in storage, before isn't secured the carrying away, or decontamination of the installations, burning of the PCB or PCB waste in the furnaces.
On the Montenegro coast the main quantity of PCB in trafo oils is identified in Port of Bar, less than 6 t. And other economic objects posses storage or in use trafooils, which quantity isn't known, so it must do the register of the industry and quantity of this oil.

Service for transport and distribution of electric energy also use the trafo oils with PCB contents, but its contents dont cross 10% of limit, registred by the EU directives, which represent 50 ppm.
It is recomended that: PCB which isn't in use, soon after export for destroying it, equipment which contents PCB and which is still in use, imediately changed or gradualtely put out from the use, among EU requests. Collecting and export of PCB can do and some prepared private subject.
It is necesary soon as possible to addopt and to implement the Protocol about Persistent organic compounds (POPs), which procedure is in course.

2.3.6. Hazardous waste (industrial, medical and other)

Identification of the priority actions for the pollution caused by the hazardous waste is included into legal regulation, existing and one in the preparation, as follow:

Law of maintenance of the clea, collecting and use of the waste«Off.pap. of SRM, No. 20/81, 26/81, 2/89, 19/89, 29/89, 39/89, 48/91 and 17/92 and
«Off.pap. of RM», No. 27/94
Law of water supplying and lead of waste waters and disposal of solid waste from the areas of municipalities: Herceg Novi, Kotor, Tivat, Budva, Bar, Ulcinj and Cetinje «Off.pap. of RM, No. 46/91
Book of regulations for choice of locations, way and action of delay of waste substances «Off.pap.of RM», No. 56/00
Book of regulations of sanitary-technical conditions which must fulfill the landfills and places for fecal discharging, way of arrange and maintenance of the lanfills and places for discharging of the feces and of the way for destroying of the waste and feces «Off.pap. SRM», No. 20/83

Identification of the priority actions is included in the Master plan for solid waste management in Montenegro. It comprise the general approach of the treatment of the hazrdous waste, which is in today conditions the most suitable. The most efficient approach will be the control and reduction of the emission of the toxicants on its sources. This approach is linked and conditioned by the process of becoming private the objects for production, which is in course. For now «Jadransko brodogradilište» from Bijela lead the concrete action for introducion of cleaner productive technology and decrease of pollution emission, with foreign donators. «Port of Barr» has make the ecological plan for decrease of pollution emission, for which needs the donations.
Communal dangerous waste include the waste from households, economic activities, institutions and objects for car maintence. Aimed groups are: hotels, educational institutions, gassoline pumps, photo shops, printing shops, garages, chemical cleaner shops, business buildings, public institutions and households.
The strategy is to reach the sustainable development, cleaner production and better management with this waste. Existing system for management of this waste is bad and is not sustainable. Posibilities of competence organs for implementation of the regulations are very limited, in spite of the possibilities which give the existing legislation.Starting

point for forming of the strategy for management of this kind of waste is the definition of the waste among EU 2000/532/EC.
Institutional aspect. The control of the hazardous and industrial waste willl lead out the Agency for the environment, or the organ which it will pick., and of waste management – producer. The producer of non-hazardous industrial waste can by self do the treatment of the waste, or by contract obligate the city administrationfor waste collecting, or obligate by the contract authorized private firm. Producer can manage with hazardous waste and if it provide the recycle in the production process of this kind of waste.
System for management with hazardous waste will be defined on the national level. The itention is that in begining period installation for delay and treatment of the waste formed like public firms, which owner is the state. The Agency and Ministry will be the supervise organs, and excluded by that like possible owners of these firms.
The proposal is that this firms will be in competence of the Ministry of economy. In the periode of 5-10 years is predicted the privatization of these firms. Use of these objects require bigger investments, so is reccomended intesive building of the capacities during first tree years.
Key system elements are the system of waste collecting in local competence, recycle yards and centers for treatment. This concept will be supported by the legal system, by the register for follow up of the waste course and by the system for data collecting.
It is suggested that the installations for the waste treatment and the landfill should be built in the vicinity of Aluminium Plant in Podgorica, like the biggest producer of hazardous waste in Montenegro. Special attention will be give to the security of transport of hazardous waste to the plant.
System of management with hazardous waste is based on the foundation of the center for tha hazardous waste treatment, suitable landfill, and installation for burning down of the waste, and midlle term, export of liquid organic waste. System of management comprise the export of special waste (PCB, lubricating oils, batteries).
It is emphasize the need to collect the medical waste into special, closed container and transport by the special vehicles. Management of these waste include the training of the personals, and bringing of the management plans for each producer subject. It is recommended the controled delay of special medical waste, and of anatomic waste on the local cemetery.
System for mud management from WWTP is based on the collecting and delay of the mud in tree geographical regions of Montenegro (North, Midlle and Coastal) and is linked with Master plan for treatment of waste waters. Mud management will be entrust to the Regional companies, which will be in possibilities to delay the mud on the inter municipality landfills, on safe way for the environment, thanks to the previous treatment.

2.3.7. Used oils and oiled waters

Oiled waters and mud from the ports and shipyards on the Montenegro coast collect the private firm form Bar, through its two collecting stations, in Bijela and in Bar. After primary separation, the waste is taken out of Montenegro. Oiled waters from the installations of Jugopetrol are collectred into separators, where is done the physical separation in the succesive placed tanks. Collectors network receive and atmospheric water. When in the time of rains (or wash off the ground) increase the level of liquid in

separators, from last tank water is dicharged directly in the sea. Used oils from Maintenece institution and probably from other firms are sold and again used like oils for heating and similar.

2.2.8. Radioactive substances

In accordance with NDA on the Montenegro coast the problem of existance of radioactive sources and substances is negligible. New law about radiactive safety in total will define the questions of transportation, delay, evidence of present smaller sources (medicine, lightning rod, fire alarms and similar), monitoring of the environment and training of the personal. The competence will have the Regulatory body (Agency) for radiacion safety. Law is done with consultation of IAEA from Viena, and right now is in the process of confirmation.

2.3.9. Phisical alteration and destruction of habitat

Identification of priority actions is based on relative good done legislatives:
Space plan of special use for area of sea good (Draft)
Declaration about ecological state of Montenegro «Off.pap. of RM», No. 39/91
Law about building land
Law about building of objects «Off.pap. of RM», No. 55/00
Law about planning and arrangement of the area «Off.pap. of RM», No. 16/95, 22/95 and 10/00
Law about nature protection «Off.pap. of SRM», No. 36/77, 39/77 and 2/89
Law about environment «Off.pap. of RM», No. 12/96 and 55/00
Law about sea good
Law about nature protection «Off.pap. SRCG», No. 36/77, 39/77 i 2/89
Resolution about policy of preserving the biodiversity in the Federal Republic Yugoslavia «Off.p. SRJ», No 22/94
Solution of putting under protection of rare, endemic and endangered plants and animal species «Off.p. SRCG», No 36/82
Plan of management of the environment protection for the municipalities Kotor, Budva and Tivat and area of Gornja Zeta «Off.p. RCG», No 50/01

Identification of the priority actions is based on relative good done legislation regulative. ifikacija Serious problem on the whole Montengro coast is illegal building, mostly located in narrow coastal belt. Except of habitat destruction, big and nonplanned building of the coast do the pressure and endangers whole serie of other sectors: landscape values of the coast, green belt of mediterranean forests, rare and value species, duna belt on Velika beach in Ulcinj, drying of the swamps and endangered of river mouth, disturbance and disapear of plant and animal world of these habitats, and especialy of swamp birds, micro climate and seizmological characteristics, human health because of bad hygiene conditions of the new touristic settlements etc.
Key competence for implementation of actions and prevention of described apperances have local administration and Ministry of the environment protection and physical

planning. Its actions (for example demolish of the illegal objects) are nonorganized, sporadic and often have contrary effect.

2.4. SETTING GOALS AND MANAGEMENT OBJECTIVES

2.4.1. Sewage

The bigger producers of the waste water are the inhabitants, tourists and the industry. Because of getting the base for outline the development of the sewage network and placing of management system, is necessary the availability of the data about the quantity of produced waste water, which are obtained on the base of the forecast for future period to the end of 2028.year. The projection of the future development is based on the following forecast data:
-Number of inhabitats will grow with rate of 0.7% per year,
-Tourist number: is not expected the burden of main touristic season, change of profile of average tourist and increase of bed number, around 30% up to 2028.year.
-Water consumption in the industry is uncertain and depends of the level of industry development.
-Quantity of waste water. Water comsumption is in average 250l/cap/day. The intention is to decrease the water consumption to reach 120 l/cap/day or for standard for tourism and industry 180 l/cap/day. Waste water quantity will increase in 25 year lasting period from former 19.600/31.300m3/day (winter/sumer flow) on 41.000/80.400m3/day, on the whole Coastal area. To the end of 2028.year around 85% (260.000) of inhabitants and around 90% (250.000) of tourists should be conected on the sewerage network.
To the end of planed period all towns and setllements must be covered with the sewerage network. Waste water will be lead to the WWTP, where it will be refined to the needed standard, before of discharging into the recipient or its reuse. Setllements smaller than 2000 of inhabitats will be conected on the septic tanks, like cheaper solution, except the settlements in Boka Kotorska Bay, which will all be conected on the network. So on the septic tanks will be conected around 33.000 inhabitats and 28.000 tourists. All factories will be conected on the network.
In analysis of number and locations of future WWTP is examined several conditions and options: needed WWTP capacity, long-term standard for the efluent, coast of refining, hydraulic capacity and costs of transportation to the WWTP, risks of disorder of system from regular work, flexibility for variation of flow and load, influence on the environment.
Municipality Herceg Novi. Option of central discharge into the Bay sea (near Kumbor) or open sea (Dobreč) now don't give the possibility of one significant conclusion. Options of building the WWTP in Sutorina or Kumbor carries the remark that location in Sutorina isn't recomandable. It is recomanded the thirth option of combine treatment with Kotor and Tivat and discharging of the waters in the sea in Trašte bay.
Municipality Budva. Option of WWTP building on the peninsula Zavala isn't technicaly the best solution. Option of one central WWTP in Budva and four individual in Budva, Sv.Stefanu, Petrovac and Buljarica don't give one meaning conclusion. Option of central WWTP in Budva or two in Budva and Sv, Stefan gives the recomendation for the central

one in Budva. Option of one central WWTP in Buljarica or two individual in Petrovac and Buljarica, include the solution which depends from future development of Buljarica.
Municipality Bar. Option of building of one central WWTP in Bar or two individual in Bar and Sutomore, gives the recomendation for constructing the one WWTP in Bar.
Municipality Ulcinj. Option of construction of one central WWTP in Ulcinj or two individual in Ulcinj and Velika beach gives the recomendation for constructing one WWTP in Ulcinj.
The capacities for planning and implementation of the project in PE for Water supplying and canalization don't exist. Because of that with Master plan is predicted the forming of the Unit for the project implementation, in aim of efficient implementation of the plan. This Unit would have the competence for implementation of this plan and work on the sector of waste water and should be responsible to the Ministry for the environment protection and physical planning. With it in the name of Ministry should to manage PE Regional water supplying "Crnogorsko primorje" from Budva. Forming of this Unit and training of the personal should be terminated to 2008. year. Tasks of Unit should be:

a) On the plan of project implementation
1 Support to the municipalities in the preparation of the project for the implementation.
2.Management of the project implementation, financing form the Government budget or international banks, which are given to the municipalities.
3.Support based on the requests of the municipalities in the project implementation, which are financed from the municipality budget or PE Water supplying and canalization.

b) On the plan of work improvement of waste water sector
4.Help to the municipalities in detailed planning of sewerage system development (sustainability of the plans, accordance of the plans with republic development strategy in frame of the sector).
5.Support of PE water supplying and canalization in maintains and management of the canalization training of the personal, services in field of inspection, cleaning, maintenance and management with the canalization, GIS use.
6.Fallowing of the waste water sector development.

In aim of ensure the efficient actions, in september 2003. year, is formed Foundation bord among municipality firm for water supplying of Montenegro coast and municiplality Cetinje, which include the representatives of all municipalities and Montenegro Government and which will coordinate implementing of the plan through ensure of institutional logistic.
Management of water suppying and waste waters in the future can have central or decentral frame, what depends from the results of the iniciative, which is in course.

2.4.2. *Solid waste*

Estimation of the municiplal waste production is the base for bringing the plans and measures for the waste management.

Contribute of the economy in increase of waste volume is around 80%. The tendency is that the increase of waste quantity slowly follow the increase of the economic development and that this part of the waste reduce on half.
-Future waste production. Year increase is in average 0,37% on the Republic level, and 1,26% for the Montenegro coast. For the estimation of economic development is used the parameter of public gross product (PGP), which is among estimation of the international organizations predicted to grow by the rate of 3,5% for Union of Serbia and Montenegro, and for Montenegro coast +1,0%. Increase of the PGP of 2% induce the increase of waste production for 1%. This economic index is linked with only for components »consumption« waste and is related on the organic and other kinds of waste.
-Short-term expectations (2005.-2009.). Supposition that the technical measures of improved services begin from 2006.year, that will be enlarged the areas included into communal services in urban areas from 85% in 2004.year to 92% in 2009.year, and in rural from 15% to 27%, that will lead further recycling of several waste fractions already on source of production.
Based on this suppositions, is predicted the icrease of the waste production for 8% from 188.000t/kg, in 2005., to 200.000t/kg in 2009.year. Total fraction quantity which can be recycled is about 75% of municipal waste. Because of that this is a significant posibility of decrease of waste quantity, so in the project is worked out the »Strategy of waste recycling«, which contents the measures for reachning the appropriate slope of recycling in following ten years.
-Middle term expectations (2010-2014.year.). Are based on the suppositions: spread the area of communal services(in urban areas from 93,3% in 2010, on 100% in 2014.year, and in rural from 48,3% on 75%), further separation for the recycling of waste fractions (paper with final participation to 60% in 2014. glass to 50% and metal cans to 30%, then portion of the waste of organic part from yards of rural areas to 42%).
Is planned the increase of the waste production in 2014. year of about 19% in regard of present state in 2003.year, what represent 225.000t/g of waste. Quantity of consumable products (paper, card, plastic, metal) will increased among the biggest rate. That will follow the increase the portion of this fraction (the most of card and paper) in waste contents, and the portion of organic and other fraction will decrease. So the quantity of recycled waste wil increase on 89%.
-Long-term predictions (landfills). Based on mentioned estimations, it can be predicted the landfill capacity for the period of 20. years (to 2025 year). So are predicted the waste quantities which must be delay, for every municipality.
-Estimation of recycling rate. Regarding the state of the waste management and unreliability of the analysis of waste structure (especially recycled one), predict the gradualy implementation of recycling. So is expected than to 2014.year from total quantity of produced waste be recycled around 60% of paper and card, 50% of glass, 40/15% of waste from yards for urban/rural areas, 30% of cans, 50% of shot.
Like important part of recycled waste, package of paper and card type mainly produce legal persons, and metal and glass type the households. Is predicted that the quantity of package waste increase form 48.000t in 2004.year , to 55.700t in 2015.year. It portion in total recyclable material is 30-32%.
It is estimated that will be producing the shot quantity of 200-300kg/cap/g. In middle-term period that is around 200.000t/g.

2.4.2.1. Urban waste management

Plan of waste management is based on: gradualy spreading of the area, included into sewerage system service; determination of the areas which gravitate to the common waste collecting; forming of the network of among-municipal landfills, related with previous point; foundation of official system for waste recycling.
Because of reaching the sustainablity of the system for waste management is sugested the forming of intermunicipal firms. By that will be reach several advantages: high level of equipment use, better negotiate position of decision maker and financial means; bigger competence in further conditions.
Planned forming of regional landfills and inter-municipaly firms for waste management, what can only could optimaly to carry out approach of the sector to the requests and standards of EU, make posible the recycling process, burning , biological treatment of the waste etc.
Plan of future infrastructure will be added on the present state, with including the serie of new elements, like activity of recycling, network of new inter-municipaly landfills and other. Each municipality must have completely or partialy equiped yard for recycling.
For the realization of set plan is necesary to carrying out following measures: getting of necesary measures and concenzus, agreement about regulations about financial organs, action plan and detailed planning, strenghten of the public conscious and education program, building of capacities, monitoring, supervision and control, financial sucess, research and development.

2.4.2.2. Hazardous and industrial waste management

Strategy is to reach the sustainable development, cleaner production and better management of this waste. Existing system for this waste management is bad and unsustainable. The possibilities of competence organs for regulations application are very limited, in spite of the possibilities which give the existing legislation. Base for forming the strategy for this waste management is the definition of waste among EU 2000/532/EC.
Control of the hazardous and industrial waste will lead the Agency for the environment or organ which it chose, and waste management – producer. Producer of non-hazardous industrial waste can treat the waste by itself or by the contract obligate the city authority for the waste collecting, or obligate by the contract authorized private firm. Producer can manage with hazardous waste and if it provide the recycle process in frame of the process of production of this waste.
The system for mangement of hazardous waste will be defined on the national level. The intention is that in initial period the installations for the delay and waste treatment form like public firms, which owner is the state. Agency and Ministry will be the the suppervisory organs, so they are excluded like possible owners of these firms. The sugestion is that firms be in competence of the Ministry of economy. In period of 5-10 year is predicted the privatization of these firms. Use of these objects require bigger investments, so is recommended the intesive capacity building during tree first year. Building of objects for the hazardous waste tretment will be lead through phases, in

accordance with the needs. Key elements of the system are system of waste collecting in competence of local authorities, yards for recycling and centers for treatment. This concept will be supported by the legislation system, register for following of waste flow and with system of data collecting. It is sugested to construct the installation for waste treatment and the landfill near the Aluminium plant in Podgorica, like the bigest producer of the hazardous waste in Montenegro. Special attention will be given to the security of hazardous waste to the installations.
Non-hazardous industrial waste is often produced into big quantities. Long-term aim is introduction of the EU IPPC directive or local regulations with the same effect. Aim is introduction of cleaner technologies, what means building of the capacities and training of the employee in the industry. It is segested the foundation of national center for cleaner production, together with UNIDO. This will require intensive training, which in the begining will include the engaged by the contract of intenational experts.
Management of this kind the waste should be based on the local plan. It is estimated that total quantity of the non-hazardous industrial waste is 850.000t/year. Necesary measures for the realization of this plan include: identification of the location, study of the sustainability, study approval, conceptual plan, public contents, worked engineering, acquisition and building, training of the personal.

2.4.2.3. Medical waste management

Set aim is to prevent infective pollution and to protect the human health in/out of medical institutions, to protect the environment, to lead the domestic and international standards and realize the existing technical and economical possibilities in Montenegro. Main principle is prevention of this waste production and its recycling.
Is stressed the need of collecting the medical waste into special, closed containers and transportation by special vehicles. Management of this waste include the training of personal, and bringing the plans for management for each production subject. Is recommendet the controled delay of special medical waste on the sanitary landfills and waste on local cemetery.
For regulating of the management of the medical waste are needed additional regulations, which include domestic and international requests, taking into account the technical and economical possibilities of Montenegro.
Necesary measures require general and urgent improvement of the system of waste collecting inside of hospitals, ensure of adequat transprotation capacities and controled disposal on the existing dumps (execpt human tissue), untill building of new landfill (2007-2008) and new furnacle (2015).

2.4.2.4. Management of the mud from the WWTP

Plan include short-term (to 2008), middle-term (to 2019) and long-term (to 2029.) period. Measures which must realize in the short-term period linked, among the rest with development of the regionalization, realization of the process »poluter pays«, competence, development of the data base, development of the regulations, introduction of the compensation for the mud mangement, enforcement of the public consciuos. In middle term period basic measures regard the quality management of the environment,

implementation of the installations, oil treatment, mud treatment (drain, solar drying, composting, transport).
Strategy of the management is based on the procedure of the preventin, decrease, recycling and disposal. The priority is given to the prevention and decreasing process. One of the ways is a public campaign for decreasing of water comsumption, first of all in households (poor effect because of small percentage of payment of this sector for water supplying) and comertial sector. Second way is decreasing the mud like adequat treatment of the waste waters (aeration decrease the mud quantity for 25%). Like the last on the priority list is recycling and reuse of the mud.
Mud management in the future will depend from its quality, decrease, processing and disposal.
From the methods for mud processing (physical, chemical and biological stabilization and decrease of the pathogenic germs and pasteurization), is recommended the biological treatment of the mud, that is composting, avoiding unpleasent gasses. For the Montenegro coast is predicted the input of 3.115t/year of mud and output of around 1.636t/year of compost. In this region are favorable the conditions for complete treatment-solar drying.

Defined taxes for the mud treatment (untill now only for Podgorica) from 2004. are 0.87€ for month for households. From 2008/9 the compensation will be 0.20-0.80€ for households for month, depending of the location. Sugested is and additional compensation of 0.5€ for households for month.

2.4.2.5. Recycling strategy

Should facilitate the implementation of the EU directive 94/62/EC about package and package waste, define the part of the municipal waste for recycling, organize collecting centers in each minicipality, organize the centers for the recycling on each intermunicipaly landfill.
Requests of the directive about the package ask to recycle 25-45% of package waste and more then 15% of each package materials. Waste recycling will not influence on the quantity of postoponed waste on the landfills in first years. But will increase the waste collecting and recycling, what will in the 2014.year lead to 50.000t of processed waste on the landfill and icrease of the recycling rate of 23%.
Responsibilities of the producers will be reached by determination of the taxes on the product, obligation of accepting of empty package, introduction of the deposit for the used package, establishment of the aims of collecting and management of package waste. That should be defined by special regulation.
Preceding principle don't exclude local autorities for the responsibility of collecting the secondary raw materials, because there are responsibile for collecting of the non-package waste from producers and retail (journalism paper and similar). Municipaly is responsible for the collecting of the secondary raw materials. Producer must have the contract with the municipality, among which he will pay the municipaly for collecting the package waste or will collect this kind of waste, and the municiplaiy other.
In aim od efficient development of the recycling system, is necessary to form the quality coordinated system, on the base of use of many mentioned factors (»poluter pay«,

management system, cooperation of local autorities, producer responsability, association of producers, market of secondary raw materials, taxes for disposal, informing and including the public).
Successful functing of the recycling system depends and from reliable data about quantity of produced and recycled waste. For providing the informations about package which is on the market, is sugested that the Institution for the statistic collect the data about producing, inport and export of new package. By new regulations producers should be stimulated to form the association, which would can make the contracts for the institution which will be autorized by the Government, and which will determine reciprocal obligations.
Key elements of recycling system are: separation of the municipal non-recycling materials; establishment of decentralization system of containers, with high level of covering the urban and rural areas in each municipalities, united of collection point in each munipality; regulations about centralized system of the locations for waste collecting in each municipality; estimate two intermunicipalites and one municipality areas for Montenegro Coast, from which is collect waste, and one sanitary trash dump for each area. Intermunicipaly contracts about cooperation (it is suggested to collect the hazardous waste from households separated); collection points with special cointainers for paper/card, glass, cans, pails; collecting of the waste from yards in special containers, with production and use of compost; movable capacities for sorting of hazardous waste from households.

2.4.2.6. Closure of existing dumps

Plan of closure of the existing dumps and recultivation of the ground also are predicted in short, midlle and long-term period. It include the preparation of technical and financial sttrategy about measures of sanation and closure of the dumps, in aim of decrease the negative influence on the human health and the environment, protection of the drinking water sources and increase of hygiene standards.

2.4.3. Heavy metals

Emission of heavy metals isnt big problem in the region. However, on some localities around the object for ship construction represent a very serious problem, which reinforce the fact that the efluent is very sensitive coastal water. Controling of these toxicants emission have the obligation the fimrs sources of pollution. Toward avaiable data, it can not realiable evaluate the quantity of emission of some heavy metals.
Metal indusrty »Daido« Kotor do the partial treatment, selection and removing of toxical products of production. Adriatic shipyard in Bijela do the efforts to regulate particulary the question of pollution emission on the same source, reduction of emission and induction of BAT, with help of international donations. Maintenence institution from Tivat will solve the question of its emission probably after firm privatization. Port of Bar has prepared Ecological plan of protection, but for its implementation is needed further financial suport.
Management of the heavy metals emission in frame of solid waste is done in part 2.4.2.

2.4.4. Organochalogens (PCB, pesticides)

Sources of possible PCB emission are spread among whole coast and are represented by the objects which use trafo oil (Shipyard Bijela, Maintenence institution Tivat, Port of Bar, objects for the distribution of electric power). Based on avaiable data it can not be realibily determine the seriousness of this problem. One of the problems is uncontroled reuse of trafooils like heating oils, means for wood protection or its burning down on the dumps. The danger exist from accidental situations, regarding the estimated quantity of trafooils in use, so the aims linked with this problem ragards its secure storage, gradual change of trafooils and introduction of the mineral oils without PCB, export of existing reserves out of Montenegro, in centers for its regular burning down. Elimination of the PCB use is an international obligation and will be solved by special project of the Ministry for the environment and physical planning in frame of the implementation of the Protocol of POPs

Pesticides emission is small problem, but is present and shows the tendency of growing, with agriculture development, especially private production and increase of the use (uncontroled) of protective means for the plants.. Untill now is evidented the local problem of pesticides emission from the Factory for olive processing »Primorka« in Bar and it will be solved in framework of aims and plans for waste waters, from the part 2.4.1.

2.4.5. Hazardous waste

Deatailed arranged into part 2.4.2.

2.4.6. Radioactive substances

This is a neglect problem on Montenegro Coast. New Low about radiation security will provide the management of these sector through regulative body, which will be responsable to the Montengro Government, and in the future will coresponde in the composition of the Agency for the environmental. Sources of the radioactivity will can not be delay on the Montenegro territory.

2.4.7. Pollution from the atmosphere

Local sources of the atmosphere pollution are of diffuse type. Having in mind the atmosphere posibilities, this is smaller problem on the Coast. However, locally its significance can grow, linked with lead emission and CO_2, from the car gasses, PAH in the vicinity of objects for fuel distribution, influence on the plants among traffic roads, building materials and cultural monuments, people health. For management with this problem lack the base instrument - register of type of source, contents and quantity of emission (Register of emission).

Also isn't adequatly solved the question of the influence of international transport and deposition in the area of Montenegro coast and Montenegro in the whole, for example SO_2 deposition , acid rain, desert aerosol and similar. Aims in this field will be based on

the data of adequate monitoring of the imission, for which is authorized the Ministry for environmental protection.

2.4.8.Physical alterations and habitat destruction

Urbanization and illegal buiding are midde concerne problem on the Montenegro coast, with increasing tendency. Illegal building is usualy in purpose of touristic offer, for rest and recreation. With intesive and unplanned building and redestination of land use are disturbed the landscape characteristics of the coast, endangered the plant and animal word on the land and its habitats, endangered the protected areas and rare species, and finally the human health. Solution of these problems is linked with implementation of existing and new regulations about space planing, space arrangement and object influence on the environment. Management of this problems include the recovery of existing state, plan building in the future, planed and purpose use of the ground and space. These determinates are included in new Space plan of special assigment for management of sea good, which is in the phase of adoption.
Consequences of land based activities on the diversity of coastal ecosystems represent small problem in the region. This problem is a more expresive into closed sea area of Boka Kotorska Bay. Much bigger problem is from pollution influence from the sea, discharging of ballast waters and similar, and special problem is non existance of the regulations in this field.

2.5. ECONOMICAL INSTRUMENTS

2.5.1. Itroduction

System of financing the environment make possible the forming of the mechanisms of collecting and location of the means for the needs of protection and improvment of the environment. It is the composition part of the policy for the enviroment protection. It is conditioned by the taxes policy, by policy of public comsumption and market maturity. Aims and measures of environment protection, which include the prevention and decreasing of pollution, are based on several levels in plan of financing. Sources of pollution - firms do the financing of pollution prevention from own sources. Public comsumption for municipal ecological services must be financed from the users compensations. Means for ecological needs, which can not be directly linked for users-sources of pollution (biodiversity protection, damages from earlier pollution, research work and similar), should be procured from public sources of financing.

Table 6.: Components of the financing system of environment protection

Sources of incomes	Financing forms	Cost structure
Domestic - private (income of the firms form the selling or income from the users compensations) Domestic - public (state budget or purpose taxes) Foreign means (of general use of purposed)	Direct public investments Credits (among suitable interest rates) Means which are directed for certain ecological purpose Decreasing of the taxes rate Subventions	Prevention and decrease of pollution Protection of the nature and biodiversity Administration costs related to the environment protection (administration, inspection etc.) Education, research etc.

2.5.2 Policy of the environment protection and financing

Globally observing the task of the policy for environment protection is that on long-term, determine the aimed level of the environment quality, which must be reached. Reaching of the ecological qualities require significant financial means which usually overcome the momentary needs of the society. Good defined middle term aims and regular defining of the priorities can help to the solution of the conflicts between available resources and set aims in the field of environment protection. The priorities should to determine the directions of the government intervention, till the selection of the instruments of ecological policy should determine the style and efficient of its realization. Determining the priorities ad instruments, ecological policy determines the financing frame in this area.
One of the maintains in the environment protection is to found the social acceptable-optimal level of the pollution. Long time was prevailed the administrative (command and control - CAC) system, which is, introduces the ecological standards for some media like: water, air, and providing its respect through legal compulsion, non-including the market oriented instruments. This system during the is shown like no efficient and expensive. The economists for long time have accented that introduction of the economic instruments in the system of environment protection will significantly contribute to its efficiency. Coast efficiency of economic instruments is one of the mainly reasons for its use in the world. Economic instruments are widely used with dual assignment: to provide the income for needs of financing the environment protection and to influence positive to their behavior.
Financing of the environment protection is also strongly conditioned by whole taxes system. Integration of taxes system in the policy of the environment protection include:

-Introduction of direct ecological incomes in aim of prevention - pollution reduction.
-Redefining of existing taxes and including in it the ecological factors.

2.5.2.1. Development aims

Adopted principle of sustainable development will depend form the efficiency of including of economical instruments like means of policy for the environment protection. In concrete conditions, sustainability will partialy depend from the sucesfully implementation of the project "Program of administrative reformation in Montenegro", "Good local administration", "Revitalization of the community through democratic activity" and serie of other actions. Enforcment of the capacity of state administration is significantly contribute to the assistency USAID and EU. Agenda of the economical reformations have several significant aims:
- Economic increase with significant influence of private sector;
- Harmonize of the legislation with EU standards;
- Valorization of the Montenegro potential;
- Improvement of life standards;
- Environment protection.

2.5.2.2. Key aims in the enviroment protection

Economic instruments in frame of the policy of the environment protection should be prepared through integral approach, which will make possible the aim realization, formed on the base of multiple conection of diferent economical sectors and mediums of the environment. This aims shopuld contribute to the:
- Decrease of coastal and sea ecosystems;
- Decrease of biodiversity and lost of endangered and protected species;
- Sustainability of the exploitation of coastal and sea resources;
- Decrease of dangerous and risky activities of coast and sea area;
- Decrease of loss of habitats;
-Improvement of the general state of local environment, first of all prevention of violation of the landscape apperance, adequat disposal of solid waste, treatment of the waste waters, air quality etc.

2.5.3. Financing of the pollution prevention

2.5.3.1. Financing of the pollution prevention on the firm level

Like consequence of strict implementation of legislation regulative, coasts of the firms linked with environment protection are significantly increased in developed countries in last two centuries. For example, these costs in the firms in the USA are in the period from 1975 to 1986 increased for 86% (with 0,67% BNP on 0,86%) in Germany in period of 1975-1985 these costs are increased for 67%. Among statistical data the biggest investments in the firms in the countries OECD (and to 60%) are in the air protection and some smaller into water protection and waste management. The biggest investment originates from the firms form small number of industrial branches, mostly: chemical industry, metal processing, cellulose production etc.
In OECD countries exist very developed programs of subvention of investments into environment protection, which are designed to some firms. These programs are designed first of all for that firms which working is significantly endangered by introduction of the legal regulative from this field. Subvention are also used for solution of the [problems in the regions where exist many year problems of pollution and where are get the political dimension. During seventeen most of the programs of subvention were directed to the equipment for air and water protection from the pollution, till in eighteen the structure changes in direction of subvention the refine of specific pollution substances and in helping the researches and development of new technologies.
Direct financial support is usually directed to the needed of introducing the new technologies. Researches has shown that this kind of help animate the firms to invest more in the environmental protection.
Credits are more favorable with interest rates which are used for the projects of the environment protection are available to the industry and local administration in big number of OECD countries. These credits are usually distributed through state banks and the interest rate varies from 0 to some below market interest rat.

Interest perks make possible depression of determined means among bigger rate from existing one or in shorter period and in that way decrease the taxes obligations in later years.
Other taxes facilities include: non-payment of taxes on investments, decrease of custom and decrease of the taxes on property.
Special funds of the firms are liberated from the taxes have similar part like accelerate These funds represent means of firms which are collected in aim of investments in the environment protection.

2.5.3.2. Public sector

Costs of public - state sector in the field prevention and decreasing of the pollution include direct public investments, costs of communal services in field of environment protection (treatment of municipal waste waters, treatment and disposal of solid waste etc.) and subvention to the firms, which do these services. The great part of public costs in this area in countries OECD are linked with refining of municipal waste waters (about 60%) and for programs of waste management (about 20%). In most countries of OECD organize of these services is in competence of the municipalities, so the local administration determine the allocation of great part of the means for these necessities (in some countries like Finland, Swedish, Norwege etc. up to 90%). Local taxes and users compensation represent the main sources of local administration for these necessities. In the last century significant is the presence of big participation of private firms in giving communal services in field of environment protection.

2.5.3.3. Assignment funds

To provide the equable flow of the means needed for financing of the environment protection, in many countries are formed assuagement funds. These funds can be formed on national and local level and its incomes can originate form budget or from pointed taxes incomes, that is eco incomes. Great part of this funds, which are usually formed from the budget, function on that way that main part rest intact and projects are financed from incomes form interests. This sort of funds are usually formed in aim of protection of certain media of the environment (water, air etc.) or on local/regional level and don't have significant part in OECD countries.

2.5.4. Financing of the environment protection

2.5.4.1 Economical frames of the environment protection

Economic situation in Montenegro characterize the proces of transition. When is in question on the problematic of envirobnment protection, this situation is similar with the situation in other countries of Central and Eastern Europe. So the need of solving the significant ecological questions, arise from till now econimic and social development, like disposal of the solid waste, treatment and discharge of minicipal waste waters and similar, produce the big disbalance between demands for means and financial resouirces.

Economic policy, on which the significant influences in the previous period has the transition and sanction of UN, has for consequences:
-Change in the economy structure, especialy decrease of industrial production what is commonly used have possitive influence on the environment protection,
-Macro economical policy which is directed in the direction of market determination of the costs of electric power, drinking water, communal services etc., which for long time has held on low level, positively influence on the protection of ecological resources.

2.5.4.2. Legal frame of the system for financing the environment protection

2.5.4.2.1 Financial bases of the environment protection

General frame of financing system of environment protection in Montenegro is regulated by the Law about the environment ("Off.p. of RM", No 16/1996) by which is given that organize of this area is based on: Principle of preventive investment for pollution prevention, principle that the polluter or consumer of natural good bears the costs of the protection or use, and on the principle of concentration of resources for financing of environment protection. According items of the law, resources for financing of environment protection on the Republic level are: Budget resources, resources from eco/compensations, resources from payment a fine on the bases of the law, and other resources.
Means collected based on the regulations of the environment protection, in accordance with regulations of this law, are used for:
- Realization of Ecological program,
- Co financing of the training of personal in expert, science, economic and administrative organizations from the field of the environment, from interest fro the Republic,
- co financing of the investive programs which contribute to the significant decrease of the environment pollution,
-Like means for stimulation, for doing of conception solution, science-researches projects of applicative character, studies, reports and generating projects,
- Co financing of the programs of preserving and development of protected natural goods,
-co financing of organized activities in prevention and sanation of the environment in framework of ecological non-government organizations,
- cofinacing of the publications, magazine and information-promotion activities in field of promotion and protection of the environment,
- Co financing of urgent measures in exceptional situations of the environment pollution.

In the law is given that with specific regulations is determined the conditions for:
-Facilities and liberate of the taxes payment, customs and other public incomes for use of technologies, production and market of products which influence on the environment is favorable from the influence of other related technologies, production and products, use of regenerate energy sources (sun, wind, sea wave, biogases and other) and for equipment and apparatus which are used in the environment protection.
- Facilities and taxes decrease and other public incomes for the producers which organize the substitution of used or non-used apparatus, installations and its parts, products and its

package, use of bail or if in some other way decrease the negative influence of own work on the environment;
-Facilities and stimulations for all legal persons which work with collecting of secondary raw materials or production on the base of secondary raw materials (recycling process), and for all which in every other way dispose the secondary raw materials and waste from the environment, contribute in that way to the improvement of its quality.
Financing of basic activities of the institutions which work on the nature protection (Institute for environment protection, PF for National parks of Montenegro) is done from the budget of the Republic. Additional activities of PE for National Parks are financed from the means, which are provided through users compensations (fishing and hunting permissions, compensation for use of mineral raw materials etc.) and other incomes (for example from sanitary shear). By the law about public firms should be on the regime of total self financing what is in this area very hard to accomplish because the nature protection (national parks) like activity from special interest for the Republic (Law about national parks "Off.p.", No 47/91art. 3) in conflict with conditions which are made at Public firms economy on the principles of co financing (use and exploitation of natural goods of national parks for provision of means for the work).

2..5.4.2.2. Economic instruments in the environment protection

Law about the environment gives full legal base for establishment of the systems of economical instruments which be used into environment protection. Based on this law it should be brought the numerous sub law acts (regulations and decisions) with which this government will legally arrange. One of these regulations is and Regulation about economic instruments in field of environment protection. Legal base for bringing the Regulation about economical instruments in field of the environment represent the article 48. By which is predicted the introduction of eco-compensations for investments and for environment pollution. Compensation for investments pays the investor on infestation works, on the base of accordance, which give the Ministry, for evaluation of the impact on environment. by the rate:
- 2% on the investment value on the area of national parks;
- 1% on the investment value for which is obligated the impact evaluation,

Eco-compensation for the environment pollution pays the firms, other legal persons and users who use the installations, technology and raw which pollute the environment in sense of the article 23. of Law about the environment. By this law are predicted following compensations for
- Discharging of pollute substances in air,
- use of fossil fuels,
- use of the materials which destroy the ozone layer,
- use of lubricating oils,
- production and disposal of hazardous waste,
use of road vehicles, aero planes and ships.

Based on the Law which the Government is brought in the 1997 year **" Regulation about compensation altitude, way of accounting and compensation payment because**

of the environmental pollution" ("Off.p.RCG", No 26/97), by which is regulated this second group of compensations. By this decision is determined that payers of eco-compensations -legal persons and entrepreneurs, pay the compensations for: discharging of pollution substances in the air, use of fossil fuels; discharging of the substances which destroy the ozone layer, use of lubricating oils, production and storage of hazardous waste and for use of the vehicles.

By the regulation is defined that the legal persons who owns the installations of the power of 1MW have the debt to do regular measures of the emission of pollution substances in the air and based on the measured average values pay tree-month eco-compensation adequately to the discharged quantity of: sulphur dioxide, nitrogen oxides, particles like and other organic and hazardous substances (cancerous, organic compounds, fluorides, heavy metals and other).

Also by this Regulation is introduced and "carbon taxes" which are obligated to pay all legal persons who for doing their works use fossil fuels (heavy oils, easy oils, coal, liquid petroleum gas, diesel and gasoline).

Legal persons who for doing their work use the substances which destroy the ozone layer (CFC) and lubricants (installation oils, engine oils, loading grease and other) pay the eco-compensation on the base of used quantity.

Eco-compensation for production and disposal of hazardous waste pay the legal persons who in course of doing their work produce and/or dispose hazardous waste. In framework of the Regulation is given the list of special toxically substances, based on which is determined the compensation altitude.

By this Regulation is included and payment of the compensation for ecological damages which arise from using of engine vehicles and is paid in time pf its registration.

Based on the **Law about the waters** ("Off.p. RCG", No 16/1995) is brought the **Decision about criteria, altitude and sort of payment of the compensation for the water protection from pollution, compensation for extracted materials from currents and compensation for use of water supplying objects.** By this Decision is determined the closer criteria for determination of compensation altitude for water pollution: quantity of discharged waste water, level of pollution and kinds of discharged water and categories of receivers. Quantity of discharged waste water is determined in m^3. Level of pollution and sort of discharged waste water is determined by the contents and concentration of following characteristic parameters: BOD, COD, suspended matters, heavy metals, total nitrogen, total phosphorus, mineral oils, surface active substances, sulphates, cyanides, dissolved or emulgated hydrocarbons and pH value. Characteristics of the receivers are determined in accordance with the Regulation about classification and categorization of waters. Altitude of total month compensation for water pollution is determined like sum of value for each polluter. Altitude of the compensation per pollutant is get like result of the quantity of discharged pollutant and unit value of the compensation which is given in this Decision.

Among existing legal solutions for use of certain components of species biodiversity are predicted the compensations. (compensation from hunting and fishing permissions, compensation from use of forests etc.). Wild plant and animal species who don't have the status of protection among **Law of nature protection** or are protected like hunting species toward **Law about hunting/fishing and law about sea and fresh water fishing** aren't until now be the object of interest of appropriate regulation. By sub legal act,

which should adopt the Ministry of environment protection, economical use of these species (wild flora and fauna) should control through collecting, use and market with getting available compensation (5% from agreed market value of these species).
Providing of the compensations for use of sea good is done through Public firm for management of sea good, which is authorized to do the contracts about use of sea good. The most part of the contracts are linked with use of beaches. Means collected on this way, partially are used and for financing the ecological projects (monitoring of the state of the water on beaches, programs of sea good protection), and most part are directed into Republic Budget.

2.5.4.3.Characteristics of the financing system for environment protection in Montenegro

Lack of till now economical system: domination of the state over economy, limited strength of the firms, lack of available credit means and inefficient taxes system didn't allow the development of the efficient system of financing the environment protection. Centralization of the Republic budget and redistribution of the means on firm level don't leave to much possibilities for development of market mechanisms and for independent decisions on micro level.
Processes of market development, privatization and of the economy will bring to the shift of the carrier of the financial decisions on the firm level. Like result of this process, participation of the firms in financing the environment protection will significantly increase. There exist several factors, which will act like limiting in the process of making the efficient system of financing the environment protection.
- Weakness in organizing the system of environment protection, in which compensations and administrative instruments aren't enough efficient, to reach the satisfactory level of pollution
- Financial limitation, which prevent the firms to change the old (ecological inefficient) technology with modern one
- Establishment of the privatization process and with that linked changes in the management
- Inefficient bank system and with that linked lack of available credit means
- No developed market of capital and impossibility of use of modern financial instruments
- Changes of the taxes system, inflation and other factors, which influence on difficult possibility of planning the income of means on different levels of administration
-Non-developed NGO and citizen groups which are interested in the ecology and which can do the stronger pressure on bringing the political decisions.

Because of mentioned problems, financing from firms means and through usual budget distribution of the means isn't enough to reach fished aims of the environment quality. In that way one of the solutions, which is give the positive results in the transition countries, is forming have purposed funds. In big number of countries similar funds existed in the time of central planned economy, so in these countries are only reorganized, till in others are newly formed. Basic task of these purposed (ecological) funds is to provide the stable source of financing the ecological investments. Eco compensations, taxes, penalties and other means of similar character represent the main source of the financing of these

funds. Linkage of eco compensations, penalties and other incomes on which the polluters are obligated, through fund, with direct investments into environment protection, make it politically much acceptable for them who pays. Ecological fund must be, however, observed like transition (but necessary) solution which task is to help in solving the problems of function of the system for environment protection in the transition process.

2.5.5. Part of eco-funds in forming the efficient system for the environment protection

Main part of eco-fund is through efficient allocation of the means make possible the solution of wide specter of ecological problems. In that sense determination of real ecological aims and clear financial priorities is critical for fund business. Ecological fund should accelerate the positive changes in the system of environment protection, consenting on the tree most important functions in the transition process:

2.5.5.1. Support of the promotion of the system for environmental protection

Efficiency of the law implementation. Eco-fund should contribute o the development of efficient and independent inspector services, which will take care of law implementation in field of environmental protection.
Development of information system. Valuable ecological information represents one of prerequisites of functioning the system of environment protection. Corresponding information are necessary in aim of providing the priorities, designing of efficient system of ecological compensations, following of holding to the legal standards and collecting the incomes from eco-compensations, penalties and other. In that sense building of the monitoring system for the parameters of environment, especially in the region with high concentration of certain pollutants, represent the priority. Investments in research of ecological conditions in endangered areas also are very important.

2.5.5.2.Acceleration of the process of promotion of environment state

Co financing of the ecological tests (audits). Smaller ecological investments into ecological promotion and modernization of the process of production, better use of energy, raw materials etc., have shown like financial more efficient (in conditions of limited means) from investment in big projects. Eco-funds can help to the industry by financing the projects eco-tests, which purpose is to identify the possibilities for introduction of technological solutions, which will improve the ecological performances of the firm. Eco-audits also can help the process of privatization, estimating the ecological performances of the firm and values of the ecological damages that they provoke during its work. Ecological damages, like negative values, also should be included into estimation of the firm value.
Supporting of the investments of the firm into environment protection. Eco funds should to help the infestation of the firms which are lead in aim of holding to the legal standards of the environment, through providing the means for credits, which will be given under favorable conditions. In the longer period, the firms must by itself to carry the costs of the environment protection, but the experiences of the countries of OECD

shows that this process can be significantly accelerated by good designed system of subvention, which will be coordinated through eco-funds.
Mobilization of citizen's means. Society damage from pollution of underground waters, for example, is always bigger than costs for pollution prevention. However, benefit, which from the protection of the underground water the person can have usually, isn't enough like compensation for the costs, which he has for the introduction of adequate sewerage system. In that way eco-funds, through mechanisms of co financing of municipal infrastructure, can have significant function in mobilization of the means of the citizens.

2.5.5.3. Providing the basic ecological services

Protection of the natural resources and of biodiversity. In endangered areas or areas with special ecological values investments in eco-funds can provide the prevention of future non-repayable damages and future much bigger costs.
Ecological infrastructure services. Financing of basic ecological services, like collecting and disposal of solid and hazardous waste, refining of municipal waste waters, must be provided from the means collected form the compensations for usage of these services. In that sense additional means for this kind of investment eco-funds should provide just for specially endangered areas like the areas of protected nature or tourist regions.

2.5.6. Role of financial help from foreign help in area of environment protection

2.5.6.1. Financial help for solving of ecological priorities

Sources of financing from foreign in frame of: direct financial help, credits under favorable conditions, commercial credits, or other sorts of means, can represent the addition of domestic means, available for the needs of the environment protection. These foreign means cannot be looked like change for existence of efficient system of financing of environment protection, which is based on domestic sources of the means. Financial help which can be get from the international organizations or among the base of bilateral cooperation, can serve like catalyst for establishment of efficient financing system and for attracting of foreign commercial investors.
Among the recommendations of Action program for environment protection for Central and Eastern Europe, help of international organizations will be directed on:
-Help in the policy reform of environment protection,
-Smaller "win-win" investments in which are evident and economical and ecological uses,
-Phase realization of bigger investments in the environment protection.
Reform of the policy of environmental protection. Before of approaching to the bigger investments, is necessary to produce the corresponding environment for function of present system of environment protection. Like beginning steps, is necessary to do the Strategically and Action program of environment protection, which will be supported on all levels. Integrated management and coordinative mechanisms must be developed, in aim to establish the institutional frame necessary for reaching the strategically aims. In

aim of realization of these tasks is possible to get the technical help (training, exchange of experts, research work, etc.) from great part of international organizations. World bank has give the help for the preparation of National strategies and action programs in great part of the countries of Central and Eastern Europe (Bulgaria, Hungary, Estonia etc).

Smaller "win-win" investments. Through investments the means from domestic and from foreign sources, the priority need to have smaller investment, which will give economical and ecological benefits. It is shown that these investments are significantly cost efficient then bigger investments.

Phase realization of big multiyear investments. Certain ecological problems, which are present in longer period, can be solved just with investment of big means in multiyear projects. In conditions of lack of domestic means is possible to expect that from the international fund receive the means for solving the most critic problems. In Action program of environmental process for Central and Eastern Europe are given the recommendations for defining the priorities in field of environment protection and they represent the frame for foreign help for the countries of the region. In aim of efficient realization of these investments is formed the Committee for project preparation (Project Preparation Committee - PPC) which members are: Austria, Finland, France, German, Holland, Norwege, Sweden, Switzerland, Great Brittany and USA and most part of the international organizations (OECD, World Bank, UNDP etc.). This committee coordinate the activities of giving the help to the countries and organizations of country members of Central and Eastern Europe.

2.5.6.2. Regional and global programs

For solution of global-regional problems and the problems linked with transboundary pollution can expect significant means from the foreign. Solution of global ecological problems is for the cost more efficient with common activity of more countries. In that sense exist a big number of international programs linked first of all with protection of the Mediterranean sea, based on which the Montenegro can receive the means for solution of ecological problems. One of most interesting programs of this sort is Mediterranean action plan, which is formed in the aim of the protection of the area of Mediterranean sea.

Especially is significant the program Debt-for-Nature Swaps (DNS) , which represent the special form of financial help. It has double function: to easier the credit obligations of countries debtor and to attract the investments in the environment protection, which in other way didn't be possible to get.

2.5.7. Waste water management

Regarding the multiyear problems and proportionaly big means for its solution, by master paln for management of waste waters is predicted the phasal process into implementation of this solutions. This process is defined in tree level (short term, middle term and long term).

Limitation of the project realization are mostly of financial nature, and in smaller part of institutional. Financial limitation considers the republical leval and level of PEWSC.

a) Sources of financing from the espect of the Republic can be:
1.Credits for PFWS and C provided from the part of local or international banks,
2.Donations, provided from the Government or international agencies,
3Internal financing form the PEWSC (like future carryer of investment activity, and not only administrative, like untill now) from the budget for development.

Real anlysis of the situation on the Republic level and municipal level shows that financing from the budget for development and credits will be limited, because of limited credit capability of the Republic (it is estimated that in the next 5 year the amount of credit means, for the sector of waste waters of Montenegro coast can be 3-10 milion of euros, what isnt a big sum.
This limitations determine the need that the first investment phase be as posible shorter and to be limited only on the projects which improve the work of existing sewerage systems and solute the problems of endangered human health. Somewhere are predicted and bigger activities (pipelines, pump stations etc.).

b) New function is for PEWSC and is linked with providing of finacial sustainability of new build objects, should to be based on the users participation, building the costs for building and maintance of the water cost and sewerage. Limitation represent the paid position of users.
It is predicted that based on the analysis, participation of the sewerage system in waster cost be 1,00 euro in average for all six municipalities , regarding to till now 0,10-0,20 euros for households and 0,12-0,60 euros for economy. From planned cost should be financed the objects cited in 25-year investment period, and like sustainability and system managements.

2.5.7.1. Financial analysis

Phase investment plan is based on the principle the least coast -optimal use, so it be satisfied the technical conditions, priorities on the environment protection and limitation of financial resources. Sustainability of whole PIP is looked through payment position of the users, or are necesary the subventions. Justification of PIP should be affirmated through inprovement of health conditions and suport of the tourism development.
Financial analysis is linked on forming of the waste water, in which enters: the same quantity part of related costs of maintence, administration and firm buisness: maintence and management of sewerage system: costs of investment: amortization of the existing an new infrastructure.
Plan of credit participation, donations and own financing is given into Table Credit conditions, supposed in the economic analysis are especialy favorable(soft loans), similar to the condition, which gives European bank for reconstruction and development (ERDB) and World bank (IBRD).

Table 7.: Financing in the sewage sector

	Phase I 2004-2008	Phase II 2009-2018	Phase III 2019-2028
Credits	50%	75%	75%
Donations	45%	15%	0%
Budget of the PFWS and S	5%	10%	25%

Analysis of the posibility of financing, is addopted the sugestion that: households can pay the sewerage up to 5% of monthly incomes; addopted is the amount of average income of hausehold, constated through research of households during may of 2003.year; addopted increase of hausehold incomes is 3% for year; present relation of water cost and cost (participation) of sewerage stay unchangeable during 25 years; present relation between sewerage cost of households and other users remain the same and in following planned period, like and relation of its subventions.

2.5.7.1.1. Maintence and inspection of sewage network

In aim of promotion of management and maintence of sewerage system, is necesary the regular cleaning and network inspection..Equipment for this activity should procured, and inventar of infrastructure in GIS should be used in the process of management and maintenance. Economy will be justificate, if the organization of this activity be lead on the region level. By the analysis will be included both variants (Table 8).

Table 8.: Equipment for cleaning and inspection

Variant 1			
Owners	Equipment kind	Quantity	Costs
Region	-Equipment for cleaning and inspection of the pipes of bigger diameters	One truck with the equiment	260.000 euros
	-Equipment for cleaning and inspection of the pipes of smaller diameter	One truck with equipment	180.000 euros
PFWS and S (for coastal municipalities and municipality Cetinje)	-Cisterns for cleaning of septic tanks	One cistern	700.000 euros
Total			**1.140.000 euros**

Variant 2			
Owners	Equipment kind	Quantity	Costs
Regiona	-Equipment for cleaning and inspection of the pipes of bigger diameters	One truck with equipment	260.000 euros
PFWS and S (for coastal municipalities and municipality Cetinje)	-Equipment for cleaning and inspection of the pipes of smaller diameter + Cisterns for cleaning of septic tanks	One complete	1.260.000 euros
Total			**1.520.000 euros**

2.5.7.1.2. GIS in sewerage system management

In the process of maintenence and management of of sewerage system is predicted the use of GIS, which content the base for the inventory of infrastructure. Efficient of the use of this system should decrease the costs of maintenence, accelerate the intervention in urgent cases and increse the satisfaction of the users of services.
By Master plan is predicted the central management of the systems in the region, because of that the specialized unit should equiped with proper hardwares and softwares. Approach to this unit will be have diferent users.
Development is predicted in two phases:

- Phase I is terminated in february 2004.year and during it is created the base for work: estimation of existing equipment and programms (GIS in the use), defined the needs, harwares and softwares are procured, aplications are done, software is tested through cooperation with two Public firm fo water supplying and sewerage on two pilot areas, the personal is trained.
- Phase II predict further development and includion of this program in practice of maintenence and management of sewerage systems. The aspectation is that this phase will last 2-3 year.

Costs of phase I are included into costs of Master plan. Costs of phase II are roughly estimated on 100.000 euros.Costs of the work of this regional unit (worker salaries, further collecting of the data, comunication) will be covered from the users budget of the services Unit, from budget of Public firm water supplying and sewerage.

2.5.7.2. Plan implementation

Projects in 25-year phasal investment plan are toward the priorities classify into tree phase. Plan for whole region is shown in the Table 9. Because of limitation in financing the I phase, Plan is limited on 27.7 milion of euros, what represent 10% of the value of total plan.

Table 9.: 25-year phase investment plan

Phase	2004-2008	2009-2018	2019-2028	**Total (In euros)**
	27.700.000	82.400.000	170.700.000	**280.800.000**

By the implementation of phase I will be reached following short term aims:
1.All pump stations will be in good state,
2.Almost all dangeres for population and swimer health, which cause is discharge of waste water near the beaches and in swiming water, will be removed (by reconstruction of pump stations, dsisconecting of short drains, repairing of big drains, building of new discharge in Sutomore-Bar and Kumbor-Herceg Novi.
3.Building of primary systems will be set the base for futher development of sewerage network in municipal area, where is endangered the population health because of inadequate discharging of waste water (especialy Tivat and Herceg Novi).
4.Public firm fro water supplying and sewerage will be equiped for implementation of regular maintrenence.
First phase of investment plan is in certain measure review, and the implementation is showed in the Table . Total amount of phase I is equaly distributed in 5 year, 6.6 milion of euros/year in first two year and 4.6 milion of euros/year in last two years.

Table 10. Implementation of the I phase of the plan

Year	Amount	1 2 3 4 5	2004	2005	2006	2007	2008
Equipment for cleaning and inspection	440.000	..	440.000	0	0	0	0
Development of the applications in GIS	100.000	.....	100.000	0	0	0	0
Total	**540.000**		**540.000**	0	0	0	0

2.5.7.2.1. Programm of urgent measures

Is given in table 11.
Tabela11: Short/lasting measures – list of the priorities (in euros)

Herceg Novi	Disconecting of the short drains Rehabilitation of the pump station *Total*	11.000 265.000 276.000
Kotor	Disconecting of the short drains Rehabilitation of the pump station *Total*	100.000 127.000 227.000
Tivat	Rehabilitation of the pump station and drain reconstruction *Total*	 130.000 130.000
Budva	Rehabilitation of the pump station	825.000

	Total	825.000
Bar	Rehabilitation of the pump station *Total*	392.000 392.000
Ulcinj	Collecting of the hotel complexe Velika plaža Rehabilitation of the pump stations *Total*	 240.000 452.000 692.000
Total		**2.542.000**

2.5.8. Urban solid and hazardous waste management

Enforcement of state administration in development, through Program administrative measures in Montenegro and with help of USAID and EU. Strategy of management is based on following aims:

- Economical increase, with significant influence of the private sector,
- Harmonoize of the legislation with EU standards,
- Valorization (comparative) of potentials in Montenegro,
- Improvement the standards of living, introducing of coresponding education and health system and sustainable system of social protection,
- Environment protection.

2.5.8.1. Financial and economic analysis

-Existing state. Today is the low level of the sustainability of management of solid waste, because of low level of compensation for waste disposal, old equipment, inadequat cost of service, low level of conciousness, insufficient capacities in the area of management, technic, administration, budget, planning. It is necessary strenghten of all parts of management system. Flow of financial means from government administration should be cleary defined and transparent procedure.
-Future sustainable development. In the future development is asspected the improvement of all evidented lacks, first of all on municipaly level. Especially is needed to: establish the transparent tariffs, which will cover the operative costs, costs of maintence and amortization; organize the public campaigns in aim of better information; national and EU standards must be better harmonized and real, and local municipal regulations detailed defined.
-Analysis of the lacks. Each unit of local administration and communal firm will be defined among common methodology, which include: map with draw in settlements bigger than 200 inhabitants, landfill and other significant data; organization scheme of the municipality and sewerage firm; defining of the waste sort and its producer/buyer; uniform of the environement; tariffs; neccessity for strenghten of administrative and financial capacities; evaluation of the firm profit for waste management; presence of donators; identification of the activities which lead the Government, donators, municipality or sewerage firm.
Real projection of the project is for following 20-25 year. Each municipality/sewerage firm will lead the analysis of the specific conditions. Project predict including of the

process of impact assesment on the environment, investigation of the posibilities and will of households to pay the services, socioecological strudy about the persons which collect the waste. Strategical plan will be focused on the municipal level, with open posibility of intermunicipal relations and dialouges. Its report will regard and regulatory frame.
-Institutional and regulatory structure of waste management. Point of departure for this Plan is in the constitutional statute of Montenegro, like »democratic and ecological« state. The support represent and serie of new brought laws and regulations, related for the waste problematic. New legal regulations should include essential legislative questions and obligations, and like its solution and competence, precise the terminology, bring the political decissions and aims, regulate the obligations on national and lower level, provide administrative conditions, include the NGOs, education, informing and promoting of legislative and administrative solutions.

2.5.8.2. Investments costs

2.5.8.2.1. Urban waste

• Infrastructure. Significant means are needed for the infrastructure and operative costs. One part of the costs can be pass to the private sector, which gives the services (costs of collecting, compensation for disposal, project, regulation and costs for public education), and other dont (costs of the sanation of closed dumps and other) and must be in responsability of the local organs. Private/public parthnership of local organs and private sector can be future institutional arangenment and one of the financing mechanisms.

Tabela 12.: Total costs for the equipment (in euros)
-Short/term period 2005-2009

Municipality	Spec.vechicles for taking the waste with press 20m3	Containers of the capacity 1.1m3	Containers of the capacity 5m3	Vechicles for lifting the containers	Total
Bar	405.000	299.866	183.389	90.000	978.255
Budva	270.000	452.344	100.296	90.000	912.640
Herceg Novi	405.000	262.853	77.128	90.000	834.981
TOTAL	1.080.000	1.015.063	360.813	270.000	2.725.876

- Middle term period 2006-2014

Municipality	Spec.vechicles for taking the waste with press 20m3	Containers of the capacity 1.1m3	Containers of the capacity 5m3	Vechicles for lifting the containers	Total
Bar	270.000	374.147	229.429	90.000	963.576
Budva	405.000	515.141	111.551	90.000	1.121.692
Herceg Novi	135.000	307.736	90.298	90.000	623.034
TOTAL	810.000	1.197.024	431.278	270.000	

• Costs of the equiped and work of the Workshops which are predicted for each area (tree areas in the Coast):
1.Reconstruction of existing buildings.....20.000 euros
2.Tools and equipment ..... 15.000 euros
3.Reserve parts and other consumption material... 10.000 euros
4.Other ..... 5.000 euros
T o t a l..... 50.000 euros

•Costs of training for aech workshop for 6-month period .....**150.000 euros**

2.5.8.2.2. Hazardous and industrial waste

Costs predicted for technical support, investments and operative activities are given in the Table 13.

Tabela 13.: Costs for forming of the center for hayardous waste treatment for Montenegro

Cost estimation for	Unit	Amount
Conceptual plan (tretment of hazardous waste)	euro	450.000
Capital costs (tretment of hazardous waste without burning down)	euro	22.000.000
Capital costs (tretment of hazardous waste with burning down)	euro	32.520.000
Operative costs (tretment of hazardous waste without burning down)	euro/year	3.509.700
Operative costs(tretment of hazardous waste with burning down)	euro/year	2.060.000
Building the capacities (tretment of hazardous waste)	euro	1.512.000
Capital costs and training (hazardous waste of the community)	euro	350.000
Project task and study of sanation AP from Podgorica	euro	20.000
Collecting and disposal of the PCB	euro	2.000.000
Organizing of cleaner production including the pilot projects	euro	1.600.000

2.5.8.2.3. Medical waste

Medical waste will be collected into closed containers and bags, of diferent colour depending of its treatment and destination. Special medical waste will be transported in special vehicles. It will be needed the education of medical personal and forming of interdisciplinary team. Each medical institution must heva the plan of the waste management, which will give to the competent organ. Controled disposal of special medical waste on the sanitary landfills is recomended, with covering of anatomical parts on local cemetery. The cost specification is given below.

- Starting investition for short term period (for Montenegro) ..... **430.000 euro**
- Consumable means for the I year of use (for Montenegro)..... **200.000 euro**

Tabela 14.: Costs of the acquisition of new equipment for Montenegro, for short period

Equipment	Number of units	Amount (euro)
Trash basket with foot mechanism	1.000	40.000
Movable holder for bags with cover	300	48.000
Transportation carriage	80	16.000
Building of bordered area	12	180.000
Freezers	20	30.000
Rectangular container for transportation of heavy plastics	450	27.000
Special vechicles for transportation	1	50.000
Special infrastructure on the landfill area		9.000
Personal training		20.000
Campaign for public oppinion		10.000
Total		**430.000**

Table 15.: Costs of consumtion material for Montenegro for short term period

Equipment	Number units	Amount (euros)
Black plastic bags	160.000	24.000
Blue plastic bags for common waste	160.000	40.000
Yellow plastic bags 100 microns with mark for biohazardous waste	60.000	30.000
Red plastic bags 100 microns with mark for biohazardous waste	20.000	10.000
Containers for sharp objects	20.000	40.000
Closers for bags	400.000	20.000
Protective equipment for personal which collect the waste	160	8.000
Operative costs for vechicle transportation		8.000
Building and use of special cells on the landfill	400 m3	20.000
Ukupno		**200.000**

2.5.8.2.4. Mud from the installations for refining of waste waters

Short term investments is predicted only for Podgorica. Middle term investment for Coastal region begins 2008/9 and include the building of the installations for drying, solar drying and folllowing transportation capacities.

Long term investment begins 2019 and include spreading of the activities on the existing installations.
For drying of 11.480t of dry mud materia is estimated that is neccessary the amount of 2.1 milion of euros. Investments costs are given in the Table14.

Tabela 16.: Investment costs for mud treatment from PPOV in Coastal region (euro)

Municipalitz	Period		
	2004-2008	2009-2018	2019-2028
Herceg Novi	-	890.000	3.500
Tivat i Kotor	-	444.000	0
Budva	-	639.000	114.000
Bar	-	0	944.000
Ulcinj	-	113.000	0
Total	-	2.086.000	1.061.500

- Compensation for mud treatment. Payment taxes is expressed into euros/dry materia/year, and is get based on the level of mud pollution, quantity of 15.5 kg of dry materia and for head of inhabitants, and average number of family member of 3.5. For coastal municipalities montly tariff is 0.25-0.50 euros, except for Ulcinj, below 0.25euros and Budva, over 0.50 euros. Payment is predicted for middle term period.

2.5.8.2.5. Building of new sanitary landfills

Based on the population density and quantity of produced waste, geographical conditions and posibilities of transportation, on the Montenegro cost are chosen two locations for regional sanitary landfills: **Budva** , for Budva municipalities Tivat and Kotor, and Bar, for municipalities Bar and Ulcinj. For the municipality **Herceg Novi** is also predicted the ladnfill, for the municipality area. Landfills will fulfill the EU standards for the landfills and will content the installation for recycling, installation for the compost and installation for the mud treatment. Inter municipality landfill Budva hasnt been analysed, because isnt be posible to reach the agreement for the landfill location. Study of feasibility, projecting and building of this ladfill will be done with suport of World bank (project MESTAP).
Estimated are the invesion costs for building the ladnfill in total and for the period of use for 5 year are given in the following tables. In the amount arent included costs for the Bar landfill, because the World bank will inance these landfills, and the means are already avaiable (including the costs of production of the impact on the environment).
Accepted costs of the production of the Study of feasibility are 200.000 euros per landfill.

Table 17.: Investition costs for building of new landfills in Montenegro (in euros)

I phase of building activities for 5-year waste disposal	**23.520.000**
Total costs	**61.110.000**
Temporary needs for making 6 Study of feasibility	**1.200.000**

Table 18.: Costs of building the landfills for first five years (in milion of euros)

Landfill	Surface ha	Bruto capacity m3	Total investments	Investments for first 5 year	Additional costs	Costs of the first 5 year
Bar	4.00	500.000	0.00	0.00	0.00	0.00
Herceg Novi	3.60	990.000	5.40	1.32	1.03	2.35
Total	7.60	1.490.000	5.40	1.32	1.03	2.35

2.5.8.2.6. Existing dumps

In the following tables are given the costs of functioning, sanation and investments in frame of functioning of existing dumps.

Table 19.: Costs of functioning of the existing dumps in Coastal region(in euros)

Location	Name	Receptive office	Heavy transportation vechicle	Complete for communication	Transfet to the regional landfill	Amount
Herceg Novi	Dugunja	1	1	1	Herceg Novi	268.750
Kotor 1	Vrmac					
Kotor 2	Tresnički mlin					
Kotor 3	Lovanja III					
Kotor 4	Metkova voda					
Tivat 1	Krabovac					
Tivat 2	Karlando					
Tivat 3	Lovanja I					
Tivat 4	Lovanja II					
Budva	Petrovac					
Bar	Volujica					
Ulcinj	Kruče	1	1	1	Bar	271.450

Table 20.: Costs of sanation the existing dumps in Coastal region (in euros)

Location	Name	2004-2008	2009-2018	2019-2028	Amount
Herceg Novi	Dugunja	49.952	376.908		426.860
Kotor 1	Vrmac	377.472			377.472
Kotor 2	Tresnički mlin	203.598			203.598
Kotor 3	Lovanja III	176.145			176.145
Kotor 4	Metkova voda				
Tivat 1	Krabovac		263.713		263.713
Tivat 2	Karlando				
Tivat 3	Lovanja I				
Tivat 4	Lovanja II				
Budva	Petrovac				
Bar	Volujica	131.771	386.068		517.839
Ulcinj	Kruče	11.130	140.999	85.300	237.429
TOTAL					**2.203.056**

Table 21.: Costs of functioning of the existing dumps in the Coastal region (in euros)

Location	Name	2004-2008	2009-2018	2019-2028	Amount
Herceg Novi	Dugunja	318.702	376.908		695.810
Kotor 1	Vrmac	377.472			377.472
Kotor 2	Tresnički mlin	203.598			203.598
Kotor 3	Lovanja III	176.145			176.145
Kotor 4	Metkova voda				
Tivat 1	Krabovac		263.713		263.713
Tivat 2	Karlando	62.000			62.000
Tivat 3	Lovanja I				
Tivat 4	Lovanja II				
Budva	Petrovac				
Bar	Volujica	131.771	386.068		517.839
Ulcinj	Kruče	282.580	140.999	85.300	508.879
TOTAL					**2.805.456**

2.5.8.2.7. Recycling

Short term investment costs for proposed scheme of the recycling are given in the Tavle 20. Costs of the investments into recycling yards are from about 50% (for year 47%), collecting of the waste for recycling about 40% (for year 46%), and recycling of shot and building material abotu 10% (for year 8%).

Table 22. Investment and costs for a year for waste recycling, short term, for Montenegro

Activity	Amount (in euros)	Amount for a year (in euros)
Collecting of the waste for recycling	3.444.249	1.294.809
CAS system	4.361.953	1.316.350
Recycling of building material and shot	880.000	216.843
Total	**8.686.202**	**2.828.002**

Middle term investment costs for waste recycling are given in the Table 21. In total sum, collecting of the waste for recycling represent about 90% of investments (for year 56%), shot recycling about 7% (for year 10%), and in all about 3% (for year 35%) of investments in the recycling yards.

Table 22. Investment and costs for a year for waste recycling, middle-term for Montenegro

Activity	Amount (in euros)	Amount for a year (in euros)
Collecting of the waste for recycling	5.345.891	2.078.629
CAS system	180.000	1.316.350
Recycling of building material and shot	440.000	325.343
Total	**5.965.891**	**3.720.322**

2.6.IDENTIFICATION OF CRITERIA FOR EVALUATION OF EFFECTIVEVESS

2.6.1. Public informing

Timely availability and use of the informations about the enviroment contribute to the bigger efficiency of public participation in the process of bringing of decisions about the things from the importance for the environemtn, strenghten of the consciousness abotu the environment, and better environment.
Right on timely and reliable information abotu the environment state and activities which influence on that state, are defined by the Contitution of the Republic and Law about the environment. In accordance with that, Ministry of environment protection and physical planning inform the public about data of the environment by web page on the Internet.
Approach to the public with easy accesible and reliable informations increase in accordance general democratic development and is understood like important prerequisite of use of free approach to the society principle, included into state policy of environment protection. That understand the right of citizens into process of bringing the decisions. Positive effect will be reflected on the contractor, who will be stimulated to use the cleaner technology.
Even, present state of the public consciousness isnt on the satisfactory level. By the following addoption of new legal regulations, harmonized with EU standards, is

regulated the public question in bringing the decissions (public discussion), availability of the informations, obligation of informing, public participation etc.
For the policy of the strenghten of public consciousness are competent the Ministry and municipalities. Dialogue and availability of the informations are significant factors, because that is the only way of including the public and its influence on finding the permanent, sustainable solutions, acceptable for all interested parts..Bacause of the instutilization of this activity, is suggested that in the Ministry are determined the personal competent for campaign of strenghten of public consciousness. In cooperation with local administrative organs will be provided the security of getting the informations to the key interested groups: tourism, educative establishment, NGOs, media, rural comunities.
So the municipalities should undertake the activity for implementation of the public education and campaign about strenghten of the consciousness about significance, availability and use of informations about the environment, like the higher priority. Promotive campaigns should make posible the including of other local authority organs, retail trade and small economy. The education on the school level is significant.
Free approach of the public to the informations and reports related with the environment and participation in the process of bringing the decissions are built into EU standards, among the serie of the regulations: Directive of the European Council abotu impact of some public and private projects on the environment 85/337/EEC, from 27.06.1985.,and 97/11/EC, from 3.03.1997., Directive 2001/42/EC, from 27.06.2001., Convention of the information approach, Public participation in bringing the decisions, and Inspection in equity of the things of importance for the environment (Aarhus) etc.

2.6.2. Public participation

One of the essencial factors of succesfuly implementation of the principles and aims of the sustainable development is full participation of the public into process of bringing the deccisions. For the harmonization of economic, social and ecological aims of the sustainable development strategy, except the participation of the policy and science, is neccesary the participation of the public, especialy in the process of bringing and evaluation of the decisions. In the proces of forming the decisions, from its preparation to the realization, is important the integration of the diferent interested groupsIcluding of the public in the earlier steps of forming the development strategy provide the satisfaction of the needs of great part of the population, by which is realized the principle of democracy. In the same time is decreased the conflict of interests, affirmate the mutual relationship and community of actions, what provide the better conditions for the aim realization.
By the public participation are reached the following aims:
-Is opened the political area for operators of civil society,
-Is affirmated the culture of freedom of the approach to the informations,
-Provide the active participation of diferent public groups in to legal porcesses of the Ministry of environment protection and physical palnning,
-Linking of the diferent operators of the environement,
-Activate the part of the operators of the environment toward means of public informing,
-Whole system of environment protection is improved.

These aims will be reached by the use of the following measures:
-Inter resources cooperation in the implementation of the mutual projects, ,
-Introduction of the regular working meetings of the Ministry of the environment protection and physical planning and NGOs, and other interested groups, toward the neccesity,
-NGOs integration in the preparation of the strategical documents and regulations,
-Transfer of the public functions in the NGOs (ecological informating center),
-Lacing of the web pages of the Ministry of the environment and physical planning in one recepient place,
-Training and informating the carryer of public service on all levels abotu the right in access to the ecological data,
-By the preparation of the instructions for getting the ecological informations.

2.6.3.Ecological education and rising of the consciousness

In the process of strenghten the consiciousness, ecological education is on all levels of education and all years, based on the principle of long term, permanent education is from crucial importance.
Main ecological problems in the Europe and the world, like the problems of the climate alterations, biodiversity, environemtn, human health, quality of living, natural resources, waste and similar, and is addopted the vision of the Republic of Montenegro development, define the basic aims of the ecological education in closer future:
-Improve the general knowledge about the environment and the significance of the sustainable development,
-Introduce the concept of the sustainable development, like integral part of the development policy,
-Provide the system and infrastructure for the support of the existing ecological programms, its relation and development of new one,
-Include the ecological programms and activitis into exsiting network and develop the new one.

Reaching of the mentioned aim will provide the following measures:
-Determination and strenghten of the inter-resorce cooperation (Ministry of the environment and physical planning, Ministry of culture, Ministry of science, Ministry of tourism),
-Preparation of additional ecological contents and its integration into educative programms of natural and social sciences on all levels of the education level,
-Defining the contents for transfer of public functionsfrom the area of education and training, on official and non official forms,
-Development of the programm of the ecological workshops,
-Preparation and abetment of the special web pages with complete activities form the field of the education and training.

2.6.4. Non-government organizations

Non-government organizations (NGO) are one of the form of public organization. Through its work are done the significant participation of the public into preparation, implementation and evaluation of the strategical documents, laws and decissions.
Non-government organizations, like organized form of civil society, have accent part into area of environment. It represent the common interest of associations of the people of diferent profesions, experiences, education, what make posible the wider look on the problem, the diversity of the ideas, approach and proposed solutions. By that is strenghten the legality in the procedure of the preparation of strategical documents.
Purpose of the use of ecological non-gevernment organizations is to contribute to the application of the principles of the environment protection and sustainable development on all political levels of decisionVery important and responsible area of its activity is realized through the influence in the process of bringing the policy and regulations which are related to the environment protection and nature in general.
Afiramtion of the responsibilities and purpose non-government ecological organizations in Montenegro is vverified through serie of succesful actions of this sector of civil society, first of all in prevention of building the power plant on the river Tara, what will bring to the sinking of the part of the canyon, which is under UNESCO protection, then in the process of the solution if the problem of solid waste disposal , protection ofthe ird associations on the Skadar lake and serie of smaller actions. Succesful action in these projects afirmate and inspire the public participation and strenghten of its consciousness, so this form of organization is become very popular and vital in Montenegro. In domestic condition through this form of organization is done the most efficient informing of the public about the things related with protection of the environment and sustainable development. It can be constated that the idea of the non-government organization is completely afirmated in Montenegro, like alternative movement of wide front. The wider action of NGOs is realized through point on ecological problems, initiation of its solution, preparation of diferent brochures, guides, propagande, educative materials and similar.
Government of the Republic Montenegro is regulated the relation toward NGO and numerous projects of these organizations are financed through concurses financed from the Budget.. Development of the cooperation of the State and NGO in field environment protection is in permanent raise. This is neccessary and long-term process, in which the State should make avaiable:
-Conditions for the NGOs for the realization of its participation function,
-Expansion of the parthnership of the State toward local societies, other ministries, university and other participations subjects,
-Mutual understanding in the process of cooperation in the preparation and addoption of significant documents, which must take into consideration the provisions of the Arhunske convention, especialy that regulations about all necesary informations, significant for the document preparation, in right time and totaly including the public in the process, enough long period for individual phase in the course of the preparation and adoption of the documents, review of the NGOs opinions and suggestions and cleary explanation in the case of non-adoption.

-Alternation of general climate and way of conduction related on the NGO participation, with whole respection of the principles of diversity and integration, and suporting the process of democratic cooperation, based on mutual confidence.

In aim of strenghten the actions of ecological NGOs, should predict following measures:
-Determine the additional funds for cofinancing the activities of ecological NGOs,

-Determine the cooperation on interministry level,

-Regular maintenence of the meetings of the Ministry for environmental protection and ecological NGOs (year, semi-year or by need),
-Fallow up of the active informing of the Ministry about its activities among web page, bulletin etc.

2.7.PROGRAMME SUPPORT ELEMENTS

regular and temporal network of monitoring should include all data and informationsa in each areas discuted in NAP. Making the conditions for forming the efficient of monitoring in Montenegro in full activity. Till now conditions are not adequat, especialy in domain of regulation implementation. List of pollution substances in water and air exist, and the programms of monitoring, but its realization is on unsatisfied level. Especialy is unsatisfied the implementaion of the regulations which regulate the obligation of the object/source of pollution to do the control and the way of own emission. The more efficient control of the work and coordination of the diferent elements and subjects of monitoring will be realized by forming the Agency for the environment. Former system has shown like inadequat in sence of organization and optimal use of data, technical and science potentials and avaiable purpose financial measns. On that way will be confined the competence in the environmental field, what is now »narrow throat« in this area and provide the functionality of the system.
In course of the process of bringing the documents which regulate the strategy of sustainable development in Montenegro, which finance the UNEPMAP, and which include and indicators of the environment and of sustainable development
Today exist several systems of the indicators for the environment and the sustainable development:

1. OECD indicators (OECD, 1993),
2. Indicators of the sustainable development UN Comision for sustainable development, which bring the contents of report abotu the sustainable development
3. Indicators of the European Agency for the environment, which serve for the preparation of the report about the state of environement in European Union and join memebers (EEA,1996),
4. Indicators of the Mediterranean comision for the sustainable development, for monitoring related with realization of the MAP aims in mediterranean region and Barcelone convention for the protection of the Mediterranean sea. (UNMSCD). On the regional level, implementation of NAP may be followed throughfollowing indicators:

INDICATORS OF THE ENVIRONEMT

State and alterations in the environemtn

Water

1. Treatment of waste water
2. Quality of water part

Air

3. Emission of sulphur dyoxide
4. Emission of nitrogen oxides
5. Frequent overcross of the permited values for the concentration SO_2
6. Frequent overcross of permited values for ozone concentration

Ozone and climate changes

7. Emission of the gasses of greenhouse

Ground

8. Implementation of "nitrate" directive

Waste

9. Porduction of urban waste

Building in the requests for the environemntal protection in the policy sector

Agriculture

10. Use of the agens for the plant protection
11. Use of mineral fertilizators

Energy

12. Use of final energy
13. Production of the energy from recovering sources

Human health

14. Quality of drinking water
15. Quality of the swiming water

INDICATORS OF THE ENVIRONEMT

State and alterations in the environemtn

Water

16. Treatment of waste water
17. Quality of water part

Air

18. Emission of sulphur dyoxide
19. Emission of nitrogen oxides
20. Frequent overcross of the permited values for the concentration SO_2
21. Frequent over cross of permitted values for ozone concentration
22. Ozone and climate changes
23. Emission of the gasses of greenhouse

Ground

24. Implementation of "nitrate" directive

Waste

25. Porduction of urban waste

Building in the requests for the environemntal protection in the policy sector

Agriculture

26. Use of the agens for the plant protection
27. Use of mineral fertilizators

Energy

28. Use of final energy
29. Production of the energy from recovering sources

Human health

30. Quality of drinking water
31. Quality of the swiming water

INDICATORS OF SUSTAINABLE DEVELOPMENT

Economic activities and sustainable development

Pesticides use

32. Fertilization use
33. Discharging of the industrial waste waters

Environment

34. Relation of collected and treated waste waters
35. Treatment of industrialwaste waters
36. Alternation of using the ground
37. Alternation of using of agricultural ground
38. Swamp areas Cost of management of protected area
39. Urban waste
40. Industrial waste
41. Rations of separate waste collection
42. Collecting of urban waste